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Students with Disabilities Use of Online Learning Accommodations in Higher Education

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This is to certify that the doctoral study by

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Walden University
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Abstract

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By

Marcus Anderson, Jr.

MA, Lamar University, 2014

MBA, University of Phoenix, 2007

BS, Southern University, 2005

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

Special education researchers and practitioners have increasingly demonstrated that disability accommodations may afford students with disabilities (SWD) enhanced opportunities for academic success. However, disability accommodations have primarily been designed and delivered within the context of the traditional classroom settings in higher education. This basic qualitative study explored how students registered with disability services describe access to online learning accommodations in higher education. Two research questions were created: exploring accommodations in online learning that students perceive as contributing to their academic success and understanding accommodations that students perceive as essential to overcoming existing barriers contributing to their academic success. Universal Design for Learning was used to frame the study. Purposive sampling was used to recruit 13 SWD using online accommodations. Interviews were conducted via Zoom to collect relevant data to identify key themes emerging from the participants' responses. The themes identified through the six-step thematic analysis process were positive assessment, negative evaluation, applied accommodation, and knowledge gained via experience. Findings from this study will have positive implications for societal change by identifying how SWD perceive accommodations in online learning. The study has the potential to create positive social equity, which takes into account system inequalities to ensure everyone in a community has access to the same opportunities. Understanding SWD and their desired resources will assist faculty in determining how to facilitate student success in online learning. The study findings support the need for more time on tests and assignments. The reflections gathered will assist SWD with the tools to achieve academic success.

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Dedication

I would like to dedicate my work to my wife and kids who stood with me on completing my doctoral journey. I had to take weekend time away from my family to complete my doctoral work. I thoroughly appreciate my family support.

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Chapter 1: Introduction to the Study

The National Center for Education Statistics (NCES) estimates that about a 10th of higher education students have documented disabilities and require special education support (NCES, 2021). A growing body of literature shows that as more higher education institutions shift to online classes postpandemic, students with disabilities (SWD) will require close support in their studies to transition from brick-and-mortar classrooms to virtual classrooms (Bear et al., 2021; Grant, 2021; Parsons et al., 2021). The Disabilities Education Act (IDEA) defined learning accommodations as allowing a change in one of the following categories: timing, formatting, setting, scheduling, response, or presentation (IDEA, 2019). The disabilities accommodation concept under IDEA is limited mainly to traditional brick-and-mortar classrooms, where students often get a separate location to tape-record lecture notes or receive extended timelines during examinations (Abreu et al., 2018; Alamri & Tyler-Wood, 2017).

Considering the COVID-19 pandemic, higher education institutions shifted their learning to online or e-learning platforms (Gullo, 2021; Hernández & Barberà, 2021; Yadava, 2021). As more higher education institutions shift their courses online to mitigate the COVID-19 pandemic, it is possible that many of the traditional accommodations that SWD need in brick-and-mortar classrooms are no longer relevant (Gullo, 2021). Alternatively, the traditional accommodations may be inaccessible as institutions shift from face-to-face learning in the classrooms (Benmarrakchi, & El Kafi, 2021). As such, there is a potential knowledge gap in the extant literature in that while

SWD access various accommodations in traditional classroom settings, there is a paucity of research about how specific accommodations have changed in the online format as more students enroll in higher education online classes. The purpose of this study was to explore how students registered with disability services describe access to online learning accommodations in higher education.

In this study, I explored how higher education students registered with disability services describe access to online learning accommodations in higher education. Students registered with disability services academic success rates in online courses are at a disadvantage compared to their peers without disabilities (Disability Office Counselor, personal communication, September 10, 2021). This could be due to the challenges SWD experience accessing and using appropriate online accommodations. Existing accommodations are primarily limited to brick-and-mortar settings with little consideration for online learning (Yamagata-Lynch, 2019). The implication for positive social change as a result of this study is inclusiveness for students seeking online accommodations. I explored how this social change influences students' use and need for accommodations. Through this study, I found that specific accommodations that higher education institutions should implement to facilitate successful online class completion for SWD. I also explored potential cognitive barriers SWD encounter while navigating the online course platform.

In this introductory chapter, I detail the background of the study, identify the problem statement, the purpose of the study, and outline the research questions. I also

explain the conceptual framework that I used to guide this study and the nature of the study. I also give the definition of terms, assumptions, scope and delimitations, limitations, and significance of the study. The chapter concludes with a statement on the implications for positive social change.

Background

A growing body of literature has shown that disability accommodations in higher education may afford students with special needs enhanced opportunities for academic success (Foster, 2020; Grant, 2021; Kent et al., 2018; Norris et al., 2020). IDEA clarifies that SWD up to age 21 should access accommodations including presentation, response, scheduling, setting, formatting, or timing (IDEA, 2018). Previous researchers have primarily explored the topic of disability accommodations within the context of traditional classroom settings. SWD often have difficulty staying on task, concentrating, or adhering to schedules (Berry, 2017). Disability accommodations, therefore, are used to enable students to access learning material with the personalized time needed to think, process, and respond (Berry, 2017).

Most of the disability accommodations available to SWD in higher education are largely designed to be used by learners within the brick-and-mortar settings (Yadava, 2021). There is a paucity of literature postpandemic in which researchers have examined whether higher education institutions have considered shifting accommodations such as extended time, course content formatting, or exam scheduling in virtual classrooms (Basham et al., 2020). The number of higher education SWD in online courses continues

to rise, necessitating the need by faculty and their institutions to address this emerging online accommodation problem (Basham et al., 2020).

Every year more SWD join higher education institutions (Safer et al., 2020). Students receiving online learning accommodations entering higher education institutions may be entering at a disadvantage. These learners experience challenges due to limited changes in accommodations to reflect learning shifts in online settings (Grimes et al., 2017; Pfeifer et al., 2020). Education policymakers have formulated guidelines to assist SWD to address these challenges, such as Section 504 in the Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA) of 1990 (ADA, 1990).

Based on the legal provisions under Section 504 and the ADA, disabled persons are guaranteed reasonable accommodations in higher education to ensure equitable access to coursework and enable success (Safer et al., 2020). Higher education institutions find that providing accommodation for SWD improves grades and enhances graduation rates (Kent et al., 2018). A 2018 report by NCES reported that approximately 64% of students with learning disabilities (LD) graduated from a higher education institution (NCES, 2019). In 2019, the higher education graduation rates among SWD were 51.3% compared to 71.7% among SWD (NCES, 2019). Higher education SWD are also three times more likely to drop from their programs than their peers or twice as likely to delay their graduation or program completion (NCES, 2019). These findings show that SWD are underperforming compared to their peers without disabilities. In this study, I examined

how the accessibility of online accommodations has been met in online learning or virtual classrooms.

As more emphasis is placed on learning online, there are concerns among students who use disability offices on whether learning institutions have relevant measures to facilitate access to online accommodations (Basham et al., 2020). These students may consider evaluating how their accommodation needs will be met given increased enrollment in online virtual classrooms (Schiopota, 2021).

My goal in undertaking this study was to explore how SWD perceive the shift to taking more classes online has affected their use and need for accommodation. This study is essential to identify specific accommodations that SWD consider to having led to successful online class completion. By underscoring what students identify as cognitive barriers to accessing online accommodations, I developed recommendations to enhance accessibility and accommodation use in online virtual classrooms for SWD.

Problem Statement

While research has been undertaken on the nature of accommodations in the brick-and-mortar classroom, little is known about how the need for accommodations has changed in the online format among SWD in higher education. Research on the topic shows that with the outbreak of the COVID-19 pandemic, most higher education institutions closed their brick-and-mortar classrooms and relied on online learning for their students (Basham et al., 2020; Gatto et al., 2021; Schiopota, 2021). Formerly, learning institutions provided accommodations in line with the Individuals with

Disabilities Education Act (IDEA; Coleman, 2018; Delaney & Hata, 2020). Under

IDEA, SWD (up to age 21) should be availed of accommodations that facilitate an

equitable platform for accessing and learning content (IDEA, 2020). Despite its definition

of accommodations and specification of the age of students who should access related

help, IDEA fails to specify how higher education institutions should implement

accommodation programs to meet the individual needs of learners. With the high growth

in e-learning in higher education, many of the traditional accommodations' students need

in the brick-and-mortar classroom may no longer be appropriate or are only accessible

directly by the student (Gatto et al., 2021; Mabus et al., 2020). As a result, this poses a

current gap in the research about the nature of accommodations in the traditional

classroom settings and how higher education institutions are implementing them in

virtual classrooms to meet the online learning needs of SWD. This is a knowledge gap

regarding how the need for accommodations has changed in the online format among

SWD.

As higher education institutions increase emphasis on online classes, there is a

need to explore accommodations in online learning that higher education students

perceive as contributing to their academic success. There is also a need to explore how

SWD perceive how the shift to taking more classes online has affected their need and use

for accommodation (U.S. Department of Education, 2020). I identified the need for this

study based on concerns such as lower completion rates for SWD in online classes shared

by the higher education disability offices (Schiopota, 2021). Additional barriers

confirmed by the disability office at community colleges were the need for assistance to enroll and access online learning accommodations (Gatto et al., 2021; Mabus et al., 2020). This study is critical because it includes valuable information to higher education institutions as they move forward in providing support for SWD taking online classes. It is essential that the students have this knowledge when seeking appropriate disability accommodations in online settings.

Purpose of the Study

The purpose of this study was to explore how students registered with disability services describe access to online learning accommodations in higher education. To understand this phenomenon, I conducted a basic qualitative study to collect data from SWD who have lived the experience of using online academic accommodations. I explored what accommodations in online learning higher education students who are registered with the disability student services perceive as contributing to their academic success and what accommodations students perceive are needed to overcome existing barriers contributing to their academic success. Findings from this study may be used to inform practices for online learning accommodations by recommending approaches to address identified challenges to facilitate the academic success of higher education SWD.

Research Questions

I created two research questions for this study:

Research Question 1 (RQ1): What accommodations in online learning do higher education students who are registered with disability offices perceive as contributing to their academic success?

Research Question 2 (RQ2): What accommodations do higher education students who are registered with disability offices perceive are needed to overcome existing barriers contributing to their academic success?

Conceptual Framework

The conceptual framework that I used for this study was the universal design for learning (UDL). UDL was developed by the Center for Applied Special Technologies (CAST) in the 1990s (CAST, 2011). As it applies to the field of special education, UDL is a promising approach to meeting all students' needs effectively through enhanced accessibility (Rogers-Shaw et al., 2017). In this study, accessibility refers to every student's ability to perceive, engage, understand, interact, and navigate technology, regardless of software, device, or product, without barriers (Rogers-Shaw et al., 2017). UDL is not limited to finding a universal way to teach all SWD. Instead, the goal of UDL is to use applicable teaching methods to eliminate barriers to learning. UDL focuses on building flexibility that may be adjusted for every student's needs and strengths. UDL conceptualizes knowledge through student-centered foci emphasizing three key constructs: engagement, representation, and expression.

Engagement requires the identification of ways to motivate students and sustain their interest in learning. In line with this study, engagement emphasizes giving SWD the

autonomy to access assignments relevant to their academic goals. Engagement ensures learning institutions create opportunities for students to explore, thereby making learning more enjoyable (Ehlinger & Ropers, 2020). Access to relevant accommodations may be achieved by availing learning materials in more than a single format. In the case of SWD, this may be achieved by providing a worksheet along with hands-on learning, a video showing how to solve an example problem, or transcripts and captions to accompany audiovisual materials (Smith et al., 2020).

Expression focuses on giving students more than a single way of interacting with the learning material, thereby allowing them to share what they know. An expression among SWD may be facilitated through giving oral exams, making a video, or giving tests that include various question types such as multiple choice and extended answer options (Weis et al., 2020). As applies to the study, the UDL framework is used to understand important accommodations in online learning that students registered with the disability services perceive as contributing to their academic success. UDL is used to understand how to create flexible and inclusive learning strategies that support applicable methods, curriculum, design, and resources to support the needs of students who are registered with disability services (Tobin et al., 2021).

Identifying specific accommodations that SWD need would further enable them to overcome existing barriers to successful online completion. I applied UDL in this study to ensure higher education administrators and tutors consider learner variability, thereby establishing desired learning goals in curriculum delivery (Basham et al., 2020).

These approaches align with meeting changing student needs in light of the growing shift to taking more classes online. In Chapter 2, I describe further the UDL framework.

Nature of the Study

I conducted a basic qualitative study to address the research questions. Qualitative research is informed by the need to conduct in-depth data analysis from participants and understand the problem under study (Merriam & Tisdell, 2015). Qualitative data is used by the researcher to capture the lived experience of participants, their attitudes, opinions, and personal perceptions about the problem (Merriam & Tisdell, 2015). In this study, I focused on higher education students enrolled in disabilities services. I recruited students in the United States enrolled in disabilities services at their attending higher education institutions to share their lived experiences with online learning accommodations. I encouraged students to identify potential barriers and facilitators to these accommodations. A basic qualitative study was appropriate for this research because I was able to encourage students who are registered with the disability student services in higher education across the United States to share their firsthand experience with the accommodations. By using a qualitative study, researchers collect in-depth information about the phenomenon under study (Merriam & Tisdell, 2015). Through thematic analysis, I used student responses from semistructured interviews to identify key themes related to the following: accommodations in online learning that contribute to students' academic success and existing barriers to successful online completion.

I used purposive sampling to recruit 13 SWD who have used online accommodations in higher education. I used inclusion and exclusion criteria to recruit relevant students for the study. Upon giving their informed consent, I contacted the students who expressed interest in the study via Zoom to discuss the details and plan a scheduled interview session. I collected data using Zoom audiovisual platform. I recorded the interview sessions after asking permission and informing participants that their responses would be recorded. I verified and edited transcripts from Zoom, coded the transcripts using synonyms, and used the transcripts for thematic analysis to identify key themes emerging from the interview responses.

Definitions

Accessibility. The term accessibility in this study refers to every student's ability to perceive, engage, understand, interact, and navigate with technology, regardless of software, device, or product, without barriers (Rogers-Shaw et al., 2017).

Americans with Disabilities Act (ADA) of 1990: The ADA Act was formulated in 1990 and advances the rights of persons with disabilities. The rights protection includes accessing the same employment and education opportunities as persons who do not have disabilities. The ADA further prohibits any acts of discrimination against persons who have disabilities from being admitted to learning institutions (Americans with Disabilities Act of 1990, Pub. L. No. 101-336, 104 Stat. 328 (1990).

Assistive technologies. Assistive technologies are systems, equipment, or products used to enhance working, learning, and daily living for persons with disabilities (Terras et al., 2015).

Cognitive Barriers. These are physical or immaterial obstacles that hinder, prevent, or delay access to online information (Rogers-Shaw et al., 2017).

Disability: ADA defines disability as a mental or physical impairment that substantially limits a person or a major life activity (ADA, 1990).

Disability accommodation. A law-mandated act that provides qualified students with disabilities equal opportunities for participation and access in education (ADA, 2008).

Disabled student: A learner who has a mental or physical impairment that substantially limits their major life activities (ADA, 1990).

Distance learning. Distance learning is learning through lectures that are given to students through broadcast or taught through the Internet without students being present in class (Otter et al., 2013).

E-learning. The learning process is conducted via electronic media, typically on the Internet, and is used interchangeably with online learning (Yadava, 2021).

Individuals with Disabilities Education Act (IDEA): IDEA was originally passed in 1975 to ensure every person with a disability has access to suitable public education, and within the least restrictive setting (Individuals with Disabilities Education Act, 20 U.S.C. § 1400 et seq. (2010).

Online learning. The education process takes place over the Internet and is used interchangeably with e-learning in this study (Rogers-Shaw et al., 2017).

Virtual classroom. As applies to this study, a virtual classroom refers to online learning and teaching environment where students and teachers present course materials, interact and engage with each other in sharing knowledge (Smith, 2020).

Assumptions

Assumptions are self-evident yet unverifed truths that are taken into consideration during research (Merriam & Tisdell, 2015). I made multiple assumptions in this study. First, I assumed that students recruited into the study were honest when sharing their experience of accessing and using online accommodations. Second, I assumed that insights that I collected during this study were an accurate representation of the current situation regarding access and use of online accommodations. Third, since the interview responses were based on self-reported experience, I assumed that shared feedback accurately reflected individual experiences without selective bias, attribution, or exaggeration.

Scope and Delimitations

Delimitations refer to characteristics that limit the scope of the study and serve to define the boundaries of research (Bryman, 2017). Delimitations are often within the control of a researcher, and they include objectives, variables of interest, research questions, the population of research interest, and conceptual framework. In this study, I delimited the research to the use of online accommodations by first-year higher education

students. Further, I delimited the study to higher education students who were registered with the disability services department with online learning accommodations. I investigated a national or widespread problem that is not limited to one school in the United States.

Limitations

Limitations are inherent to the method and design used, which the researcher has no control over and can result in a potential bias in findings (Creswell, 2017). I used a basic qualitative study to explore students' experience of online learning accommodations. The first limitation was the possibility of finding undergraduate students who were enrolled with disability services who were willing to participate in this study. The second limitation was using a small sample size that could make it challenging to ensure the transferability of the findings. To address the bias, I established trustworthiness through use of an audit trail, records of the data analysis process, and the use of in-depth methodological description to provide a comprehensible record of how I collected and analyzed the data. I discuss these issues further in Chapter 3.

Significance

The results of this study may impact online accommodations among SWD. First, insights from past studies show that most focus on disability accommodations designed to meet the needs of students in traditional classroom settings (Benmarrakchi & El Kafi, 2021). With the increased uptake of virtual classrooms, there is a need to understand measures higher education institutions have taken to facilitate online learning

accommodations among SWD. The shift in disability accommodations to online settings is an under-researched phenomenon (Grant, 2021; Norris et al., 2020). In this study, I addressed potential challenges identified during my personal communication with the disability office in Los Angeles regarding low completion rates and difficulties accessing online accommodations among these students. I addressed this knowledge gap by exploring how students who have identified with the disability services department perceive the shift to taking more classes online and its impact on their use and need for accommodations.

By conducting this study, I illustrated specific accommodations that SWD perceive to have contributed to their academic success. The study findings will have a potential implication for positive social change because I identified suitable online accommodations higher education institutions should provide to students who enroll for disability services. Increased access means increased graduation rates for students registered for online learning accommodations and increased employment opportunities.

There is a paucity of insights on challenges and barriers disabled learners experience when accessing online accommodations (Gatto et al., 2021). Insights drawn from this study will be essential in identifying potential cognitive barriers SWD encounter with navigating the online course platform post-pandemic as more higher education institutions enroll students in virtual learning. By identifying these barriers, I created positive social change for education practice on areas higher education institutions should improve to ensure increased access and inclusion of SWD.

Summary

In this chapter, I presented the background to this study and the motivation for undertaking this research. I discussed the problem statement and the rationale for the identified problem, noting that despite past studies showing that disabled students may experience lower academic success than nondisabled students, there has been limited research exploring how online learning accommodations may be used to close this gap. The purpose of the study was to examine how the need for accommodations has changed in the online format among SWD.

In this chapter, I discussed the research questions that I addressed in this study. I used the UDL framework as the basis of this study's conceptual model and discuss this further in Chapter 2. I presented the basic qualitative study based on semistructured interviews to collect relevant responses for this study. I also detailed the definition of key terms, assumptions, delimitations, and limitations of the study. The next chapter includes a synthesis of the literature on online learning accommodations.

Chapter 2: Literature Review

Research is scant about how the need for accommodations has changed in the online format among SWD. As such, the purpose of this study was to explore how students registered with disability services describe access to online learning accommodations in higher education. To understand this phenomenon, I conducted a basic qualitative study to collect data from SWD who have lived the experience of accessing and using online academic accommodations. I will use the findings from this study to inform implications for online learning practice by recommending approaches to address identified challenges to facilitate the academic success of higher education SWD.

Initial literature findings show that disability accommodations have been limited to traditional classroom settings and align with the IDEA definition. IDEA stipulates that disability accommodations should allow a change in categories related to setting, formatting, timing, and scheduling for students up to age 21 (IDEA, 2020). As more higher education institutions shift their courses and learning models online postpandemic, there is a need to examine how the needs of SWD have been met in the online environment (Gatto et al., 2021; Grimes et al., 2021). In this study, I collected relevant information to understand how higher education students registered with disabilities services describe access to online learning accommodations.

In this chapter, I aimed to present a synthesis of studies on the topic and identify key themes related to online learning accommodations for higher education students. My specific focus was limited to detailing the literature search strategy that I used to collect

relevant resources on online learning accommodations. I presented the conceptual

framework, the UDL model, which anchors this study. I presented and discussed key

themes identified from the studies related to online learning accommodations and SWD

in subsequent sections. I concluded the chapter with a summary of the key findings

obtained from the literature synthesis.

Literature Search Strategy

A literature search strategy to research articles about online learning

accommodations for higher education SWD included predetermined inclusion and

exclusion criteria to ensure articles were relevant. I limited all the inclusion criteria to

articles published between January 2017 and February 2022. All articles I used in this

study were published in English and I limited them mainly to the primary topic of online

learning accommodation and higher education or higher education SWD. However, for

conceptual references, I selected a few articles selected before 2017 to provide the

context of the conceptual background.

I extracted the articles used in this study from academic databases: key among

them was ERIC, ProQuest, EBSCOhost, and Google Scholar. To identify relevant articles

for the study, I used different phrases and keywords, or combinations based on Boolean

search criteria, on the four academic databases. Some of the keywords I used in the

iterative search process included *students with learning disabilities* AND *disabled*

students AND *higher education students with learning disabilities* AND *higher education*

students with disabilities AND *higher education students using accommodations* AND

academic success rate. Additional phrases also included *college students with disabilities* AND *online learning accommodations* AND *c higher education disabilities services* AND *disabilities accommodations for college students*.

After I identified relevant articles, I used a selection criterion to ensure they met the predetermined criteria. I focused the evaluation criteria on perusing the articles' titles and abstracts. I shortlisted the articles with a similar focus on *online accommodations* and *disabled students* for further assessment before using them to conduct the current literature synthesis. I discussed the selected and identified articles thematically (i.e., by focusing on common themes that emerged from past literature studies). In cases where there is little current research, considering that the topic of online accommodation post-pandemic is still at its nascent stages, I used the insights to recommend further research on the topic. With few conference proceedings and dissertations on online learning accommodations, I used the surveyed literature to identify potential knowledge gaps and inform the need for further research.

Conceptual Framework

The UDL framework was the basis of the conceptual model for this study. Insights from the literature show that UDL includes a set of principles created to provide teachers with a structure to develop curriculum instructions to meet the varied needs of all students (Edyburn, 2020; Griful-Freixenet et al., 2021). My review of the past literature shows that UDL principles serve to guide inclusive classroom instruction and accessible course materials (Murphy, 2020). The Center for Applied Special Technology

(CAST) postulated that UDL framework is anchored on three principles (CAST, 2011a). These three constructs include: (a) multiple methods of representation aimed at giving students various ways and methods of acquiring information and building knowledge; (b) multiple means of student action and expression aimed at providing students alternative ways of demonstrating concepts they have learned; and (c) diverse modes of student engagement to tap into students' interests, challenge them aptly, and motivate them to learn (CAST, 2011a). I used UDL's three core principles to underpin this study.

The three UDL principles are critical to curriculum planning and development, particularly for learners with disabilities. Researchers and educators use the three principles to address essential components of curriculum planning for educational experiences, involving how to motivate and support learners (engagement), how to communicate content (representation), and how to demonstrate and assess learning (action and expression; Dickinson & Gronseth, 2020). The UDL principles help in identifying barriers and maximizing learning experiences (Dickinson & Gronseth, 2020). Ultimately, their incorporation in curriculum planning and implementation produces knowledgeable, motivated, strategic, purposeful, and effective learners capable of working towards and achieving their learning goals (Dickinson & Gronseth, 2020). UDL is applicable in creating opportunities where students demonstrate their learning in multiple ways, including oral and visual presentations, instead of only written assessments (Valarie, 2020). To ensure learners' educational experiences are structured and outcome-oriented, teachers should connect UDL's guidelines and principles to key

learning theories about multiple accommodations for all learners (Dickinson & Gronseth, 2020). Through past literature research and analysis, I have ascertained that UDL framework is fundamental when applied to this study to examine ways to eliminate barriers to online learning, especially for SWD who are seeking online accommodations.

UDL has been developed over the last 4 decades. UDL framework can be traced from the universal design (UD) movement of the 1990s (CAST, 2011b). Initially, the term *universal design* was postulated by architect and designer Ron Mace, at the Centre for Universal Design at North Carolina State University (Burgstahler, 2008; CAST, 2011c; Murphy, 2020). UD was initially defined as a design of environments and products to be usable by all people, to the greatest extent possible, without specialized design or adaptation (CAST, 2011a). The impetus of the UD was the passage of the Americans with Disabilities Act (ADA, 1990). During its inception, UD was popular among designers and architects who aspired to make city streets and public buildings accessible for all persons in the United States (Edyburn, 2020; Rose & Meyer, 2002; Rozeboom, 2021). The focus by the designers and architects in using UD was to ensure equitable access to resources for disabled and nondisabled citizens.

During the early implementation of UD, three critical insights emerged, further informing the need for UDL framework. First, adaptation and retrofitting in access to public buildings and city streets could have been avoided if designers had considered issues of accessibility from the beginning (McGuire et al., 2006). Mace recommended the need for ideal designs for diverse audiences. The primary feature of UD is that there

should be proactive features in buildings "to accommodate a varied range of human diversity" (McGuire et al., 2006, p. 173). Second, there should be modifications to the built environment, such as entry ramps, automatic doors, and universal-height drinking fountains. These modifications are useful to many people, not just individuals with disabilities (McGuire et al., 2006). Third, disabilities have little to do with individuals' shortcomings but more to do with environmental barriers. Environmental barriers obstruct a person's ability to participate fully and function effectively in society (McGuire et al., 2006; Rose & Meyer, 2002). The UD was considered suitable for removing unnecessary barriers.

In its early application in design and architecture, Mace envisioned UD as a model to promote inclusive environments accessible to the widest number of people, including those with disabilities. A good example are the mothers who use baby strollers and wheelchair users who use curb cuts in the sidewalks. The UD intended to promote proactive designs for inclusion. In 1998, Orkwis and McLane (1998) reported that UD may be highly valuable when applied in the education field. By 2002, CAST reiterated the importance of UD in the education sector, referring to it as the universal design for earning (UDL; Rose & Meyer, 2002). Specifically, this shift in UDL framework publication reflected the CAST mandate from creating assistive technology for K–12 education, toward considering appropriate curriculum to support learners from multiethnic backgrounds (Edyburn, 2020). There was a growing approach toward promoting inclusive environments accessible to SWD from multiethnic backgrounds.

Over the years, UDL has been rooted in the idea that diverse classroom settings require diversity in instruction (Glass et al., 2013). In line with student diversity, the faculty should be able to make systematic modifications to traditional instruction using the three UDL principles (Glass et al., 2013; Griful-Freixenet et al., 2021). In modern higher education classrooms, UDL is necessary to meet the dynamic needs of diverse students (Dell et al., 2015). Additional studies have also explored the application of UDL in facilitating curriculum development and culturally relevant pedagogy for higher education students (Dell et al., 2015; Glass et al., 2013). These insights from past studies further emphasize show that UDL is essential in promoting the needs of students from minority settings.

The significant role of UDL has been reported in the Higher Education Opportunity Act (HEAO) of 2008. For example, besides being applied to enhance the needs of culturally diverse students, the HEOA of 2008 echoed the importance of UDL in the education sector (Mock & Love, 2012). Specifically, the HEOA includes language recommending the application of UDL in higher education classrooms (HEOA, 2008). For example, the HEOA postulates that the UDL is a scientifically valid framework for guiding educational practice to promote student knowledge and skills. In the process, UDL keeps students engaged and reduces barriers in accessing relevant instruction (HEOA, 2008). Considering its effectiveness, UDL has been used in arts education to inform curriculum content and facilitate better pedagogy for all learners (Glass et al., 2013). UDL principles have been key to creating online course content to enable

education faculty members to reach out to higher education SWD and learners who increasingly use mobile devices to connect to college (Tobin, 2014). These findings show the growing application of UDL framework to proactively design lessons that address learner variability while ensuring increased student retention.

Various academic disciplines continue to apply UDL, including special education settings. For example, research by Dickinson and Gronseth, (2020) applied UDL to improve medical students' access to online education during the COVID-19 pandemic (Dickinson & Gronseth, 2020). By viewing the design of remote learning opportunities through the UDL lens, researchers aimed to remove barriers to learning during the pandemic by focusing on three areas: approaches to assessing learning through available distance learning technologies, expansion of the means that information is communicated, and ways that learners are supported and motivated. Dickinson and Gronseth research was based on interview responses with 14 students, where the data findings from the research proved to the researchers that UDL positively impacts understanding relevant areas to improve in special education practice when transitioning from brick-and-mortar settings to online environments (Dickinson & Gronseth, 2020). UDL framework is essential in proactively anticipating learner variability and in redesigning an education system to meet the diverse needs of students with learning disabilities.

In higher education settings, the UDL framework has been central to building a model of teaching and learning that is equitable, inclusive, and guides the creation of

accessible course materials. Through a quantitative study, researchers attempted to

examine social and professional investment in UDL development for learning in higher

education (Xie & Rice, 2020). Researchers conducted semistructured interviews with 11

participants working on faculty development programs. Findings from the interview

responses showed that UDL may be implemented to eliminate barriers from the physical

and online learning environment to meet the diverse needs of students. In online settings,

key obstacles faced by SWD included study materials not available in electronic format,

PDF files without any real text making it difficult to search, uncaptioned videos, and lack

of enhanced texts or small text fonts (Xie & Rice, 2020). Through UDL, teachers and

faculty may anticipate potential challenges and create solutions to eliminate such barriers

(Xie & Rice, 2020). However, providing solutions to these problems presents universal

benefits as the same obstacles are often encountered by students who possess different

learning styles, whose native language is not English, or those who use the latest

computer technologies (King-Sears & Johnson, 2020; Xie & Rice, 2020). I can conclude

that using UDL is fundamental in higher education settings because of its potential to

benefit many students.

UDL framework is relevant to the study of online accommodation among SWD.

As applied to this study, the UDL framework is used to redresses and addresses the

primary barriers to learning among disabled students. The choice of the UDL framework

in this study was to eliminate the one-size-fits-all and inflexible curricula often delivered

in the traditional brick-and-mortar classrooms (Tobin et al., 2021). Using UDL in this

study helped me present a proactive structure for addressing methods, design, curriculum, and materials to support the needs of all students in online settings. The application of UDL is accomplished by considering learner variability at the outset. Such an approach would help establish desired learning goals in educational operations (Basham et al., 2020). Some of the learning goals include acquiring learning materials, pedagogical practices, professional development opportunities, and the adoption of online systems.

In line with UDL principles, using this framework in this study will help teachers understand multiple strategies to present learning material or deliver content. For example, UDL may be used to enhance instruction using modifications such as role-play, music, case studies, field trips, educational software, and hands-on activities depending on the target SWD (Edyburn, 2020; Griful-Freixenet et al., 2021). Additional modifications that may be used in online learning that may be unavailable in traditional classroom settings include e-books, manipulatives, realia, PowerPoint presentations, podcasts, and videos tailored to meet individual student needs (Wang et al., 2019; Yadava, 2021). UDL may also be used to inform the formulation of diverse learning styles to facilitate instruction delivery both orally and in writing to engage students visually and auditorily (Xie & Rice, 2020). For example, UDL may be used to inform teachers to consider using large visual aids for charts, graphics, and slides to ease access or perception of learning content (Weis et al., 2020). In summation, I can state that such an approach would be in line with the three UDL principles of using multiple methods: multiple means of student action, expression, and engagement.

Accommodations and Students with Disabilities

This section is used to present key findings from research on accommodations and college SWD. Insights from studies identified six key themes related to the topic. These themes included the following: (a) online higher education courses and students with disabilities, (b) conceptualization of online accommodations, (c) disabled higher education student learning, (d) higher education students with disabilities and academic success, (e) online learning accommodations, (f) extended time accommodations, and (g) disabled students benefits. The subsequent subsections present a literature synthesis of these themes and discuss how they apply to online learning accommodations and academic success for SWD.

Online Higher Education Courses and Students with Disabilities

Additional studies explored online learning accommodations among SWD. A cross-sectional study based on 261 survey responses by Terras et al., (2020) showed that in the last decade, there has been substantial interest and focus on online courses compared to the early 1990s. The researchers established that higher education students with attention deficit hyperactivity disorder were most negatively impacted by their disability. In contrast, those with chronic health impairments and visual impairments appeared to be least impacted in the online learning environment (Terras et al., 2020). These findings can be used to emphasize that inclusive and individualized approaches for accommodating students in online programs are critical to supporting the development of the learner.

The enrollment rate in online courses has grown exponentially in the past years. According to the United States Department of Education (ED), a surge in online student enrollment has created a new opportunity for students who are often marginalized when they attend traditional classrooms (ED, 2019). Notably, researchers have acclaimed online learning courses to provide social and academic benefits that serve the unmet needs of learners with special needs (Grimes, 2017; Showers & Kinsman, 2017). For example, Berry (2017) conducted qualitative research that explored the importance of building a community in online higher education classrooms for learners with special needs. Berry (2017) study involving 15 higher education student participants receiving online accommodations was used to show that students felt learning provides technological and pedagogical alternatives to face-to-face classrooms, thereby enhancing their sense of belonging and active engagement (Berry, 2017). Growing application to online courses implies a potential increase in the number of students seeking online accommodations.

Studies have attempted to explore how SWD describe and experience their education in online settings. Wolpinsky (2014) explored student experience in online courses and identified that it influenced their successful course completion. The researcher used purposive sampling to recruit six students (Wolpinsky, 2014). Analysis of interview responses showed that SWD face barriers imposed by society, that voice is needed to deconstruct barriers, and that disabilities are a form of human variation. Wolpinsky (2014) data findings showed that the most significant barriers resulted from

institutional-related challenges. There is a need to address these hurdles to improve the success and positive outcomes of SWD in online environments.

Further, Brierton et al. (2018) conducted research to compare traditional settings and online courses in terms of their impact on student engagement, discussion, and performance. The researcher employed a quantitative study and recruited 163 SWD to examine traditional and online course programs. Correlation results showed that students who enrolled in online courses were more inquisitive, engaged, and had a high learning interest in online courses than in traditional face-to-face settings (Brierton et al., 2018). Brierton et al. (2018), concluded that online learning significantly contributed to student engagement than learners in traditional courses. Similar observations have been reported in past qualitative studies on higher education students' access to online accommodations (Chaeruman & Maudiarti, 2018). An important insight from the surveyed literature is that students who choose online courses experience an improved learning environment based on flexible scheduling and pacing of classes.

Online platforms may be used to improve student outcomes. Through asynchronous tools, students with special needs improve their social skills when enrolled in online courses compared to traditional classrooms (Francescucci & Rohani, 2019). For example, Dahlstrom-Hakki et al.'s (2020) study found that SWD performances in assessments of conceptual understanding were slightly better following asynchronous discussions despite the students' preferences for synchronous discussions. The results of this study point to the complex nature of online interactions for SWD. That particular

study highlights the interplay between students' engagement and information processing. SWD performed dismally in synchronous discussions that required faster processing of back-and-forth conversations (Dahlstrom-Hakki et al., 2020). Synchronous methods can be even more challenging for SWD when it involves new, unfamiliar, or specialized terminologies. SWD often struggles with synchronous discussion's greater demand for filtration of multiple audio and video streams while attending conversations (Dahlstrom-Hakki et al., 2020). Although asynchronous discussion increases students' engagement due to a higher social presence, Dahlstrom-Hakki et al. (2020) found it can significantly challenge SWD because of the additional processing demands. The need for research to determine whether the SWD dismal performance in synchronous discussions results from the additional potential cognitive loads is critical.

Irrespective of the benefits of online courses, some researchers argue that online courses present potential challenges (Huang et al., 2020; Lowenthal et al., 2017). For instance, some students fail to complete their degrees and drop out of online courses early (Palvia et al., 2018). These researchers express that increased access to higher education due to online courses does not necessarily translate to increased accessibility to assessment, learning activities, and course content (Huang et al., 2020; Lowenthal et al., 2017). As discussed in the next section, SWD who find online courses less accommodating are likely to drop out before graduating, necessitating ensuring their learning aligns with their needs.

Conceptualization of Accommodations

Researchers have used learning theories and frameworks in past studies to understand online learning accommodations. Some of the critical conceptualizations of student accommodations have been examined through the behaviorism lens by Ivan Pavlov, cognitive by Noam Chomsky, Boom's Taxonomy, and social constructivism by various education theorists such as Jean Piaget, John Dewey, and Lev Vygotsky (Picciano, 2017). Additional learning theories for online education include the community of inquiry model (Garrison et al., 2000), connectivism theory on massive open online courses (MOOCs) (Siemens, 2004), and online collaborative learning (Harasim, 2012). However, existing theories of online learning are primarily limited to examining how the virtual environments foster student accommodation, mainly among SWD (Norris et al., 2020). Thus, more research is needed to address these shortcomings and understand how virtual settings may help learners enrolled in accommodation services.

Existing studies on higher education SWD have been applied in examining students' perceptions of virtual learning. Findings from interview responses shared by nine higher education students showed potential challenges they experience in accessing online accommodations (Picciano, 2017). Available online accommodations are limited in providing relevant resources and curricula (Picciano, 2017). Available theories are primarily generalized in explaining knowledge creation in online settings but fail to explain the concept of online learning accommodations for SWD, and how, if at all, such

accommodations contribute to their academic achievement (Lorbeer, 2020). In light of

these findings, a key concern is that the extant literature fails to address the concept of

equality and equitable access to learning. There is a paucity of research when considering

SWD who need online accommodation to meet their special learning needs.

Researchers have attempted to understand how online accommodation contributes

to student performance. The concept of online learning accommodations refers to

alterations in the way tasks are presented in online learning settings to allow SWD to

complete the same assignments as other learners without disabilities (Lorbeer, 2020). The

use of accommodations does not give SWD a better competitive edge over other learners,

and neither does it change test measures (Yu et al., 2016). The concept of online

accommodations has aligned with social inclusion and social justice meant to achieve

equality (Terzi, 2019). In the light of the equality principle, researchers have attempted to

formulate a theoretical framework focused on the field of special education with a key

focus on improving access to accommodations (Shearer et al., 2019), facilitating a

participatory approach, and promoting equality in online learning (Lorbeer, 2020). For

example, students with attention deficit disorder would require different online

accommodations, such as timing accommodations, focused on providing an extension of

the allocated time and frequent breaks. In summation, such accommodations serve to

meet the individualized needs of SWD.

There has been growing consensus among scholars and practitioners on the need

for additional research to understand the challenge students with special needs face,

especially in online virtual settings. Proponents argue that such an approach would help bridge the gap in past online education theories by helping understand the importance of online alterations for SWD while maintaining similar learning outcomes or curriculum content for all learners (Giri et al., 2021; Mira et al., 2021). Another qualitative study was conducted to examine how higher education institutions may help support SWD (Yu et al., 2016). Researchers used semistructured interviews to collect relevant responses from 13 SWD (Yu et al., 2016). Findings from the interview responses showed that students advocated the need to make relevant adjustments for SWD to create a level playing field (Yu et al., 2016). The researchers reported that students felt that barriers and hurdles often restrict them in society, not by their differences or impairments.

In online learning, the potential hurdles that SWD encounter are related to content presentation, time allocation, response, setting, and test scheduling. Milman (2018) linked these hurdles to learning processes and online accommodation strategies, varying from one institution to another. It is essential for teachers, particularly those who teach SWD, to familiarize themselves with best practices and procedures about online accommodations for SWD. In this, a learning community that feels welcome and supported will be cultivated (Milman, 2018). The most fundamental aspect is incorporating differentiated instruction, comprising online alterations, modifications, or enhancements that promote equality for SWD (Milman, 2018). The fundamental aspect is providing online alterations, modifications, or enhancements that promote equality for SWD. Disability is often a notion that society imposes on impaired persons, resulting in

their exclusion and isolation from equitable access to learning resources (Giri et al., 2021; Mira, 2021). Such hurdles hinder adequate access to online resources like learning materials, curriculum, and applicable pedagogical practices among higher education students who need online accommodations.

Disabled Higher Education Students' Learning

SWD largely require tailored support and help to address their learning needs within higher education institutions. Literature on the topic shows that SWD need more intentional and purposeful support (Pang & Jen, 2018). A significant component of this support is understanding an individual learner's needs in their disability classification (Terras et al., 2020). While every student with a disability should have their learning needs to be understood individually, Terras et al. (2020) recommend situating a student's learning context within the empirical evidence established for every classification of disability. Models for accommodating students in higher learning should classify the learners by the type of disability. Similar observations have been made where a primary component to ensuring SWD have a successful higher education experience is to understand their learning needs within their specific disability classification (Rosenberg et al., 2017). While every disabled higher education student anticipates accessing tailored support to meet their unique challenges, more help might be achieved if the learning process is designed to meet their needs (Shoepe et al., 2020). Such an approach could be used to ensure that SWD have the same advantage as learners without disabilities in the learning process.

Studies have been undertaken to assess the challenges learners who seek online accommodations experience. A cluster analysis of Chinese higher education students revealed that disabled learners are characterized by multiple hurdles in accessing equitable learning (Tao et al., 2020). Available research approaches often fail to formulate programs and strategies committed to filling the knowledge gap regarding equal access to learning opportunities (Lipka, 2019; Sun et al., 2017). SWD learning has been shown to be different from mainstream learners without disabilities (Wang et al., 2019; Watts et al., 2017; Yamagata-Lynch, 2019; Yip et al., 2019). Disabled college students' voices about access to online learning accommodation have hardly been heard (Lin & Gao, 2020). This poses an issue of lack of access to online accommodation in higher education.

Scholars and practitioners have attempted to examine the social experience learners with special needs experience accessing online learning accommodation. Waterfield and Whelan (2017) interviewed 17 college tutors and faculty working with SWD. Data findings from the interview sessions were used to show that failure to provide tailored needs to SWD creates a negative atmosphere where disabled learners felt unwelcome and lack a sense of belonging (Waterfield & Whelan, 2017). He et al. (2022) found that the situation was worse for SWD during the COVID-19 pandemic. The SWD experienced and reported more COVID-related challenges and concerns about online learning accommodations than peers without disabilities (He et al., 2022; Kourea et al., 2021). The need to identify obstacles hindering effective UDL implementation is critical.

Researchers have explored obstacles contributing to difficulties with the implementation of UDL principles. On their part, He et al. (2022) attributed these challenges to instructors' insufficient knowledge and understanding of assistive technologies and an insufficient understanding of UDL. To address the COVID-related challenges, Meleo-Erwin et al. (2021) recommend providing clear links to counseling services and remote instruction resources for SWD. This strategy may be used to facilitate greater access to accommodation resources among SWD (Meleo-Erwin et al., 2021). Moreover, it can be used to provide teachers with useful information on how best to teach SWD. As instructors plan and design online courses, they should consider equity and accessibility concerns, especially in diverse classrooms comprising SWD (Meleo-Erwin et al., 2021). A failure to provide these resources for SWD constitutes a failure of justice and equity in education provision.

Inclusive access to learning is key to ensuring SWD feel included and actively appreciated during the learning process. This inclusiveness in online learning is particularly significant given that education is a universal right meant to be accessible to everyone (Bravou & Drigas, 2019). Thus, Bravou and Drigas (2019) consider importing alternative methods by special education teachers as an essential strategy for engaging SWD. The authors contend that SWD should be in an inclusive and more efficient environment aligned to their needs. Using Redmond et al.'s (2018) framework for online engagement in higher learning, Cain and Fanshawe (2021) recommended reconsidering technology used to support learners with SWD. Integral to implementing this strategy is

the university instructors' willingness to recognize the diverse learning needs and commit to the ethical, legal, and moral obligations of providing students inclusive access to learning (Cain & Fanshawe, 2021). These changes will significantly impact SWD experience and performance.

Additional researchers have applied basic qualitative studies to explore learners' experiences with physical disabilities in online courses. Amanda (2019) conducted a research study that was grounded on self-determination theory focusing on relatedness, competence, and autonomy. A total of eight postsecondary students were invited to participate in the study. Key findings were used to show that students with physical disabilities experienced barriers of miscommunication and isolation (Amanda, 2019). Research should be conducted to explore whether designing proper online learning would address these barriers and create a sense of confidence and pride, positive discussions, stamina, connection to peers, and advocacy for themselves.

Foster (2020) wrote a dissertation based on qualitative case study that explored the experiences and perspectives of learners with special needs about accommodations. A purposive sample was used to select six SWD who were receiving disability services participated in the semistructured interviews. Open and axial coding was used to analyze the interview responses to identify emerging themes (Foster, 2020). Findings from the study was used to demonstrate that though students were satisfied overall with the services and accommodations provided by the higher education institutions, they lacked adequate support from some of the faculty on the importance of accommodations and

how they influence academic success in postsecondary education (Foster, 2020). These findings informed a 3-day professional development training to educate faculty on learning disabilities, understanding accommodations, and enhancing their abilities to provide support in working with SWD.

Bradshaw et al., (2020) examined what educators and personnel in higher education understand and practice concerning UDL. This study was used to examine educators' perceptions of different student populations, such as SWD (Bradshaw et al., 2020). The study sought to be used to understand barriers SWD experience in college and the challenges professionals experience when addressing measures embraced to enhance learning and teaching (Bradshaw et al., 2020). Findings from the research was interpreted to demonstrate problematic attitudes towards SWD, such as social constructs around deficit-based perspectives necessitating the need to dismantle negative attitudes towards SWD.

Supporting all students, including those with disabilities, can be complex for educators. Although technology can show promise for differentiated instruction for supporting SWD, online instruction can be used to exacerbate academic challenges (Flanagan & Morgan, 2021). This is particularly challenging for SWD when the instruction fails to incorporate appropriate academic accommodations (Flanagan & Morgan, 2021). For this reason, Flanagan and Morgan (2021) recommend the application of UDL principles to online learning. Teachers must consider barriers to inclusive access in the implementation of instruction in order to achieve UDL principle's benefits in

online learning. Educators should include accessible learning accommodations for all students before and during instruction (Flanagan & Morgan, 2021). Bradshaw et al.'s (2020) study showed that teachers believed UDL improves approaches to teaching and learning by designing a curriculum that helps give all students an equal opportunity to succeed. Teachers and personnel in high education also held that UDL helps creates effective strategies in how students access online learning material, engage with it, and show what they learn (Bradshaw et al., 2020). Purposeful changes to the online instruction models and accommodations can be applied to reduce barriers, ensuring learning is accessible to all learners.

Among SWD, assistance and accommodation have been limited to being perceived as self-supporting. Providing favorable status and equal access for all SWD and their non-disabled peers can be used to strengthen connections as opposed to when SWD are treated unliterary. Equal status implies that learners with and without special needs engage in productive behaviors with everyone, as opposed to learners without disabilities helping their peers with special needs (Norris et al., 2020; Picciano, 2017). Educators may further learn from these findings the importance of providing needed support to SWD to develop a positive mindset in higher education environments. Providing relevant help to match SWD specific needs would create a sense of belonging and lead to productive outcomes in their academic performance.

Higher Education Students with Disabilities and Academic Success

Higher education SWD contribute to the diversity on campus; however, these students face many challenges. Researchers have reported that the academic success rate has been limited for higher education SWD (Cornell, 2020; Fleming, 2017). Up to 27% of the higher education population has some form of cognitive disability (Giri et al., 2021; Norris et al., 2020). SWD continue to be a quasi-integrated characteristic of diversity, as opposed to other areas of diversity, within higher education (Cornell, 2020). Approximately one-third of college students whom self-reported learning disabilities received accommodations (McGregor et al., 2016). This shows that there are two-thirds of students not receiving accommodations, yet the students self-reported a learning disability. Further research is needed to develop strategies for mitigating potential challenges these students experience.

Online learning has been linked to the growing success and productive outcomes for learners with special needs. Despite the positive outcomes, however, the findings have been mixed, and there is still a lack of consensus on the impact online learning has among disabled students (Giri et al., 2021; Mira et al., 2021; Ziegler, 2020). When enrolled in online classes, learners with special needs tend to post better academic results such as test scores and assignment completion (Mira et al., 2021). Learners who are disabled tend to achieve lesser academic outcomes than those without special needs (Giri et al., 2021). The researchers noted that online learning might have some limiting impact on SWD, thereby hindering their optimal performance prospects.

There is a lack of consensus in the literature regarding the use of accommodations and students' academic outcomes. Qualitative studies have been conducted to understand how using accommodations relates to academic achievement among postsecondary students (Coleman, 2018). Online surveys and focus group discussions were used to collect qualitative information from participants. Findings by researchers showed that higher education SWD showed a significant disparity with their non-disabled peers regarding academic outcomes in accessing and using online accommodations (Coleman, 2018). Higher education institutions, therefore, need to develop measures to alleviate the disparities with respect to academic performance.

Many factors have been shown to have a relationship with academic success. Researchers have come up with findings across studies and demonstrate that SWD could be at risk for academic struggle, as well as students with less intensive academic preparation, students who are caring for dependent children, higher education students, and those from low economic backgrounds (Fitchen et al., 2014; O'Neill et al., 2012). SWD have been found to express increasing levels of loneliness and isolation than their disabled peers (Herts, Wallis, & Maslow, 2014). According to Lyman et al., (2016), students receiving online learning accommodations at the college level who optimize the use of the online accommodations demonstrate greater academic success rates. Based on these findings, it may be concluded that such challenges may cause a decrease in academic performance for disabled students, thereby necessitating tailored online accommodations to meet individual student needs.

Online Learning Accommodations for Disabled Students

Online learning accommodation refers to aiding SWD with relevant materials in higher education. Suitable accommodations help SWD to achieve the same academic performance and assignment completion level as learners without disabilities (Gin et al., 2020). The use of online accommodations does not contribute to alterations in the assignment content, examination content, or give disabled students an unfair advantage over students without special needs (Burgstahler & Russo-Gleicher, 2015). It is important that SWD receiving online learning accommodations show they may compete favorably with other learners without being limited by their disabilities (Burgstahler & Russo-Gleicher, 2015). The users of these accommodations ensure e-inclusion in the use of digital technologies to minimize or even remove potential barriers that contribute to learning difficulties (Wang et al., 2019). It may be noted that online learning accommodations are varied, and suitable modifications should be availed to meet the specific needs of each learner.

Meeting the individual needs of students require higher education institutions to address existing access gaps. Poles (2020) conducted a qualitative phenomenological study to understand the challenges SWD face in online learning settings. The researcher used face-to-face interviews to collect responses from eight participants from a higher education institution in the eastern region of the United States (Poles, 2020). The researcher findings showed the need for professional development of instructors who teach online courses. Common challenges experienced among learners included access to

materials, non-conductive learning methods, poor communication, independence, and understanding (Poles, 2020). The researcher findings showed a need for teachers to develop effective strategies to address these challenges learners experience in online settings.

Another phenomenological qualitative study by Heindel (2014) documented the challenges SWD face with online coursework. In this qualitative study, the researcher focused on examining the quality of the learning experiences and learner satisfaction of SWD in distance education courses (Heindel, 2014). The researcher used semistructured interviews to collect data from students. The researcher findings showed that students face problems accessing online materials and understanding curriculum content (Heindel, 2014). Based on the findings, potential recommendations emphasize the need for more training for instructors on how to work with SWD (Heindel, 2014). The offices of SWD services should develop a way to work with instructors and students, rather than separately, to serve the needs of learners with disabilities better.

Researchers have conducted qualitative studies to examine the standard accommodations higher education students find more effective in academics. Ziegler (2020), collected interview responses from 13 higher education students who reported that spell check software, speech-to-text, or text-to-speech were commonly used to aid in their academics (Ziegler, 2020). The researchers established that accommodations empowered students with reading problems by removing or minimizing learning difficulties, contributing to e-inclusion (De Los Santos et al., 2019). E-inclusion aligns

with the need to promote social justice and inclusion for learners who need

accommodations, including students enrolled in online classes (De Los Santos et al.,

2019). As evident from these studies, the e-inclusion approach focuses on promoting

inclusive participation and engagement of all learners who have special needs based on

identifying specific problems and the formulation of solutions based on the identified

challenges.

E-inclusion has been defined within the context of online learning

accommodation. Specifically, the concept is defined as "the degree to which online

learning contributes to equalizing and promoting participation in learning and academic

engagement" (Miller et al., 2019, p. 217). Based on the IDEA stipulations, higher

education institutions that provide accommodations should have clear guidelines that

define specific accommodations that are appropriate for learners based on appropriate

learning needs (Miller et al., 2019). Over the years, researchers have attempted to

formulate suitable accommodations for IEPs. The extant literature broadly categorizes

these online accommodations: presentation, response, timing, setting, test, and

scheduling.

Researchers have explored the standard online accommodations availed to SWD.

For example, to understand the common accommodations, researchers have used

semistructured interviews to collect responses from 14 college tutors (Miller et al., 2019).

Thematic analysis of the collected responses showed that in the three surveyed colleges,

disability accommodations are focused on enhancing curriculum presentation using large

fonts or text prints, audio recordings, reducing the number of items captured on every page, and presenting learning material via oral means (Miller et al., 2019). Timing focuses on allowing extended time allocations, frequent breaks, and flexible schedules to provide appropriate time to complete tasks (Abreu et al., 2018; Miller et al., 2019). The setting focuses on various approaches, such as administering a test in a private room or alternative test site where higher education students who enrolled in accommodations are more relaxed and freer of interruptions.

Researchers have identified that brick-and-mortar learning settings focus on administering a test to a small and manageable group setting, offering a space with minimal disruption, providing special acoustics, or lighting, or providing preferential seating (De Los Santos et al., 2019; Miller et al., 2019). In test scheduling, researchers elaborate that online accommodation focuses on administering the test at a specific time of day, allowing subsets to be taken in various orders, or administering a test in multiple timed sessions or over several days (Wright & Meyer, 2017). Finally, other forms of online accommodation may include offering reasonable alterations that students need but do not fit under the existing categories, such as providing focused or on-track prompts and providing special test preparations for higher education students below 21 years (Abreu et al., 2018; Miller et al., 2019). In the light of the above considerations, there is a growing practitioner and academic support for the need to ensure that online learning provides SWD enhanced opportunities for academic performance.

A key argument for enhanced accommodations is that SWD often experience difficulties such as concentrating, adhering to schedules, and staying on the same task for a prolonged period. Proponents argue that online learning accommodations such as asynchronous settings allow learners to access courses anytime, anywhere, and provide personalized time and learning content to meet the unique needs of each learner (Rosenberg et al., 2017). For example, assistive accommodations such as text enlargement for students with visual impairments may improve learners' learning experience in brick-and-mortar settings. However, there is a need for additional research to explore how similar accommodations may be delivered for higher education learners in online settings.

Pritchard et al. (2016) conducted a qualitative study to assess common accommodations for SWD. The researchers collected interview responses from 16 higher education administrators and teaching faculty. The researchers thematic analysis showed that common accommodations in online settings include text enlargement, audio recording, and extended time accommodations. Compared to other accommodations, extended time accommodation has been a primary online accommodation for higher education students with special needs. The extended time accommodation can be used for testing and assignments (Pritchard et al., 2016). For example, Gelbar and Madaus's (2020) study examined test accommodations used by 596 SWD in a higher learning research institution. The researchers' findings showed that extended time was used in about half of the tests despite minor variations across disability groups (Gelbar &

Madaus, 2020). The proportions of exams requiring extended time were similar across

different disability groups (Gelbar & Madaus, 2020). However, Yngve (2018) reported

that such practices depend on the student-approved accommodations. Learning

accommodations are changes related to setting, scheduling, timing, response, or

presentation of the institutional environment that allow the student to understand learning

materials (Yngve, 2018). Despite the lack of uniform accommodations across higher

education institutions, the literature shows that accommodations related to setting,

scheduling, timing, response, or presentation of the institutional environment allow the

student to understand learning materials.

Students who receive online learning accommodations and do not use them may

experience a lower academic success rate, especially when the offered accommodation is

well aligned with the disability. SWD performed better when they use online learning

accommodations than when they did not use the accommodation (Sokal & Vernette,

2017; Wright & Meyer, 2017). Students receiving and using online learning

accommodations have been found to have improved grades (McGregor et al., 2016). The

most widely offered accommodations include extended time accommodations, as further

discussed below.

Extended Time Accommodations

Extended time refers to an additional number of hours that SWD may receive

during online learning. The provision of added time assists impaired learners in

completing tasks, especially when they are unable to operate at a similar processing time

as learners without disabilities (Marteney, 2016). Despite being a commonly assigned online accommodation, the outcomes related to extended time have been mixed in the literature (Marteney, 2016). For example, some researcher's literature have shown that SWD who receive extended time show improved examination scores and performed like students who do not need online learning accommodation services (Shoepe et al., 2020). Other researchers have cautioned that higher education students who receive extended time accommodations score slightly better than non-disabled students (Safer et al., 2020). As a result, providing learners with extended time might contribute to a differential boost in their performance than SWD who do not receive similar accommodation. The researchers' findings show that extended time accommodation could slightly tilt academic success among SWD.

Researchers have also conducted systematic literature reviews to explore whether extended time accommodations impact the academic performance of SWD. An extensive search of past studies identified 37 studies related to the topic (Toutain, 2019). Analysis of the collected studies showed that extended time accommodations do not contribute to the differential boost in academic performance, grade scores, and GPA of SWD compared to non-disabled students (Toutain, 2019). In the light of these considerations, proponents of extended time accommodation argue the rationale that learners who have special needs often need to take prolonged time in completing examinations, assignments, or other academic tasks.

Previous literature has reported the impact of extended time accommodations. Insights from past higher education research and online enrollment have shown that higher education SWD may take longer to complete assessments and assignments than their peers (Cawthon et al., 2015). As a result, extended time accommodation becomes an essential measure to assist higher education learners who need learning accommodations to achieve the same academic outcome as their non-disabled peers (Cawthon et al., 2015). Students who have documented learning disabilities have also been documented to benefit from time accommodations (Geogan & Harrison, 2017). For example, if the assessment period is one hour for other learners, SWD may be assigned one and half hours to complete similar tasks due to their slower pace.

The use of extended time, in this case, enables SWD to manage their tasks and prepare to settle before completing assessments. In academic settings, such as during examinations, SWD tend to show high anxiety levels (Pedrelli et al., 2015). Being anxious might affect SWD in the timely completion of assessments since they require additional time to prepare themselves, settle down, and commence examinations (Pedrelli et al., 2015). Some SWD are provided with extended time if their disability causes them debilitating anxiety that makes them work slowly and other SWD who are not anxious but have processing issues are also provided with extended time (Slaughter et al., 2020; Waterfield & Whelan, 2017). Extended time is beneficial to students, particularly those with a disability, as it reduces the impact of their disability on their scores (Slaughter et

al., 2020). Providing these learners with extended time accommodations might help them compensate for time lost from anxiety.

Disabled Students Benefits

Researchers show that SWD who do not use the provided accommodation may have a different academic success rate than students who use the provided accommodation. For example, as higher education institutions around the country expand their courses to include online methods, educators need to understand the impact these accommodations have on the students who receive them (Foster, 2020; Grant, 2021; Kent et al., 2018). By examining accommodations across the campus, ADA coordinators at the institution and other schools will have the opportunity to understand more clearly the implications of accommodations as a method for addressing the needs of SWD.

The findings of this study will also assist other higher education institutions' disability services departments in implementing best practices to strongly encourage all students receiving services to use the accommodations (Gatto et al., 2021; Mabus et al., 2020). By examining students using the accommodations, local ADA coordinators and other schools will have the opportunity to collaborate on why students opt not to use the accommodations (Basham et al., 2020; Gatto et al., 2021; Schiopota, 2021). Ultimately, the people who will benefit most from the study will be students with qualifying disabilities who may not otherwise use resources to improve their academic success through enhanced access to learning materials.

There is growing enrollment and registration for online accommodations across higher learning institutions. For example, reports show that more SWD are entering higher education institutions (U.S. Department of Education, 2011). Additionally, more veterans are returning home and dealing with post-traumatic stress disorder (PTSD) and traumatic brain injuries (TBI) while attending college (U.S. Department of Veterans Affairs, 2017). Findings from disability research may assist in returning veterans with disabilities who attend higher education institutions while unemployment among SWD are higher. (National Council on Disability, 2020). Many higher education institutions will be able to show how veterans are being assisted.

Summary and Conclusions

The purpose of this literature chapter was to present a synthesis of key themes related to online learning accommodations and student performance. Research on the topic focuses on various accommodations such as presentation, response, timing, setting, and test scheduling. These accommodations are largely provided in traditional classroom settings, and there is research that has examined how these accommodations are being delivered in online settings. There is a need for further research to examine this topic and fill the knowledge gap regarding disability accommodations in online learning environments. Undertaking further research would help facilitate new knowledge creation related to identifying specific accommodations in online learning that higher education students perceive as contributing to their academic success. Also, there is a deficiency of consensus within the available literature on what accommodations students perceive are

essential to overcome existing barriers to successful online completion, thereby the need for this research. In the next chapter, I discuss the research methods and strategies along with collected relevant information from participants to answer the research questions.

Chapter 3: Research Method

With the outbreak of the COVID-19 pandemic, most higher education institutions closed their brick-and-mortar classrooms and relied on virtual learning for their students (Basham et al., 2020; Gatto et al., 2021; Schiopota, 2021). Before this, higher education institutions provided accommodations in line with IDEA guidelines for students aged 3–21 years (Coleman, 2018; Delaney & Hata, 2020; IDEA, 2020). While research has been undertaken on the nature of accommodations in the brick-and-mortar classroom, little is known about how the need for accommodations has changed in the online format among higher education SWD.

I communicated with the director of disability services at a higher education institution in Los Angeles and he noted that SWD have lower course completion rates. Students registered with disability services need guidance on available accommodations since they experience challenges accessing suitable online accommodation services (A. Dixon, personal communication, September 10, 2021). The purpose of this basic qualitative study was to explore how students registered with disability services described access to online learning accommodations in higher education. The central phenomenon or problem is that while research has been undertaken on the nature of accommodations in the traditional brick-and-mortar classroom, little is known about how the need for specific student accommodations has changed in the online format among SWD (Basham et al., 2020; Schiopota, 2021). Schiopota (2021) tried to minimize the obstacles of online

learning for SWD by providing online accommodations, which some students had never used prior to the COVID 19 pandemic.

I conducted a basic qualitative study to collect data from SWD who have lived the experience of using online academic accommodations in the higher education context. I selected higher education students from colleges in the United States to participate in this study. In the subsequent sections, I will discuss the research design and rationale, identify the role of a researcher, elaborate on the methodology considering participant selection, instrumentation, data collection, and data analysis. I will discuss the issues of trustworthiness and ethical procedures. I then concluded the chapter with a summary of the key aspects of the research design.

Research Design and Rationale

I created two research questions to explore how students registered with disability services at their participating higher education institution describe access to online learning accommodations:

RQ1: What accommodations in online learning do higher education students who are registered with disability offices perceive as contributing to their academic success?

RQ2: What accommodations do higher education students who are registered with disability offices perceive are needed to overcome existing barriers contributing to their academic success?

A growing body of literature shows that fewer students are enrolling in traditional classrooms as higher education institution reopen postpandemic. Most learning

institutions have opted for online learning for their students (Basham et al., 2020; Gatto et al., 2021; Schiopota, 2021). Higher learning institutions provide accommodations to SWD in line with IDEA (IDEA, 2020). Online accommodation is a national problem for most higher education SWD. The students who participated in this study came from higher education institutions in the United States.

Ontology and epistemology are the two philosophies in social sciences research (Saunders et al., 2017). Ontology is the study of the nature of reality or being, while epistemology is the study of how is a reality known or what is known about the world? (Saunders et al., 2017). However, qualitative researchers argue that there is no right or wrong when exploring the nature of existence because individuals have different opinions and perceptions about the topic under study based on their values, experience, roles, or background (Merriam & Tisdell, 2015). In this basic qualitative study, I collected and interpreted the views and experiences of students registered with disability services in higher education to understand how SWD describe access to online learning accommodations.

While positivist researchers argue that all genuine knowledge is discovered through scientifically proven methods, social constructivists hold that knowledge is socially situated and is constructed through interaction with others (Hott et al., 2021). Positivists primarily rely on scientific methods and statistics, with data objectively collected using statistical methods like survey questionnaires (Patton, 2014). The positivist research tradition is closely aligned with quantitative research. By contrast,

social constructivism holds that knowledge is independent of the participants and socially constructed through collaboration. In this study, I collected data using interviews, aligning them with basic qualitative research. Information from the interview responses helped me understand accommodations in online learning that SWD perceive as contributing to their academic success. The findings helped me to identify accommodations that students perceived are needed to overcome existing barriers contributing to their academic success.

In this qualitative study, I considered the social constructivist tradition suitable for enabling me to inquire, explore, and collect in-depth data from participants through dialogue and collaboration. As established by Saunders et al. (2017), social constructivism help researchers establish social and collaborative environions that motivate participants to detail their experiences and perceptions about the topic under study, thereby unearthing new themes about their lived experiences.

Through social constructivism, I collaborated with students registered with disability offices and collected detailed data to understand views, opinions, perceptions, and feelings learners have towards online accommodations. The views I collected were also vital in identifying specific accommodations that students registered with the disability services perceived are needed to overcome existing barriers to successful online completion. According to Merriam & Tisdell (2015), the social constructivist paradigm of research assumes that individuals do not find knowledge but rather construct it. To understand how knowledge is constructed and the meaning attached to world events, I

explored the learning accommodation phenomenon through the lens of the actors who

participate in the action as guided in the study by Merriam & Tisdell (2015). In this

study, the actors referred to higher education students registered with the disability

student services in the United States.

Role of the Researcher

As a researcher, I undertook the needed steps to complete the qualitative study.

Based on my experience in social sciences research, having undergraduate and master's

projects in special education as a profession, I was qualified to initiate and execute this

study according to the university's academic standards. I am versed in education research

and qualitative research frameworks based on my past graduate programs. I possess

relevant information in managing special education students, thereby part of the

motivation to undertake this study.

With background knowledge of curriculum development and facilitation for

SWD, I had a personal interest in ensuring improved access to learning resources for

SWD, especially as more higher education institutions shift to online virtual learning

platforms. Underwriting these considerations, it may be noted that I possessed

background knowledge key to completing this study as a researcher. Despite these

insights, I had personal views about online learning accommodations offered at a local

higher education institution where I worked.

I hold the view that higher education institutions across the country have failed to

offer sufficient support in terms of relevant disability accommodations to SWD needs,

especially in virtual learning platforms. Most accommodations like timing, formatting, and visual or audio aids were primarily limited to traditional classroom settings. By contrast, the same accommodations may not be accessible to SWD on the online learning platform. The problem has been exacerbated by a paucity of studies in the extant literature where this knowledge gap of transitioning accommodations to virtual classrooms is still at its nascent stages. My attachment and subjective opinion of the topic might have inadvertently impacted the findings due to personal bias.

To manage my bias from affecting the findings, I used reflexivity, bracketing, and ensuring the trustworthiness of the findings. I reduced bias by remaining objective during data collection, analysis, and interpretation of interview responses through bracketing. Bracketing also entails documenting key concerns that a researcher questions, comments, and observes (Merriam & Tisdell, 2015; McNarry et al., 2018). I kept a journal to help me with bracketing detailing what I wanted to do and why. I attended to what was happening during the study and ensured I remained aware of my own biases, agendas, attachments, and projections. I was able to evaluate my views about the phenomenon under study constantly. I collected data from students registered with disability offices with whom I do not have personal or academic relationships. There was no power interplay between the participants and I in this study, implying that the students were free to express their views on the topic.

Methodology

In this section, I presented the methods used to collect relevant data. I detailed participant selection, instrumentation, recruitment, participation, and data selection procedures. I also outlined the data collection procedure and the data analysis plan that I used in this study.

Participant Selection

I obtained the participants for this study from higher education students located in the United States and using Facebook. To recruit participants, I posted an invitation advertisement on several group pages on Facebook, focusing on higher education SWD who were using accommodations or had used accommodations. Institutional Review Board (IRB) suggested using social media for recruiting. I used Facebook and joined networking groups on the platform. Higher education institutions have focused on providing relevant online platforms to their diverse student population in the last decade. In addition to traditional learning settings, higher education recently used distance and online virtual course programs to reach more students who might not access lecture programs. The student population enrolled in online higher education courses includes SWD. Specifically, these learning needs include health-related or chronic impairment, physical impairment, mental health impairment (such as depression, anxiety), visual impairment, and learning disabilities. The problem under study was a national issue that requires further research.

Higher education institutions not only provide access to a very diverse community but an opportunity to learn about and conduct research. Because it is difficult to interview all the higher education students registered with the disability services, I recruited a manageable sample of 13 students to participate in the study. I used purposive sampling to select participants for this study. Purposive sampling entails selecting relevant participants who meet a predetermined criterion of importance related to the study (Patton, 2014). Purposive sampling was useful for me in identifying suitable students registered with disability offices.

I selected the participants based on a predetermined selection criterion. I limited the criteria for recruiting participants to higher education students aged 18 years or above. The participants were enrolled with the disability student services department at their higher education institution. I limited the additional inclusion to higher education students already enrolled to access online, e-learning, or virtual classes in higher education. Students who met the selection and inclusion criteria contacted me through email or phone number to be contacted for further discussion of the Zoom session. I recruited and invited the first 13 students who met the criteria and expressed interest in participating in this study.

In qualitative research, a sample size of eight to 20 interviewees is enough to reach data saturation (Bryman, 2017). The 13 participants in this study provided saturation of data. In this study, I assumed that recruiting 13 participants would be enough to collect in-depth data to identify all key information to answer the research

questions. I used the responses from all 13 participants to assist with answering all research questions.

I sent out an informed consent form and IRB approval 12-14-21-0749151 detailing how the privacy and safety of vulnerable students were sent to the selected participants. Through the informed consent form, I detailed the aims and objectives of the study and assured participants of their privacy, safety, and confidentiality before participating in the study.

Instrumentation

In qualitative study, the "researcher is the primary instrument for data collection and analysis" (Merriam & Tisdell, 2015, p. 16). I created and developed a 7-question interview guide (Appendix A) for this study to collect participant stories and experiences with online accommodations. I developed the semistructured interview questions from literature in line with UDL framework as guided by Edyburn (2020); Griful-Freixenet et al. (2021) study. UDL framework is organized into three principles: using multiple methods, multiple means of student action and expression, and diverse modes of student engagement (CAST, 2011a). Engagement is anchored on ensuring the design of online courses, and the learning environment supports students' emotional side of learning (Rozeboom, 2021). Representation is anchored on ensuring an online accommodation design that provides varied and multiple opportunities for students to access and understand course content. Action and expression are anchored on offering varied opportunities for students to demonstrate their knowledge while monitoring their learning

(Rozeboom, 2021). The UDL framework was key to the semistructured interview questions I used in the data collection process.

The interview questions (Appendix A) align with the two research questions with a key focus on understanding: (a) accommodations contributing to students' academic success and (b) accommodations perceived as necessary in overcoming existing barriers contributing to their academic success. I used the interview questions 1–5 to collect data to answer RQ1. The interview questions include asking students to share their personal information such as age and learning disability, accommodations SWD mostly request from their higher education institution, and accommodations that they consider having greatly contributed to their academic success. Students were asked to share their views on how the use of online accommodations has enhanced their learning and provided them with multiple ways to access course materials, how online accommodations have bettered their understanding of course materials, and how their learning needs are met through diverse options and choices.

Interview Questions 6-7 were used to collect data to answer RQ2. Students were asked to share potential hurdles they experience when accessing online accommodations in higher education. Students were asked for their views on specific accommodations they think are needed to overcome the identified hurdles and guarantee their academic success in the course. The participants were asked to elaborate on ways that taking more classes online has affected the demand and use of online disability accommodations.

Procedures for Recruitment, Participation, and Data Collection

I joined several Facebook groups that focus on higher education SWD who are using accommodations or have used accommodations. Many of the disability groups required administration approval to post a flyer. Some of the disability groups required a completed form and sharing of the recruitment flyer before it was approved for posting by that specific Facebook group. The study was then advertised through the social media platform Facebook using an approved IRB flyer stating the aims and objectives of the study. A purposive sampling method included finding members of the identified study population who were available to participate. The format of individual online interviews allows for student choice because it provide students with a safe alternative during the pandemic, participants do not need to travel, and "participants feel comfortable, respected, and free to give opinions without being judged" (Krueger & Casey, 2015, p. 4).

The advertisement had details about the study, including the topic, aim, research questions, and ethical issues. The IRB approval statement was noted on the flyer. Participants who expressed interest in the study used the provided email or telephone number to contact me. A screening document for criteria compliance was emailed to interested participants for completion and return. Participants had a short session on Zoom to ensure they had the infrastructure to support them during the live interview Zoom session. The first 13 participants to fill in consent forms were considered for the

study. Any additional participants were thanked for their interest and informed that the

study had been closed.

At the end of 15 days, I did not have enough participants; I join more SWD

Facebook groups (such as college alumni groups, dissertation groups, professional

groups, Facebook groups). After obtaining approval from the Facebook group, I posted

the recruitment flyer. Eight students contacted me after the second round of posting flyers

to Facebook groups. Participants who met the compliance or inclusion criteria were

contacted via email to discuss the details of the study and the interview questions.

Semistructured interviews were vital to building rapport with every participant

while achieving flexibility and encouraging students to share richer responses related to

online accommodation and academic success. I scheduled every interview at a convenient

time with students notified 48 hours before participating in the interview sessions. Each

interview session lasted between 30 and 45 minutes. The data collection process took

place via Zoom online platform. I conducted all online Zoom sessions at home in a quiet

area to allow uninterrupted data recording. The interview responses were recorded after

obtaining permission from the participants and informing them that the interview session

would be recorded. The semistructured interview questions were used to guide the

interview sessions. Some questions were rephrased to ensure participants understood the

question better.

Upon completing the interview sessions, the participants were thanked for their

time and informed that a summary of their responses would be available for additions or

changes to ensure nothing had been left out, misstated, or misunderstood. After closing

the interview sessions, I immediately completed the observation notes to ensure optimal

recall. Participants were contacted 1–2 weeks after the summary in the event of further

clarification on their responses as needed. I imported the collected raw interview data

from Zoom into Microsoft Word and edited for clarification, coded using synonyms, and

stored in a password-protected personal computer for subsequent thematic analysis.

Data Analysis Plan

Recorded data from the interview responses were imported into a Microsoft Word

document. A six-step thematic analysis process were used to analyze the interview

responses (Mertens & McLaughlin, 2018). The six-step thematic analysis process

includes familiarizing with data, generating initial codes, searching for themes, reviewing

created themes, defining themes, and reporting findings. Step 1 focused on familiarizing

myself with raw data by reading and re-reading all the transcribed texts from the 13

interviews and listening to the audio recordings. Key and interesting responses were

noted initially to capture a general trend of participant responses (Strauss & Corbin,

2015).

Step 2 focused on generating initial codes based on the three UDL principles. The

emerging codes were developed and modified as I worked through the coding process

keeping the three UDL principles in mind. After familiarizing the collected data and its

major elements, preliminary themes based on the three UDL principles were identified

(Mertens & McLaughlin, 2018). Step 3 entailed searching for themes by combining

multiple codes from Step 2 with similar messages. Key themes were formulated by splitting, combining, or deleting codes in line with the overarching themes (Mertens & McLaughlin, 2018).

Step 5 focused on naming and defining themes and identifying any potential subthemes emerging from raw interview responses. The continuous analysis was used to improve the identified themes and subthemes while creating clear working definitions. There was a unified story captured from the collected data with the key aim of answering the research questions (Mertens & McLaughlin, 2018). Step 6 finally focused on producing the final report based on vivid and compelling examples from the interview excerpts supporting the created themes, thereby answering the research questions (Strauss & Corbin, 2015).

Trustworthiness

Trustworthiness of a qualitative study refers to the degree of confidence in data, interpretation, and methods used to ensure the quality of a study (Galdas, 2017; Newman, 2018). The current section discusses the methods I used to ensure trustworthiness, including member checking, and providing in-depth methodological descriptions. The methods used to ensure trustworthiness are based on the four elements of establishing trustworthiness, including credibility, transferability, dependability, and confirmability (Lincoln & Guba, 1986). These strategies are further detailed in the subsequent subsections.

Credibility

Credibility refers to how a study accurately represents the experience of the participants (Lincoln & Guba, 1986). Credibility may be achieved using researcher reflexivity, participant stories, comments, and reflections about online accommodations (Amin et al., 2020). Other strategies that were used to achieve credibility include deep engagement, member checking, and identifying negative cases. Through deep engagement, I gave sufficient time to participants to share, document, and elaborate on their experiences to achieve data saturation. Member checking helped me increase the authenticity of the summary of the interview responses.

Dependability

Dependability refers to how research processes are reliable and consistent (Lincoln & Guba, 1986). Techniques that I used to achieve dependability include audit trails, providing evidence, presenting in-depth methodological descriptions, and precise alignment of objectives. Audit trails ensure detailed documentation of the inquiry process while providing evidence such as full interview transcripts. Careful documentation of participants' stories further ensured the dependability of my findings. An in-depth methodological description will ensure a comprehensive record of how data were collected and analyzed to answer the research questions (Lemon & Hayes, 2020).

Transferability

Transferability denotes the extent to which the findings apply to practice, policy, and future research (Lincoln & Guba, 1986). The key focus of transferability is to ensure

other researchers can corroborate the findings (Mertens & McLaughlin, 2018). In this

study, transferability is achieved through the thick description of participants. Detailed

description allows comparison of the study context with other settings (Gregory, 2019).

Sampling sufficiency would ensure recruitment of a sample size that would help assess

the study phenomenon related to online accommodations offered to students in their

colleges and how it impacts their academic success. In this study, the sample size of 13

participants was sufficient.

Confirmability

Confirmability refers to the accuracy of the data and the extent to which the

findings of a study are shaped by the participants and not researcher bias (Merriam &

Tisdell, 2015). Confirmability is developed through coding, providing evidence, and

researcher reflexivity. Coding is used to identify, name, and evaluate patterns emerging

from the interview data. Key patterns include identifying ideas, stories, phrases, and

specific terms used by participants to help understand how accommodations in online

learning contribute to the academic success of SWD (Gill et al., 2017). Researcher

reflexivity was applied to help maintain awareness about how findings expanded during

thematic analysis. Through reflective commentary or researcher positionality, I clarified

the lens through which the social world under study is interpreted. I adopted the

epistemological position where participants' responses were treated as a direct reflection

of the concrete social reality of their experience with online learning accommodations.

Ethical Procedures

The recruitment of human participants into this study raises potential ethical issues. Key ethical procedures were taken into consideration during this study. Walden IRB approval was obtained before commencing with the data collection. Additional ethical concerns associated with this study include participant privacy, information confidentiality, and data storage. The IRB form detailed measures taken into consideration to protect participants from emotional, psychological, social, or physical harm. Undertaking this study did not include exposing participants to any obvious harm.

Informed consent was issued to the participants during the recruitment process. The students knew about the study through flyers posted on Facebook. The participants were informed that they may leave the study at any time without any negative consequences. No element of coercion, inducement, or deception was used in the data collection process. Participant privacy was ensured, and personal details such as names or places of residence were not collected. All personal information was coded using synonyms to conceal their identity.

All participants who participated in the interview were assured that their responses were used for academic purposes, and a summary of the interview responses was sent to them to ensure their insights had been accurately captured. I achieved data confidentiality by storing raw data on a password-protected personal computer to prevent unauthorized access. Further, the raw data were backed to my Google Drive using a secure email for long-term secure storage. Creswell (2017) recommends the need to store

raw data for up to 5 years before permanent deletion or destruction. Using Google Drive to store my raw data ensured that the interview responses are secured and accessible in the future in the event that my personal computer is damaged or lost.

Summary

In the methodology chapter, I presented research strategies used to collect data to answer the formulated research questions. I discussed the research design based on basic qualitative study and social constructivism tradition. I discussed the rationale for the qualitative research method. In further sections, I discussed methodology issues, including participant selection, instrumentation, and procedures for recruitment and participant selection. In addition, I discussed the thematic analysis process used to identify the key findings. I addressed the issues of trustworthiness and ethical procedures that were taken into consideration. The next chapter presents the results I obtained from the interview sessions focusing on the key themes identified from the thematic analysis process.

Chapter 4: Results

In this study, I explored how students registered with disability services describe access to online learning accommodations in higher education. I asked students registered with the disability services to identify what accommodations they believe contribute to their academic success and what accommodations they think are necessary to overcome existing barriers to their academic success. Recommendations for online learning accommodations that will help SWD succeed in higher education were provided.

I will present the qualitative findings and outcomes of the study data in this chapter. My study's analysis and interpretation of its findings highlighted the procedure for collecting all data sources. In chapter 4, I evaluated how students registered with disability services describe access to online learning accommodations in higher education. In addition, I looked at the reasons that might or might not facilitate the students' success in their studies.

Within this chapter, I addressed the study issues by analyzing online learning accommodation with students registered with the disability office. The interpretation of the data took into account the participants' perspectives and contributed to the study's validity. Additionally, through the research findings, I intended to help improve online learning accommodations, which will assist SWD in increasing academic success.

Chapter 4 includes the study setting, the participants' demographics, and the process for data collection and analysis. I discussed the evidence of trustworthiness,

including credibility, transferability, dependability, and confirmability. The following research questions guided me in the data collection and analysis:

RQ1: What accommodations in online learning do higher education students registered with disability offices perceive contributing to their academic success?

RQ2: What accommodations do higher education students registered with disability offices perceive are needed to overcome existing barriers contributing to their academic success?

Setting

After obtaining research study approval from the IRB, I began the data collection process the same week by posting flyers on multiple Facebook groups. The Facebook groups all had one theme in common: students with learning disabilities in the United States. I conducted 13 semistructured interviews via Zoom. I recorded all the interview sessions. The interview questions related to students' online accommodation experience in higher education. I had some follow-up questions as well for many participants. These follow-up questions took place via Zoom and a member check via email. Two participants responded to my member check email. I transcribed all interviews verbatim and then began the coding and analysis process.

Participant Demographics

The sample size of 13 participants in this study was large enough to find students who shared an interest in the study. Creswell (2009) found that a sample size large enough can be used as a representative sampling of SWD helped sustain reliability and

validity. All participants shared their responses to this study's research questions. All the

participants were first-year SWD. I obtained 13 participants in this study. This was the

first-year experience for all students registered with the disability services office and

receiving online learning accommodations. Table 1 is a summary guide of the

participants.

Table 1

Descriptions of the Participants

Participant Code Experience	Gender	Time in Program	Prior Online Education
Student 1	Female	1st year student	Yes
Student 2	Female	1st year student	No
Student 3	Female	1st year student	Yes
Student 4	Male	1st year student	Yes
Student 5	Female	1st year student	Yes
Student 6	Female	1st year student	Yes
Student 7	Male	1st year student	Yes
Student 8	Male	1st year student	Yes
Student 9	Male	1st year student	Yes
Student 10	Female	1st year student	Yes
Student 11	Female	1st year student	Yes
Student 12	Female	1st year student	Yes
Student 13	Male	1st year student	Yes

The participant group was composed of higher education SWD in their first year of

higher education. All the research participants stated their highest academic level

completed as high school, given that they are all in their first year of higher education.

Data Collection

After obtaining research study approval from the IRB, 12-14-21-0749151, I began

the collection process the same week by posting flyers on multiple Facebook groups. The

Facebook groups all had one theme in common: students with learning disabilities in the

United States. My Walden email and phone number were listed on the flyer. Participants

sent me a private email if they were interested in the study. The consent form I created

entailed information about the study background, purpose, procedures, two sample

questions, participants' rights, benefits of the study, and participants' privacy. After

participants replied with "I Consent," I scheduled time slots for the interview session. I

selected students at a time slot, and then they responded with my Zoom link. I also sent

the participants a reminder email with the Zoom link 15 minutes before the interview

session. There was a total of 16 interested students. Out of the 16 interested, 13

participants took part in the study interview session via the Zoom platform. The three

students who did not participate in the study did not meet the criteria. All three students

sent me a private email expressing interest; however, they did not respond to my follow-

up email that included the consent form with the words, "I Consent." The interview

questions were related to students' online accommodation experience in higher education.

There were some follow-up questions as well for many participants. I imported all

interview transcripts from Zoom into Microsoft Word and then began the coding and

analysis process. I used imported transcripts and took notes in Microsoft Word to analyze

the data.

The format of individual online interviews helped me acquire a greater

geographical variety of participants because it provided students with a safe alternative

during the COVID-19 pandemic. Participants came from all across the United States, and

did not need to travel, and participants felt comfortable, respected, and free to give

opinions without being judged. I transcribed each interview session using Zoom and imported the text into Microsoft Word. Then I used my notes to ensure that I had each participant's words and avoided unknowingly imparting my own biases

The data collection process took me approximately five weeks. The length of each interview varied based on the amount of information shared by the participants and lasted between 30 and 45 minutes. I used a semistructured interview format to guide the interview sessions. I used an interview guide and asked each participant the same content to guarantee the same general information from each interviewee as we explored the use of online learning accommodations. I asked the participants if they were a current student receiving approved disability services from their school in the United States. Most participants were asked follow-up questions based on the responses.

One unusual circumstance encountered in the data collection was me not understanding a participant clearly. This was mainly due to the participant's accent. I had to ask the participant to repeat the response a couple of times. I also had to go back and listen to that participant's recording multiple times to ensure I understood what the participant was stating. When the participant did not understand the question, I repeated the interview questions a couple of times. In addition, I had to provide clarity on the interview question.

Data Analysis

In this basic qualitative study using semistructured interviews, I explored what accommodations in online learning higher education students who are registered with the

disability office perceive as contributing to their academic success. In addition, I explored what accommodations higher education students who are registered with the disability office perceive are needed to overcome existing barriers contributing to their academic success.

After conducting the interview, the recorded interview data were transcribed by Zoom and I imported the data into Microsoft Word. I then reviewed each transcript to ensure the responses were accurate. I summarized what each participant stated for the member checking process. Two participants responded to the member check. Only one added additional information to the study. The other participant just confirmed and said they were glad to be part of the study. I used the process of member checking to share and ascertain what each participant stated and gather any information that I may have missed.

I initially planned to use the NVivo software for the data analysis process; however, the time required to familiarize with the software posed an impediment to the analysis process. As a result, I completed the data analysis process by hand using Microsoft Word.

I used a six-step thematic analysis process to analyze the interview responses. The six-step thematic analysis process includes familiarizing with data, generating initial codes, searching for themes, reviewing created themes, defining themes, and reporting findings (Mertens & McLaughlin, 2018). The six-step thematic analysis process is inductive as it allowed me to use the research data to determine the themes for the study.

In step 1, I focused on familiarizing with raw data which I achieved by reading and re-reading all the transcribed texts from the 13 interviews and listening to the audio recordings. I noted the pivotal responses in transcribing a particular trend from the participants' responses. For example, a majority of all participants stated they had extended time on exams and or quizzes. In step 2, I focused on generating initial codes based on the three UDL principles. Principle 1 helped me look at multiple ways through which means of representation could be provided. Principle 2, on the other hand, helped me provide various means of expression and action. Lastly, Principle 3 dealt with providing me with multiple means of engagement. I used the principles to tackle the what, why, and how questions regarding the UDL. I developed the emerging codes and modified them as I worked through the coding process keeping the three UDL principles in mind (See Appendix D). In step 3, I generated themes by combining multiple codes from Step 2 with similarity. I formulated the key themes by combining and deleting codes in line with the overarching themes (See Appendix C).

In step 4, I focused on reviewing the themes to ensure they were relevant, accurate, and valuable to the study. At this step, if an error is noted with the themes, they are combined, split, or discarded. In step 5, I focused on naming and defining themes while identifying any potential subthemes emerging from raw interview responses. I used the continuous analysis to improve the identified themes while creating clear working definitions. I merged subthemes into themes based on the relation amongst them. In step

6, I focused on producing the final report, including interview excerpts concerning the created themes, thus ensuring that the study's research questions were responded to.

Themes

I coded and analyzed the interviews from 13 participants (See Appendix B). As a result, four themes related to the two research questions emerged. Table 2 shows the final themes for answering the research questions.

Table 2

Final Themes Answering the Research Questions

Research Questions	Final Themes
RQ1: What accommodations in online learning do higher education students registered with disability offices perceive contributing to their academic success?	Positive Assessment
	Negative Appraisal
	Applied Accommodation
	Knowledge gained via experience
RQ2: What accommodations do higher education students registered with disability offices perceive are needed to overcome existing barriers contributing to their academic	Positive Assessment
	Negative Evaluation
	Applied Accommodation

Positive Assessments

Positive assessments are affirmative statements regarding one's engagement. These assessments, I labeled optimistic and confident reactions from the participants. In RQ1 and RQ2, I portrayed an aspect of positive assessment in responses by the participants. Participants who perceived the effective use of online learning accommodations and necessary ancillary aides, such as audio recording and audio text, reported higher opinions and suggestions to allow educational achievements and classroom use of accommodations, thus bringing about positive assessment.

Negative Appraisal

Negative appraisals are in contrast to positive assessments. Negative appraisals are declarative statements or appraisals that express distressing impressions or perspectives concerning RQ1 and RQ2: reasonable accommodation upgrades,

instructional design, learning facilitation, and academic results linked with higher education experiences. This theme is anchored on codes such as insufficient specific online resources, lack of accommodation, lack of access to material, lack of audio reading materials, and anxiety levels. These subthemes I identified are denoted by the participants' negative experiences with online accommodations.

Applied Accommodations

Applied accommodations is a thematic representative detailing the participants' exposure to and interaction with online learning accommodations. I used it to imply the extent to which a participant has use online learning accommodations. Participants described their interaction with online learning accommodations in their responses. Statements that demonstrated the use of reasonable accommodations and modifications for SWD were included in this category for this research study. As with the positive assessments, RQ1 and RQ2, are associated with this topic label.

Knowledge Gained via Experience

This theme is defined as participants' use of pre-existing knowledge and comprehension. Participants were already familiar with the subject and had prior knowledge of the procedure. Having pre-existing critical information regarding the availability of resources and legally mandated rights based on anti-discrimination legislation may assist students in becoming more effective self-advocates in seeking better accommodations.

Results

Results for Research Question 1

RQ 1: What accommodations in online learning do higher education students registered with disability offices perceive contributing to their academic success? The data I used to evaluate RQ1 originated from the participants' responses. An analysis of the data allowed me to reveal several themes.

Theme 1: Positive Assessment

Many participants' responses indicated positive regard for extra time on tests and assignments. Likewise, many participants expressed that academic achievement and outcomes rely on extra time on tests and online resources being available to them. The theme of positive assessment is associated with the fact that all participants recorded at least one or more accommodations being provided to them by their school. This theme centered on the participants' positive assessments and how their higher educational institutions use these online learning accommodations to assist them in succeeding in their academics.

Theme 2: Negative Appraisal

The participants also had an unpleasant experience with online accommodations, especially concerning hurdles faced which brought about the negative appraisal theme. I used this second theme to depict participants' negative appraisal of online tools to assist them in their academic endeavors. Participant 1 and 3 stated during the second and third week of instruction, professors have not received their accommodations paperwork

showing they needed extended time on exams. Both of the participants took those assessments without extended time, which put them at a disadvantage as they both ran out of time during the assessment. Additionally, Participant 6 said,

> My computer froze, and power went out, internet disconnected while working online. Assignments had to wait until the next day. It is hard to get help online from lab tutors because they are busy, yet in person lab assistance is easier.

Theme 3: Applied Accommodations

I included the statements that demonstrated the use of reasonable accommodations and modifications for SWD in this category for this research study. All the participants used the online learning accommodations. The usage of the third theme, applied accommodations, demonstrated how SWD may have benefited from appropriate accommodations and modifications.

Theme 4: Knowledge Gained via Experience

Participants in this study were already familiar with the subject and had prior knowledge of the procedure. At least 12 of the participants had adequate knowledge of the online accommodations. For the fourth theme, knowledge gained via experience, I asked the participants their understanding of the notion of online learning accommodations and whether or not they had previously been aware of these accommodations.

Participant Responses to Research Question 1

I looked at participants' responses to answer RQ 1. RQ 1 is associated with online accommodations that the participants often request from their school. The answers among participants were adequately informative on what online accommodation they often request from their current school. The data used to evaluate RQ1 originated from the participant's responses (see Appendix B). Table 3 illustrates the participants' responses concerning their experience with the accommodations.

Table 3

Participants' Responses concerning their Experience with the Accommodations

Participants' Accommodations Experience	Number	Percentage
Previous Experience with Accommodations	12	92.3%
New Experience with Accommodations	1	7.7%

The descriptive results of RQ1 are shown in Table 4, which illustrates participants' responses regarding accommodation requests that have been available to them by their colleges. Many participants' responses indicated positive concern for extra time on tests and assignments. Likewise, many participants expressed that academic achievement and outcomes rely on extra time on tests and online resources being available to them concerning RQ1. Participant 7 stated, "Extended test time helps me pass the assignments," while Participant 11 said, "The added time helped on the assignments and exams along with the group work." Table 4 indicates participants online learning accommodations.

Table 4

Online Learning Accommodations

	Online Accommodation	Percentage
Participants Accommodations Request	Extra Time on Test & Assignments	13
	Audiobooks	1
	Personal Coach	1
	Note-taking Assistance	1
	Instructor Notes	1
Request Participants deem Necessary for Academic Success	Extra Time on Test & Assignments	12
	Online Books & Materials	3
	Audiobooks	2
	Online Group Work	1
	Tape Recording	1
	Online Tutor	1
	Multiple Test Attempts and Assignments	3

Note. The numbers = participant responses based on two separate questions. One question was what accommodations the participant requested. The other question was what accommodations request is necessary for academic success.

The participants reported receiving extra time on tests as the most recurring accommodation. Extra time on tests was common when participants pointed out the types of accommodations that resulted in their academic success. Participants stated the importance of time concerning increased concentration and understandability. Participant 7 stated, "It makes me concentrate and helps me remember the material without being rushed."

Participant 2 reported that she was new to online accommodation. After the participant registered with the disability service office, she was given priority class registration. The participant was able to enroll in courses before the general student

population as part of her approved accommodation. Apart from the Participant 2, all the other participants had previously associated with the online accommodations.

Some of the online accommodations that the participants recognized as supportive of their academic success included receiving a tutor if the need arises, the instructor provided resources, note-taking assistance, attempting tests at least twice, tape recording, additional tools and resources, and online group work. Additional tools and resources such as an e-learning platform, access to online books, and audiotapes made it possible for participants to have more studying materials that positively impacted their academic success.

An online accommodation denoted by the participants other than extra time on tests and assignments included a personal coach. Participant 6 acknowledged that she had been accorded a personal coach for her online classes based on her previous high school IEP. The institution included this accommodation for the participants' college classes. The learning coach ensured that she had a clear understanding of assignments by going through them with her. In addition, Participant 7 accommodation included a coach who went over the assignment instructions with him and clarified unclear information that he did not understand. Participant 2 noted that having a computer lab tutor enabled her academic success when there was a need.

Audiobooks was another accommodation that helped the participants ensure academic success. Participant 2 noted that he has access to audiobooks which aid reading by listening to the books' content. Participant 1 attributed her success to audiobooks

access which aided her reading by listening to the content more attentively. Some of the online accommodations that the participants recognized as being supportive to their academic success other than extra time on tests and assignments included audiobooks. Auditory learning is associated with audiobooks that impact the participants' listening capabilities in their online coursework. As described by the participants, the reasoning behind it includes better understanding, anxiety relief, and better performance. Participants appreciated access to online materials such as online books, contributing significantly to their academic success. Participants said that they were able to have text to speech with e-book and use the note-taking feature and highlight text while reading the e-book.

Note-taking assistance was another online learning accommodations many participants shared. Participants 7 and 8 described that note-taking assistance and assistive technology ensures they do not miss the online class notes, and the notes are essential when preparing for tests and exams. Participant 9 online accommodation request is receiving access to the instructor's notes. The instructor issued notes and the participant could use the notes during tests and when working on assignments. Participant 9 stated that the notes assist with studying for exams, and the notes are valuable during assignments which ultimately contribute to his academic success. Participant 5 was delighted by the note-taking assistance accommodation as she stated that it enabled her to have more reading time. A note-taking assistant took notes during live Zoom sessions and share them with her. During the recorded Zoom sessions, the participant stated it was

great to have the option to review the transcripts. Participant 5 used the available time to read through the notes, which she would have otherwise apportioned her time to search for notes. Also, Participant 9 appreciated access to the instructor's notes.

In some online classes, students took the quiz or exam multiple times. Participant 6 acknowledged that permitting two attempts on tests and assignments enabled her academic success. This participant stated that the online instructor gave her two attempts on the tests, and it was helpful. She was able to improve her grade on the second attempt. The participant also stated receiving feedback from the first attempt assisted her with improving on the second attempt even though some questions were different on the assessment.

Extending time on a group assignment was key for one participant. Participant 11 mentioned online group work accommodation allowed her to prepare for the assignment and contribute to the team assignment. The participant stated that online accommodation resulted in her academic success. This participant and her group had extended time if needed to submit the assignment up to 4 days late. Other participants stated they were not awarded extended time for group assignments.

The theme of positive assessment was applicable for me to determine the improved participants' understanding of the online accommodations they requested. In addition, the applied accommodations theme was present as enhanced learning was enabled by the participants using online accommodations. While the improved education might attract positive reasoning, the participants also had an unpleasant experience with

online accommodations, especially concerning hurdles faced as represented in the negative appraisal theme.

The participants denoted ways through which online accommodations enhanced their learning and provided multiple ways to access course materials or resources. These included getting multiple resources that aid in getting better acquainted with the coursework, learning at one's own pace to improve the level of understanding, and getting enough time to complete the assignments and tests. In addition, recording the sessions for playback later, learning online assistance such as copying and pasting while aiding in note-taking, and getting help from tutors enhanced participants' online learning.

Participant 1 commented that she has the same accommodations in person and online. This participant does not take classes that she does not think she can handle. The hurdles that she experiences include learning better by hearing and receiving feedback from teachers by seeing them once a week as she prefers in-person interactions. She states that if you do not know the online teachers, the response time is not quick enough to correct the feedback. The participant needs to know what direction to go on with the assignment and be allowed to rework the assignment if needed before submitting it. The participant stated, "There are no specific examples or resources for some classes based on writing. Although my writing is not college material per an instructor comment, I need an example." Participant 4 positively responded regarding her comment. She stated, "Online textbooks and features such as copy and paste, note-taking, and the citation feature are

helpful." Participant 1 stated she would benefit from having a study guide or work samples to serve as models for the assignments.

The participant's responses were varied when denoting the ways access to online learning contributed to their better understanding of course materials. The responses were both positive and negative and, in some instances, a little bit of both. The participant's reasons included reviewing notes from the online classes afterward, getting proper instructor explanations, more time to cover the coursework, getting assistance from tutors where needed, and learning via PowerPoint presentation. The PowerPoint slides were essential in providing notes that enabled Participant 1 to go back and review. Within many of the PowerPoint slides, there were detailed speaker notes. These methods detailed students access to online learning by explaining how the accommodations impacted their understanding of the coursework. Participant 2 had both positive and negative reactions, as stated by his comment,

> access to online learning contributed to better understanding of course materials and I feel comfortable with the audio reading aloud to me. It helps in understanding more versus reading online or reading a book. When reading online my mind is jumping around, and it is hard to follow.

Likewise, Participant 3 stated, "Hands-on learning through lab courses, taking my time to understand materials, take notes and break it down into chunks is helpful." Participant 7 had a negative response and stated he had no audiobook option. He would like an audiobook to assist him. Lack of online accommodations such as audiobooks hinders

Participant 7 from understanding the coursework better. The participants were detailed in their responses on the various online accommodations. The options included accessing counseling as stated by Participant 2, "There is access to more counseling if needed." Participant 3 detailed that the access to tests and assignments has been easy and attempting them. As noted by the participants, other options are grammar tools, access to online resources, and instructors' posts. Participant 5 stated, "I am provided with resources online, grammar tools, and the student resource center." The participants commented on how they felt when their learning needs were not met. Participant 10 stated, "In person, I am scared and do not talk. Learning online gives me a chance to have a voice, and I participate well in online discussions." Participant 10 also commented on how he felt when his learning needs were met, and he noted that it enabled more straightforward and flexible learning.

Results for Research Question 2

RQ 2: What accommodations do higher education students registered with disability offices perceive are needed to overcome existing barriers contributing to their academic success? It is based on locating students' specific problems with a disability regarding online accommodations. RQ2 seeks to find a solution to address the participants' constraints and enable SWD to access suitable accommodations to ensure their academic success.

Theme 1: Positive Assessment

I associated the theme of positive assessment with the participants' school knowledge being positively influenced by the online accommodations. This theme was based on participants' positive assessments of their skills to assess their individual learning needs and design online learning accommodations to aid them in their academic success.

Theme 2: Negative Appraisal

I associated the theme of negative appraisal with the participants' lack of accommodations that would otherwise aid their academic success and the hurdles that they face with the current online accommodations. It is applicable in denoting the negative influences in online accommodations causing the participants to encounter hindered learning progress. For example, Participant 10 stated, "I was supposed to get a note-taker at the college, but that did not happen. Someone in the class needed to volunteer, but no one did."

Theme 3: Applied Accommodations

I associated the applied accommodations theme with the experience or lack of experience in using online learning accommodations. The experience is informed by the ability of the online accommodation to influence academic success and the lack of online accommodations hindering academic success. This theme was used to examine participants' knowledge about accommodations obtained via online resources designed to

assist them in their academic pursuits and the impact this information has on their academic success. It was illustrated in this theme, applied accommodations, by SWD who have benefitted from proper accommodations regarding the essential online learning accommodations they feel are the most advantageous to their academic achievement.

Participant Responses to Research Question 2

Participant 10 experience elaborated an unfavorable evaluation theme. The participant stated that professors talked way too fast while giving out assignments, yet they need to be slowly explained. In addition, the participant said she could not understand some assignments and needed further clarification. The participant needs someone to explain the assignment slowly and in detail. The participant stated, "I need one-on-one with professors as my ASL teachers seldom respond to emails."

Participant 5 elaborated a positive assessment, suggesting an extended time to submit up to 8 weeks after the close of the class is admissible as an accommodation. Of the seven responses, only one had a negative experience, while the rest acknowledged a positive experience concerning extra time. Participant 3 states, "There is no extended time on assignments, but if there is, I still start work at the last minute. If there is an extended due date, I will wait till that date."

Participants denoted the specific hurdles they often experience when assessing online accommodations; they offered a variety. The participants were detailed in their responses on the various hurdles they face in the online accommodations citing their effect on coursework learning. Participant 4 outlined, "It was tough because no one knew

who was responsible for the accommodations paperwork. Once I got started, it was easier to ask for them from class to class." Participant 5 complained that a sudden shift from a simple platform to a Blackboard took him time to understand the change.

Participant 7 noted that "I needed access to materials, could not find the access code to access the materials, after paying for the materials I was able to access the materials." He is learning to be more independent. The participant was unaware he had to access the online materials through a link in Canvas that took him to a third-party website. The publisher offered a free 14-day trial if students cannot purchase the online book right away. The participant thought he just needed to click on the link and could complete his coursework. More detailed instructions posted in the online class would be beneficial for his success. Participant 12 stated, "I spend a lot of time in the hospital and need more time than other students." Participant 11 commented that the school provides financial aid early to purchase access to online resources using a third-party software. As outlined by the participants, the other hurdles include delayed notes from the instructors, a weak internet network, and limited access to online materials such as audiobooks.

The participants pointed out the hurdles affecting them and suggested online accommodations they thought would enable them to achieve academic success. Participant 10 noted note-taking assistance, teachers talking too fast, and PowerPoint slides switching quickly. Participant 10 was supposed to get a note-taker at the college, but that did not happen. The other comments on needed accommodations to overcome the hurdles, the participants suggested increased online resources, note-taking assistance,

numerous test attempts, and computer assistance. The participants would benefit from having multiple attempts on exams. Participant 6 said that her computer froze, and she had to wait till the next day for it to be fixed. Hence, suggesting computer assistance. Participant 4 asserted that the school would need to have a specific person assigned to keep up with accommodations for students.

The participants mentioned accommodations that would further their academic success and mastery of the coursework. Participant 10 noted that she has a speech issue and does not understand the assignment; therefore, she asks someone or has a one-on-one. She asks the person to explain and break it down for her. The other suggestions include improving e-learning resources, ensuring students understand online accommodation, and providing online tutors.

Participant 6 suggested that more counselors should be available to assist her online and commented that tutors and the college staff are hard to find. The student prefers in-person because she has access to a tutor and coach. That way, it is easier to accommodate her. Participant 4 commented, "It would be helpful to have the information on the website. An accommodation form to complete that goes to the correct person, and that person contacts you in a timely manner." All of these suggestions by participants aim to ensure SWD get online accommodations that would enhance online learning and result in academic success.

Evidence of Trustworthiness

The trustworthiness of a qualitative study refers to the degree of confidence in data, interpretation, and methods used to ensure the quality (Newman, 2018). The methods I used to ensure trustworthiness are based on establishing trustworthiness, including credibility, transferability, dependability, and confirmability. These strategies are further detailed in the subsequent subsections.

Credibility

I achieved credibility by accurately representing the participants' comments and reflections about online accommodations. Strategies that I used to ensure credibility included deep engagement and member checking. Through deep engagement, I gave sufficient time to participants to share, document, and elaborate on their online accommodations experience. Member checking helped me increase the authenticity of the summary of the interview responses.

Dependability

The techniques I used to achieve dependability during this study included accurate audit trails, evidence, and precise alignment of objectives. I used audit trails to ensure detailed documentation of the inquiry process while providing proof, such as full interview transcripts with the participants' comments and answers. Careful documentation of participants' experiences helped me enhance the dependability of the findings from the collected responses.

Transferability

The critical focus of transferability is to ensure other researchers can corroborate the findings. The transferability aspect of research is evident in this study's findings, given that they I could countercheck them against similar studies and hence usable by future studies. Demographic attributes of the participants have given the study a deep description to base facts on the topic under investigation. I ensured sampling sufficiency by recruiting an adequate sample size that helped assess the study phenomenon related to online accommodations offered to students in higher education and how it impacts their academic success.

Confirmability

I accounted for confirmability in this study's analysis of data to prevent the researcher's bias and make an accurate analysis based on the participants' accounts. I developed confirmability through coding, providing evidence, and researcher reflexivity. I used coding to identify, name, and evaluate patterns emerging from the interview data. Key ways included identifying ideas, stories, phrases, and specific terms used by participants to help me understand how accommodations in online learning contribute to the academic success of SWD. Providing ample evidence from interview quotes and excerpts also helped me support the claims of this study. Additionally, I used the ample evidence to back up the study and arrive at a concise analysis which furthered the study's aspect of confirmability.

I applied the researcher reflexivity approach in to help maintain awareness about how findings unfolded during thematic analysis. Through reflective commentary, I clarified the lens through which the social world under study is interpreted. I adopted the epistemological position where participants' responses were treated as a direct reflection of the concrete social reality of their experience with online learning accommodations. I used the participants' specific responses to gain insight into the subject matter of the study about online learning accommodations. I engaged in reflexivity through jotting notes about participants' comments.

Summary

In this study, I examined participants' views on how students registered with disability services describe access to online learning accommodations in higher education. The themes that I used to synthesize the data collected from this study were the application of accommodations, knowledge gained via experience, negative appraisal, and positive assessments. I used these themes to consistently label patterns discovered throughout the data collection and analysis process. In addition, the themes mentioned earlier gave me a descriptive quality to the participants' perceptions of the phenomena under study. The participants would benefit significantly from improved online accommodations based on the data results.

Improved online accommodation for these participants with a disability could lead to improved academic success. The data provided insight into the hurdles encountered by the participants and, in general terms, the entire population represented by the

participants. I reviewed the trustworthiness issues regarding the analyzed data and ensured that the study findings were credible, transferable, reliable, and ultimately trustworthy. In chapter 5, I present the discussion, conclusion, and recommendations derived from the study.

Chapter 5: Discussion and Reflection

The purpose of this study was to explore how students registered with disability services described access to online learning accommodations in higher education. I designed the basic qualitative study to explore the formulated research questions. Chapter 5 of this research study addressed the relevant results from a qualitative study of the impacts of online accommodations on SWD, particularly as they relate to academic success and are supported by current research. I used the private Zoom interview sessions to conduct and collect data for this inquiry. My goal was to explore how students registered with disability services at their higher education institutions describe access to online learning accommodations.

I synthesized this study's results and findings with previously published research to establish the validity of this study's findings. In chapter 5, I discussed the results regarding their impact and research limitations. The findings and outcomes of the literature that I reviewed helped me substantiate the implications and limits, and identified associated suggestions for future research. Finally, in chapter 5, I concluded with a summary and personal reflections on the research process that served as the basis for this study.

When I evaluated the individuals' perspectives, similar patterns in their comments were apparent. I considered the words to be powerful because they came from the viewpoint of people who had lived with disabilities. For this purpose, in this chapter, I focused on making suggestions based on research findings. The study participants

provided qualitative responses to the study's research questions. Researchers through numerous studies have discovered that individuals who needed accommodations and auxiliary services were more satisfied if they could define their demands (Cole & Cawthon, 2015; Kuh et al., 2006).

I used two research questions to get responses from the participants to address the study topic. I derived the findings from the collection of responses from the participants. The research questions were:

RQ1: What accommodations in online learning do higher education students registered with disability offices perceive contributing to their academic success?

RQ2: What accommodations do higher education students registered with disability offices perceive are needed to overcome existing barriers contributing to their academic success?

Through a detailed examination of the study questions, I identified several significant themes and suggestions for further research. These topics included positive assessment, negative appraisal, applied accommodations, and knowledge via experience.

In chapter 4, I reviewed the outcomes of this qualitative research in connection to the two research questions that guided the study. Consequently, this information was valuable for examining student perceptions of reasonable accommodations related to academic success, which the research participants deemed necessary for academic success. The participants had differing opinions on the online accommodations they deemed necessary for academic success. Because all 13 participants were in their first

year of college, I selected a postsecondary research site as an acceptable setting for their investigations. I recorded all interview sessions, transcribed, and coded them for subsequent analysis.

Interpretation of the Findings

I recruited the participants through purposive sampling, and they were then interviewed individually via Zoom. These 13 student participants shared their thoughts on their online accommodations' efficacy and results. I examined the transcripts of the interviews and coded them into themes to grasp the responses. In this section, I addressed the study results' substantial addition to the scholarly research domain by addressing the research questions and comparing findings to the peer-reviewed literature identified in Chapter 2.

I asked in RQ1: What accommodations in online learning do higher education students registered with disability offices perceive contributing to their academic success? The students who took part in the study were aware of the many online accommodations and could name at least one that had improved their academic performance. It was evident that online learning accommodations contributed to participants academic success in higher education. Findings like this show me how critical accessibility features like online learning accommodations help SWD excel academically. All the participants noted that they were familiar with the online learning accommodations except for Participant 2. The participant stated that she used online

accommodations when registering for classes, which was helpful. Essentially, her unfamiliarity with the online accommodations is due to her limited experience with them.

Extra time was identified as a significant online learning accommodation by all 13 participants because they found it instrumental. Additional time is designed to help SWD complete tasks, especially when they cannot digest information at the same rate as their classmates without impairments (Marteney & Bernadowski, 2016). Even though it is a commonly supplied online accommodation, studies on the impacts of extended time have been conflicting (Marteney & Bernadowski, 2016). For instance, research indicates that SWD who are given more time on tests perform better than those who do not need online learning accommodations (Shoepe et al., 2020). Three participants indicated extra time for final examinations, testing, and reading online materials as the most beneficial online learning accommodation contributing to their academic success.

Extended time was deemed an essential online learning accommodation for SWD to handle their responsibilities and settle before completing online tests. Participant 5 said, "Extended time to submit up to 8 weeks after the close of the class was helpful." When students are placed in academic situations, such as during examinations, they are more likely to suffer increased levels of anxiety (Pedrelli et al., 2015). Anxiety may impair their ability to finish examinations on time since it takes longer to prepare, settle down, and begin exams when anxious (Pedrelli et al., 2015).

Consequently, providing SWD with additional time allowances may help them make up for time lost due to concerns (Waterfield & Whelan, 2017). Around one-third of

higher education students who self-identified as having learning challenges received accommodations (McGregor et al., 2016). Participants 2 pointed out, "Extra time relieves anxiety level and helps me focus on test questions by breaking down the questions and re-reading them." Participant 3 stated, "Extended time on exam makes me feel that there is enough time to complete." Several students noted that extended time accommodations reduced anxiety, making students feel less rushed and allowing them to take breaks as needed if their anxiety affected their ability to think (Gelbar & Madaus, 2021). Extended time allowed SWD to demonstrate their true knowledge and ability because of the need to read and process questions. Many students linked the use of extended time to improved grades (Gelbar & Madaus, 2021).

In this research, I ensured that online learning provides SWD with a higher chance of academic success. Along with more time for tests and assignments, participants sought online learning accommodations such as having a personal coach, listening to audiobooks, taking notes while reading the instructor's notes, and utilizing assistive technology. Online accommodation is used by educators to offer the exam at a particular time of day, allowing components to be done in any order, or administering the test in many timed sessions or over several days (Wright & Meyer, 2017). Other forms of online accommodation may include providing reasonable modifications to students who require them but do not fall into one of the established categories, providing targeted or on-track prompts, and providing special test preparations for higher education students under the age of 21 years (Abreu et al., 2018; Miller et al., 2019).

Disability accommodations are primarily focused on enhancing curriculum presentation through the use of large fonts or text prints, audio recordings, reducing the number of items captured on each page, and presenting learning material orally (Miller et al., 2019). According to another qualitative study involving nine college students, successful accommodations ensure that students record comments on a computer or are authorized to use a recorder to gather responses (Toutain, 2019). Timing is concerned with ensuring that online learning is done promptly by allowing for extended time allocations and flexible schedules (Abreu et al., 2018; Miller et al., 2019). Learning institutions have employed a variety of approaches to accommodate students with impairments when developing online learning accommodations for them in this setting.

I asked in RQ2: What accommodations do higher education students registered with disability offices perceive are needed to overcome existing barriers contributing to their academic success? Through the responses, I sought to determine what accommodations higher education students registered with disability offices thought were essential to overcome obstacles hindering their academic success. Their academic success was accelerated due to the online learning accommodations they obtained.

The reflections I gathered will assist SWD with the tools to achieve academic success. Apart from additional time on tests and assignments, the participants identified several online accommodations as beneficial to their academic success. These included obtaining a tutor if necessary, instructors providing resources, notetaking assistance, retaking tests at least twice, tape recording, online group work, and audiobooks. If SWD

receive proper accommodations in their learning environment, then they may compete on an equal footing with their classmates regarding academic success and assignment completion. Online accommodations do not alter the content of assignments or tests nor provide disabled students an undue advantage over nondisabled students (Burgstahler & Russo-Gleicher, 2015). Consequently, online learning accommodations enable SWD to show their ability to compete effectively with other learners while not being harmed by their disabilities (Burgstahler & Russo-Gleicher, 2015).

The participants had mixed experiences with the challenges they faced regarding online learning accommodations. By expressing the obstacles faced within the classroom setting, the participants were able to prove their grasp of online learning accommodations obtained via practical experience. As described in the chapter's literature review, other academics have addressed the subject of online learning accommodations hurdles, and the participants' viewpoints in this study would contribute to the field's growth. Bradshaw et al. 2020 asserted that researchers examined teachers' views toward different student groups, including SWD. The researcher's objective was to understand better the barriers that SWD face while attending higher education institutions. Additionally, the researchers examined the challenges faced by professionals when addressing efforts aimed at enhancing learning and teaching (Bradshaw et al., 2020).

SWD are faced with multiple barriers that hinder their success. Participant 9 stated a circumstance she faced whereby professors talked too rapidly, rendering her incapable of understanding them, and that tasks needed long and extensive explanations.

Additionally, this participant requires a one-on-one connection with academic instructors and ASL instructors. A qualitative phenomenology study was conducted to understand better the challenges faced by SWD while engaging in online learning settings (Poles, 2020). In that study, eight participants from a college in the Eastern United States were interviewed to elicit their responses (Poles, 2020). The results indicated the need for professional development opportunities for professors who teach online courses (Poles, 2020). It would be beneficial to have SWD involve in the professional development opportunity for faculty to receive the student perspective with online learning.

The participants gave various comments about how the online accommodations aided their learning. Several of these included gaining familiarity with the coursework through a variety of resources such as learning at one's own pace to increase one's level of understanding, having enough time to complete assignments and tests, reviewing recorded sessions for later playback, learning online assistance such as copying and pasting while assisting with notetaking, receiving aid from tutors, and third-party trainings through online platforms.

Limitations of the Study

Qualitative research has certain limitations, one of them being that the information gained is contingent on the participants' responses. These shortcomings resulted from the study's small sample size, the COVID-19 pandemic, and my own potential bias. I was not authorized to conduct face-to-face interviews due to COVID-19 health and safety restrictions. I conducted all interviews through Zoom

videoconferencing. Conducting interviews via Zoom can limit the participation of people who do not have access to the internet connection.

Another limitation was the sample size, which was constrained by a purposive sampling strategy that reduced the number of participants and guaranteed a selection threshold. In qualitative research, a sample size of eight to 20 interviewees is enough to reach data saturation (Bryman, 2017). In this study, I assumed that recruiting 13 participants would be enough to collect in-depth data to identify all essential information to answer the research questions. Participation was confined to students in higher education who were 18 years of age or older. Additionally, participants were required to be registered with their individual disability student services departments. Additional inclusion criteria applied only to higher education students already enrolled at their respective higher education institution to attend online, e-learning, or virtual courses. I selected and invited the first 13 students who met these criteria and indicated an interest in participating in the study.

My bias as a researcher was mainly based on my beliefs about online learning accommodations provided at the local community college and university where I teach. Additionally, institutions throughout the country have fallen short of providing enough help to SWD, especially on virtual learning platforms. Time, formatting, and visual or audio aids were all confined to traditional classroom settings. The researcher plays a critical role in qualitative research and must articulate pertinent biases, assumptions, expectations, and experiences that qualify them to conduct the study (Ravitch & Carl,

2016). I collected data from students registered with disability offices with whom I did not have personal or academic relationships. Therefore, there was no power interplay between the participants and I in this research study, implying that the student participants were free to express their views on the topic.

I used reflexivity and bracketing to ensure that my preconceived beliefs did not skew the findings. Thanks to bracketing, I reduced bias by remaining objective throughout the data collection, processing, and interpretation of interview responses. I created a notebook to help me in bracketing and describing what would be accomplished and why. I paid great attention to what was happening during the study and made aware of any biases, agendas, attachments, or predictions I could have. I focused my data collection efforts on students registered with disability offices with no personal or academic relationships.

Recommendations

To better understand undergraduate students' opinions of online learning accommodations, I urge that this research be reproduced in higher education programs around the United States. Additionally, a replication of this research might be beneficial in finding elements that enhance undergraduate student success, which could eventually assist students in achieving academic success and graduating. I recommend that higher education institutions share this study with disabled Veterans returning to school. Since necessary accommodations will enable students to equip themselves with crucial skills fully, successful and satisfied undergraduate students can directly impact their places of

employment and make positive societal changes in their communities within their field of expertise.

I recommend that this research be reproduced in online learning higher education institution programs that have flaws in delivering services or need to improve online learning accommodations for SWD. Based on the participants' responses, SWD have a unique point of view that may assist administrators and instructors in better comprehending and making modifications to their curriculum. It is important that instructors make every effort creating an online learning environment which avoids barriers to online accommodations requests. SWD would benefit from having smaller more frequent assignments, then 1–3 large assignments, which lowers the chance of getting behind in the course. Improved accommodations allow students to engage digitally in these changing times focused on online instruction. It is critical for the success of online classes to include the viewpoints of all undergraduate students. Comparative research of faculty perceptions of the online learning accommodations provided to SWD would also be beneficial. The effectiveness of online learning accommodations for SWD should be a central theme in any discussion.

I recommend students meet with instructors the first week of class to discuss course and instructor expectations and learning accommodations. The results indicated that some of the most critical online learning accommodations for SWD include extended time on exams and assignments, using a personal coach, audio textbook, notetaking assistance, instructor notes, assistive technology, closed captioning for videos, and

accessible course materials. These online learning accommodations can provide

undergraduate students with the assurance that they are succeeding.

Implications

This fundamental qualitative research aims to ascertain how students enrolled

with disability services characterize their access to online learning accommodations at

institutions. Higher education students enrolled in online classes registered with the

disability student services were asked to determine which accommodations they feel

contribute to their success and which accommodations they believe are essential to

overcome current hurdles to academic achievement. The accommodations used by SWD

in online learning and how it affects their academic success may help provide a complete

view of SWD concerns about the essential online learning adjustments needed to create a

high-quality online learning environment. The participants submitted ideas for which

online accommodations they believe would most benefit their learning process and

academic success. The participants expressed concerns about potential accommodations

hindrances that, when resolved, will help in better learning. While the study's participant

group was small, the information collected might be very beneficial in enhancing online

learning accommodations and could potentially be generalized to a broader population if

the topic is further investigated.

Positive Social Change

In this research, I asserted that online learning accommodations are critical for

ensuring that SWD get a high-quality online education and achieve academic success. It

is important that SWD are identified no later than the start of class in for instructors to accommodate them at the beginning of the semester. When SWD initiate a meeting with the instructor to discuss online learning expectations, this may assist students with feeling at ease or more comfortable with the class. Instructors should also be approachable and remind students of office hours to meet with them. Applying this study has the potential to create positive social equity, which takes into consideration system inequalities to ensure everyone in a community has access to the same opportunities. The implications of societal change may influence the modification of online learning accommodations supplied to SWD to enhance their online learning situation and account for any inadequacies. Additionally, the ramifications invigorate instructors to guarantee their participation in ensuring the online learning accommodations function well. Faculty members solicit feedback from participants to identify areas where they can improve and make changes in online learning accommodations. Higher education institutions must emphasize universal design of instructional techniques that support advance learning practices for SWD and non-disabled students. The findings of this research may be used by educators to close the gap between online learning accommodations and academic performance for SWD.

Methodological Implications

This fundamental qualitative study might serve as a model for other academics requiring a qualitative approach in their research projects and studies. In this study, I aimed to examine and emphasize how students registered with disability services

describe access to online learning accommodations in higher education. The methodological approach could serve as a model for other researchers or students interested in using fundamental qualitative method to understand students enrolled with disabilities' access to online learning accommodations in higher education, other higher education programs, online master's programs, and doctoral programs.

Conceptual Implications

The research I used employed the UDL framework as its conceptual framework. UDL was created in the 1990s by the CAST. In special education, UDL is a promising technique for efficiently satisfying all students' requirements through increased accessibility (Rogers-Shaw et al., 2017). UDL paradigm was used for study questions 1 and 2. Four themes were identified to analyze how students enrolled with disability services characterize their access to online learning accommodations in institutions.

UDL is not restricted to devising a method of instruction that is universally accessible to all students with impairments. The purpose of UDL is to eliminate any obstacles to learning by use of appropriate teaching techniques. Having a broad array of online accommodations would ensure that there are multiple methods of representation primarily based on the first UDL principle, representation.

In this study, I examined participants' perceptions of online learning accommodations and how it contributes to academic success. Participants expressed more favorable opinions and suggestions regarding academic success and online learning accommodations use, which in context to the second UDL principle that emphasizes that

multiple means of student action and expression are aimed at providing students alternative ways of demonstrating concepts they have learned. With improved curricular and pedagogy, SWD can be able to use online accommodations properly and achieve a greater academic success. Focusing on individual participants' adverse experiences with online accommodations informed the hurdles that hinder the proper implementation of online accommodations. It highlighted how participants used pre-existing knowledge and understanding to determine the hurdles and success rate for online learning accommodations. A curricular improvement addressing the hurdles will be pertinent in enabling the SWD to get necessary online accommodations hence bringing about diverse modes of student engagement, incorporating the third UDL principle, which is to tap into students' interests, challenge them aptly, and motivate them to be taught (CAST, 2011a).

In this study, I discussed how SWD might benefit from reasonable accommodations and changes. "UDL entails building flexibility into the curricular design from the start, understanding that learners' learning preferences and capacities, motivating qualities, and contextual restrictions are all unique" (Dickinson & Gronseth, 2020). UDL would be beneficial in enabling improvements and changes on online accommodations to be tailor-made to the specific needs of the SWD, and accommodations such as extra time on tests would bring an edge to their academic success.

Practical Implications

The study's practical implications include discussing SWD experiences with online learning accommodations. In this study, I examined available online learning

accommodations and participants' opinions of which online learning accommodations would assure their academic achievement. Most participants reported a favorable attitude toward additional time on examinations and tasks. Similarly, several participants stated that academic success is contingent on extra time spent on examinations and access to online resources. The accommodation that stood out among those who obtained online accommodations was more time on tests. Participant 2 stated that she was unfamiliar with online accommodations. Except for the Participant 2, the other participants had previous experience with online accommodations. Apart from more time on exams and assignments, participants indicated that they benefited from a personal coach, audiobooks, notetaking assistance, the instructor's notes, and assistive technologies.

Recommendations for Practice

IDEA may use this study to aid their capacity to enhance and customize courses for SWD using the online learning platform. This enables the requirements of students with impairments to be identified and accommodated, giving them the best possible chance of academic achievement in their online learning programs. Educators may also use this study to enhance the development of strategies for academic achievement based on the accommodation needs and standards for online learning that colleges should implement in the online classroom to ensure that SWD may participate in the online learning process.

Additionally, this study may be contributory as an additional resource for online learning accommodations, such as longer time on examinations and assignments, as

determined by the participants. The findings of this study may be used by educators in improving the online classroom experience for students with impairments. The results show that participants identified problems and roadblocks in online learning accommodations that would hinder their proper grasp of online learning information and hence their academic success. As a result of these findings, researchers and administrators should design a set of solutions and policies that would be implemented to overcome common obstacles and guarantee that SWD have a chance at increasing academic success. Faculty members should schedule phone calls with students to introduce themselves and give support in the online classroom as needed. Students should be encouraged to create study groups to receive peer-to-peer assistance and feedback while enrolled in online courses.

Additionally, a disability advisor needs to check in with each SWD taking online courses to ensure they feel supported and encouraged in the classroom. Finally, the participating students desired that faculty respond to posts on discussion boards, emails, and assignments, provide specifics and customize feedback for each student. These best practices enhance online learning accommodations, which ultimately results in increased academic success for SWD.

Conclusion

Through this qualitative descriptive design study, I explored how students registered with disability services describe access to online learning accommodations in higher education. Thematic research findings on positive assessments, negative appraisal,

applied accommodations, and knowledge gained via experience are critical factors to consider when designing and developing an online learning accommodation program for SWD. Understanding SWD and their desired resources and participation will assist faculty in determining how to help these students succeed in online learning programs.

According to SWD evaluations of their online classroom experience with accommodations, the study findings supported the need for more time on tests and assignments. From the study findings, I conclude that some of the most critical online learning accommodations for SWD include using a personal coach, audiobooks, notetaking assistance, instructor notes, and assistive technology. These can provide undergraduate students with the assurance that they are succeeding. The knowledge in this research about SWD perceptions of online learning accommodations may be used by other higher education institutions to develop more effective online learning programs, which may boost positive academic output and support these students' academic success.

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Appendix A: Interview Questions

RQ1: What accommodations in online learning do higher education students who are registered with the Disability Student Services perceive as contributing to their academic success?

1. What accommodations do you often request for from higher education institution through online learning platforms?
2. What accommodations have you found to greatly contribute to your academic success (i.e., access to learning materials, understanding course content, and assignment or exam completion)?
3. How has the use of online accommodations enhanced your learning and provided you with multiple ways to access course materials or resources?
4. How has access to online learning contributed to your better understanding of course materials?
5. How has online accommodation ensured that all your learning needs are met through diverse options and choices?

RQ2: What accommodations do students who are registered with the Disability Student Services perceive are needed to overcome existing barriers to successful online completion?

6. What hurdles do you often experience when accessing online accommodations at your higher education institution?
7. What accommodations do you think are needed to overcome the identified hurdles and ensure your success in online academic completion?

Appendix B: Initial Codes Generation

	Response	Code
RQ1: What accommodations in online learning do higher education students who are registered with the disability offices perceive as contributing to their academic success		
What online accommodations do you often request for from your school	<mark>Extra time</mark> on test	<mark>Time management</mark>
1b. Please share your experiences with the online accommodations.	Dylexi, <mark>take longer</mark> to read questions on the test.	<mark>Time management</mark>
2a. What accommodations have you found to greatly contribute to your academic success (i.e., access to learning materials, understanding course content, and assignment or exam completion)	<mark>Extra time</mark> on test, books on tape (<mark>audio</mark>), ebook version read the book to you. The best part, hear the book read to you.	<mark>Time management</mark>
2b. Why do you think this accommodations has greatly contributed to your academic success.	The best part, <mark>hear the book</mark> read to you. <mark>Auditory learning.</mark>	<mark>Audio reading materials</mark> <mark>Specific online resource</mark>
2c. How has the use of online accommodations enhanced your learning and provided you with multiple ways to access course materials or resources	<mark>Same accommodations</mark> in person and online. I do not take classes I do not think I can handle. Hurdles: learn better by hearing and feedback from teacher. See the teacher once a week. Give feedback in person. <mark>Online teachers</mark>, if you do not know them, response time is not quick enough in order to fix the feedback. Need to go this directions, re work on it before submitting. No specific examples or resources for some classes	<mark>Accommodation</mark> <mark>Specific online resource</mark>

	based on writing. Share writing is not college materials, which she knows this. Needs a draft.	
3a. How has access to online learning contributed to your better understanding of course materials	Online, she can go back and research it. Going back and review Lectures and PowerPoints. PP was helpful.	Specific online resource
How has online accommodation ensured that all your learning needs are met through diverse options and choices	Yes, extra time on test, especially for large test. Like finals.	Time management
5b. Please share your experiences		
5c. How did it make you feel when your learning needs were not all met		
5d. How did it make your feel when your learn needs were met		
RQ2: What accommodations do higher education students who are registered with disability offices perceive are needed to overcome existing barriers contributing to their academic success		
1.What hurdles do you often experience when accessing online accommodations at your school	Teachers not receiving paperwork from disability services. One test and 3 quizzes in with no accommodations. Usually, extended time on assessments is automatically put in by the instructor. If an instructor misses it, she emails instructor.	Accommodation
2a.What accommodations do you think are needed to overcome the identified hurdles and ensure your academic success in the online course	Good with accommodations. Hurdle is with test. Procrastinate with assignments. Do not need extended time on assignments.	Accommodation
Follow up question below:		

What are other ideas you would like to share in regard to your online learning accommodations experience	Junior year in HS realize she had learning disability. School district did not identify her. Graduated with 6th reading, 9th vocab., college level in math. Teachers give you plenty of time, you know from the syllabus what is due, so it gives you an idea. Self-conscience about downfall in school. Teachers been understanding about accommodations.	Accommodation
2. Participant 2		
1. What online accommodations do you often request for from your school	New with online accommodations, read aloud the textbook, will utilize it next semester to listen to it and read. Need to be able to hear. Extended time 30 minutes extra on quizzes.	Time management
1b. Please share your experiences with the online accommodations.	Fairly new, he had priority with registering with classes. Assisting with registering with classes. Choosing classes ahead of time.	
2. What accommodations have you found to greatly contribute to your academic success (i.e., access to learning materials, understanding course content, and assignment or exam completion)	Extended test time and reading out loud. Priority registrations leads to academic success. Tutor if needed.	Time management
2b. Why do you think this accommodations has greatly contributed to your academic success.	Relieve anxiety level and focus on test questions. Extra time help breakdown the question and re read it.	Time management Anxiety
3. How has the use of online accommodations enhanced your learning and provided you with multiple ways to access course materials or resources	Options and multiple resources to assist students. Course breakdown by professors align with the course.	Access to material
4. How has access to online learning contributed to your better understanding of course materials	Helps understand the materials, feel comfortable with the audio reading out loud to you. Helps understanding more versus	Audio reading materials

	reading online or reading the book. Mind jump around and hard to follow.	
5. How has online accommodation ensured that all your learning needs are met through diverse options and choices	<mark style="background:lime">Audio options</mark>, priority registrations, <mark style="background:blue">access</mark> to more counseling if needed.	<mark style="background:blue">Access to material</mark>
5b. Please share your experiences		
5c. How did it make you feel when your learning needs were not all met	Great professor! <mark style="background:cyan">Good layout</mark> of the class, easy to follow.	<mark style="background:cyan">Specific online resource</mark>
5d. How did it make your feel when your learn needs were met		
1. What hurdles do you often experience when accessing online accommodations at your school	Hurdles for self, he create hurdles. Online accessing is great. Reading is a hurdle, but more of himself. Completing assignments <mark style="background:yellow">on time</mark>, due to how he feels based on health and <mark style="background:yellow">time management.</mark>	<mark style="background:yellow">Time management</mark>
2. What accommodations do you think are needed to overcome the identified hurdles and ensure your academic success in the online course	Hurdles have been fixed, <mark style="background:lime">audio</mark> for all textbooks. Reading causes a lot of anxiety, worked with a Dr. Getting betting on it with med. Need extended time on assignments would be an accommodation Different Time zoom, since he moved. A little grace period would be great to process. Feel comfortable addressing why he missed if needed. Having that accommodation will help him <mark style="background:magenta">not stress</mark>. May miss due to health reason.	<mark style="background:lime">Audio reading materials</mark> <mark style="background:magenta">Anxiety</mark>
What are other ideas you would like to share in regard to your online learning accommodations experience		
<mark style="background:yellow">3. Participant 3</mark>		

RQ1: What accommodations in online learning do higher education students who are registered with the disability offices perceive as contributing to their academic success		
1. What online accommodations do you often request for from your school	Work life and older, more responsibilities, medial issues, helps to have accommodations, extended time. Zoom room with a tutor to take about an assignment. Clarification on assignment, but sometimes they are busy or just want another person to speak with about an assignment. Help with clarification more than the assignment itself.	Time management
1b. Please share your experiences with the online accommodations.	Mostly a great extended time. Sometimes second guest when the last for minutes left. Overthinking	Time management Anxiety
2. What accommodations have you found to greatly contribute to your academic success (i.e., access to learning materials, understanding course content, and assignment or exam completion)	Extended time on exam. Feel that is enough time to complete.	Time management
2b. Why do you think this accommodations has greatly contributed to your academic success.	Test anxiety, having more time give more relax, take time to think, narrow it down and not worry about the seconds to complete. Chance to focus and not stress.	Anxiety
3. How has the use of online accommodations enhanced your learning and provided you with multiple ways to access course materials or resources	Chances to learn in your own way and your pace instead of in person. She can break it down in the online format.	Specific online resource
4. How has access to online learning contributed to your	Hands on learning, take your time to understand, take notes and break it down into chunks on how	Time management

better understanding of course materials	she understands. Does not learn well by PP only. Breakdown online PP.	Specific online resource
5. How has online accommodation ensured that all your learning needs are met through diverse options and choices	Easy to access and accomplish task online then in person. Do not use other accommodations.	Access to material Accommodation
5b. Please share your experiences.	Space out and forget what studied, give a moment to breath.	
5c. How did it make you feel when your learning needs were not all met		
5d. How did it make your feel when your learn needs were met		
1. What hurdles do you often experience when accessing online accommodations at your school	Making sure the accommodations are sent to instructors on time. Instructors receiving paperwork after 3 quiz and message teacher and stated she did not receive it. DSS haven't heard back from the teacher, miss communication.	Accommodation
2. What accommodations do you think are needed to overcome the identified hurdles and ensure your academic success in the online course	Meet with DSS 1-2 months before semester starts (Start and send paperwork).	
What are other ideas you would like to share in regard to your online learning accommodations experience	Online better than in person. Some classes she does not want online. Due to not being able to focus with heavy courses. More of a preference than an accommodation, student is ADHD. Any other online learning accommodations. No extended time on assignments. Start work at the last minute. If there is an extended due that, she will wait till that date.	Time management Accommodation
4. Participant 4		

1. What online accommodations do you often request for from your school	<mark>Extra time</mark> on assignments and discussion questions. Do not have quizzes at school. She would ask for extended if they had them.	<mark>Time management</mark>
1b. Please share your experiences with the online accommodations.	Usually need up to a week after the assignment <mark>due date</mark> to submit. She usually need about 3 extra days after the assignment de date	<mark>Time management</mark>
2. What accommodations have you found to greatly contribute to your academic success (i.e., access to learning materials, understanding course content, and assignment or exam completion)	<mark>Online books</mark> were helpful, feature filled-was able to highlight and print. Instructor provide resources through blackboard.	<mark>Access to material</mark>
2b. Why do you think this accommodations has greatly contributed to your academic success.		
3. How has the use of online accommodations enhanced your learning and provided you with multiple ways to access course materials or resources	<mark>Access book online</mark> and features such as copy and paste. Citation feature that was helpful.	<mark>Access to material</mark>
4. How has access to online learning contributed to your better understanding of course materials	Explanation coming from instructor, refer back syllabus and instructions on a continuous basis was helpful.	
5. How has online accommodation ensured that all your learning needs are met through diverse options and choices	<mark>Instructor post on platform.</mark> Create different post and documents worded differently. Lots of explanations on assignments that are clear and there are multiple ways to find it. <mark>Online textbook</mark> have diverse options and can change language if needed for the textbook <mark>audio</mark>.	<mark>Audio reading materials</mark> <mark>Specific online resource</mark>
5b. Please share your experiences:	Having the <mark>extra time</mark>, she is able to pace herself to get the assignment completed.	<mark>Time management</mark>

5c. How did it make you feel when your learning needs were not all met		
5d. How did it make your feel when your learn needs were met		
RQ2: What accommodations do higher education students who are registered with disability offices perceive are needed to overcome existing barriers contributing to their academic success		
1. What hurdles do you often experience when accessing online accommodations at your school	It was tough because no one knew who was responsible for the accommodations. Once she got started, it was easier to ask for them from class to class.	Accommodation
2. What accommodations do you think are needed to overcome the identified hurdles and ensure your academic success in the online course	The school would need to have a specific person assigned to keeping up with accommodations for student are being readily available to answer questions. Being able to divulge the answers in a timelier fashion.	Accommodation
What are other ideas you would like to share in regard to your online learning accommodations experience	It would be helpful to have the information on the website. A form to complete, goes to correct person, and contact you in a timely manner.	Access to material
5. Participant 5		
1. What online accommodations do you often request for from your school	Extra time on written assignments. 50% additional time. Have up to 4 days. Additional time to additional course.	Time management
1b. Please share your experiences with the online accommodations.	Extended time to submit up to 8 weeks after the close of class. Helpful.	Time management
2. What accommodations have you found to greatly contribute to your academic success (i.e.,	Online environment to local classes and note taking assistance. More time online due to missing	Time management

access to learning materials, understanding course content, and assignment or exam completion)	note taking. ==More time== to read materials.	==Access to material==
2b. Why do you think this accommodations has greatly contributed to your academic success.	The opportunity to give the best I can give knowing I need the ==time==. That time need the tools and ==resources== to be successful in the classroom. Student help navigate or instructor.	==Time management== ==Access to material==
3. How has the use of online accommodations enhanced your learning and provided you with multiple ways to access course materials or resources	Student recourses center, color of screen, ==time== to complete assignments. Respond to discussions withing 6 days.	==Time management==
4. How has access to online learning contributed to your better understanding of course materials	Due to having ==more time==, ability to having more time, this is beneficial. At the local campus needed a person as it move to fast. Online is at a pace moved herself.	==Time management==
5. How has online accommodation ensured that all your learning needs are met through diverse options and choices	==Provided resources online,== grammar tools, student resource center, CWE,	==Access to material==
5b. Please share your experiences		
5c. How did it make you feel when your learning needs were not all met	Yes.	
5d. How did it make your feel when your learn needs were met		
RQ2: What accommodations do higher education students who are registered with disability offices perceive are needed to overcome existing barriers contributing to their academic success		
1. What hurdles do you often experience when accessing	Change in ==online platform==, went from a simple platform to	==Time management==

online accommodations at your school	blackboard. Takes <mark>time</mark> to understand the change.	<mark>Access to material</mark>
2. What accommodations do you think are needed to overcome the identified hurdles and ensure your academic success in the online course	<mark>Live tutors</mark> to provide tutor to students, visual learner. She needs to see it.	<mark>Access to material</mark>
<mark>6. Participant 6</mark>		
RQ1: What accommodations in online learning do higher education students who are registered with the disability offices perceive as contributing to their academic success		
1. What online accommodations do you often request for from your school	<mark>Extra time</mark> on test, Coach goes with her to class in person. Sometimes the coach goes over the assignment to have a clear understanding.	
1b. Please share your experiences with the online accommodations.	<mark>Extra time</mark> and finish before the time is up. <mark>Online class teacher</mark> gave two attempts and was helpful.	<mark>Access to material</mark> <mark>Time management</mark>
2. What accommodations have you found to greatly contribute to your academic success (i.e., access to learning materials, understanding course content, and assignment or exam completion)	<mark>Extra time</mark> on test and teacher goes over assignment with her. Write on notebook what teacher stated.	<mark>Time management</mark>
2b. Why do you think this accommodations has greatly contributed to your academic success.	She understand what the assignment is about.	
3. How has the use of online accommodations enhanced your learning and provided you with multiple ways to access course materials or resources	<mark>Online,</mark> go over book and ask tutor to help understand. Tutor read together what it is about. What section is mainly important and take notes to study for the	<mark>Access to material</mark>

	test. Go over vocabulary words. Use flashcards.	
4. How has access to online learning contributed to your better understanding of course materials	Go to tutor or CAOT lab for assistance and coach to help when she is stuck.	
5. How has online accommodation ensured that all your learning needs are met through diverse options and choices		
5b. Please share your experiences		
5c. How did it make you feel when your learning needs were not all met	By understanding the material and go over notes. Practice work, definition on flashcard, and go over assignment. Read allowed with support staff and he tells her what the sentence is about. Sometimes read to self and write what is important.	Access to material Audio reading materials
5d. How did it make your feel when your learn needs were met	Due to covid, cannot go in person in the CAOT lab and print out materials. If she needs help, she can go to lab assistance for in person lab. Sometimes she has to figure it herself.	Accommodation
RQ2: What accommodations do higher education students who are registered with disability offices perceive are needed to overcome existing barriers contributing to their academic success		
1. What hurdles do you often experience when accessing online accommodations at your school	Computer froze & power went out, internet disconnected, while working online. Assignments, she had to wait the next day. Hard to get help online from lab tutors because they are busy. In person is easier for lab assistance.	Accommodation Specific online resource Access to material

2. What accommodations do you think are needed to overcome the identified hurdles and ensure your academic success in the online course	Have access to tutors and available more online. Difficulties with your computer, need some assistance.	Specific online resource Access to material
What are other ideas you would like to share in regard to your online learning accommodations experience	More counselors available to assist her online and tutors. Hard time reaching staff personal at the college. Student prefers in person because she has access to a tutor and coach and it is easier to accommodate her.	Accommodation Access to material
7. Participant 7		
RQ1: What accommodations in online learning do higher education students who are registered with the disability offices perceive as contributing to their academic success		
1. What online accommodations do you often request for from your school	Extra time on test, Taking text at the campus, note taking assistance-coach helps him online. Coach goes over assignment with him. Also, use zoom recording instead of tape recorder.	Specific online resource Access to material Time management
1b. Please share your experiences with the online accommodations.		
2. What accommodations have you found to greatly contribute to your academic success (i.e., access to learning materials, understanding course content, and assignment or exam completion)	Extended test time. It helps him pass the assignment. The recording he could use it at home and do not have to use a tape recording.	Time management Audio reading materials
2b. Why do you think this accommodations has greatly contributed to your academic success.	It makes him concentrate and help him remember the material without being rushed. He can use notes on test and assignment.	
3. How has the use of online accommodations enhanced	Using the recording from Canvas, he can watch many times. Use the	Specific online resource

your learning and provided you with multiple ways to access course materials or resources	online course, third party trainings.	Audio reading materials
4. How has access to online learning contributed to your better understanding of course materials	Read textbook to himself. No audio book option. Would like an audio book to assist him. He never use it during online.	Audio reading materials
5. How has online accommodation ensured that all your learning needs are met through diverse options and choices	Doing well and getting great grades. Understand the textbook materials. Write down few facts that are important. 10-15 sentences per chapter.	Accommodation
5b. Please share your experiences		
5c. How did it make you feel when your learning needs were not		
all met	Learning needs are met online.	Accommodation
5d. How did it make your feel when your learn needs were met	Try Audio books.	Audio reading materials
RQ2: What accommodations do higher education students who are registered with disability offices perceive are needed to overcome existing barriers contributing to their academic success		
1. What hurdles do you often experience when accessing online accommodations at your school	Needed access to materials, could not find access code, after paying for the materials, he was able to. He is learning more to be independent.	Access to material
2. What accommodations do you think are needed to overcome the identified hurdles and ensure your academic success in the online course	He usually use the accommodations he has. He called the publisher to help him.	Accommodation
What are other ideas you would like to share in regard to	Tutors are helping him a lot. His coach also assists him. Likes Cengage since you pay one price	Specific online resource

your online learning accommodations experience	for all <mark>cengage textbooks</mark> for the semester.	<mark>Access to material</mark>
<mark>8. Participant 8</mark>		
RQ1: What accommodations in online learning do higher education students who are registered with the disability offices perceive as contributing to their academic success		
1. What online accommodations do you often request for from your school	<mark>Assistance technology</mark>, <mark>extended time</mark> on assignments and exams.	Specific online resource <mark>Time management</mark>
1b. Please share your experiences with the online accommodations.		
2. What accommodations have you found to greatly contribute to your academic success (i.e., access to learning materials, understanding course content, and assignment or exam completion)	<mark>Access</mark> to materials from learning, <mark>extended time</mark> for exams.	<mark>Access to material</mark> <mark>Time management</mark>
2b. Why do you think this accommodations has greatly contributed to your academic success.	You <mark>find time</mark> to study with the time as you study, you will not fail when you have more time. You will score higher marks.	<mark>Time management</mark>
3. How has the use of online accommodations enhanced your learning and provided you with multiple ways to access course materials or resources	The use of <mark>translation</mark>-using another language, <mark>read aloud materials</mark> enhance learning.	Specific online resource <mark>Audio reading materials</mark>
4. How has access to online learning contributed to your better understanding of course materials	The materials have what you need and integrated in Canvas in a way for students to understand easier. Guided step by step.	
5. How has online accommodation ensured that all your learning needs are met	Learning strategies, the school use are helpful. Provide secure <mark>remote activities</mark> for students.	Specific online resource

through diverse options and choices		
5b. Please share your experiences		
5c. How did it make you feel when your learning needs were not all met	<u>Yes. Give it a 9/10 learning needs.</u>	
5d. How did it make your feel when your learn needs were met	<u>More online resources with students with disabilities. Form disability groups to communicate on challenges and how it goes with online learning.</u>	Specific online resource
RQ2: What accommodations do higher education students who are registered with disability offices perceive are needed to overcome existing barriers contributing to their academic success		
What hurdles do you often experience when accessing online accommodations at your school	<u>Do not find the exact materials or guided to find the material and resources. If you do not know what you are looking for, then you will not get the material.</u>	Access to material
What accommodations do you think are needed to overcome the identified hurdles and ensure your academic success in the online course	<u>Focus online groups, online facilitator-more support, mentors to guide, 24 hour support.</u>	Specific online resource Access to material
What are other ideas you would like to share in regard to your online learning accommodations experience	Online Accommodations more time SWD. Provided with more materials, generalize elearning platform. Personalize learning to access materials when you.	Accommodation Time management Specific online resource Access to material
9. Participant 9		
RQ1: What accommodations in online learning do higher		

education students who are registered with the disability offices perceive as contributing to their academic success		
1. What online accommodations do you often request for from your school	==Extra time== on assignment, instructor give notes,	Specific online resource Access to material Time management
1b. Please share your experiences with the online accommodations.	Really help him and group they are assign.	
2. What accommodations have you found to greatly contribute to your academic success (i.e., access to learning materials, understanding course content, and assignment or exam completion)	The online course materials the university provide. The assignments improve the results.	Access to material
2b. Why do you think this accommodations has greatly contributed to your academic success.	When you give notes and extend time for assignment, you can pass when you have a lot of time. He has more time to finish the assignment to be successful.	Specific online resource Time management
3. How has the use of online accommodations enhanced your learning and provided you with multiple ways to access course materials or resources	Access through online learning with the school. Provide full support needed.	Accommodation Access to material
4. How has access to online learning contributed to your better understanding of course materials	Give a wide variety of materials using for research and homework. The school pays for internet.	Access to material
5. How has online accommodation ensured that all your learning needs are met through diverse options and choices	School created online engagement with other students with disabilities. Games and resources.	Specific online resource
5b. Please share your experiences		

5c. How did it make you feel when your learning needs were not all met	Yes.	
5d. How did it make your feel when your learn needs were met		
RQ2: What accommodations do higher education students who are registered with disability offices perceive are needed to overcome existing barriers contributing to their academic success		
1. What hurdles do you often experience when accessing online accommodations at your school	Delay of notes for the instruction and Weak network/internet, miss deadline.	Specific online resource Access to material
2. What accommodations do you think are needed to overcome the identified hurdles and ensure your academic success in the online course	Increase online resources	Access to material
What are other ideas you would like to share in regard to your online learning accommodations experience	Works closely with a staff if have any challenges. Online program makes him a better person. When you provided with resources, you can pass the exam.	Specific online resource Access to material
10. Participant 10		
RQ1: What accommodations in online learning do higher education students who are registered with the disability offices perceive as contributing to their academic success		
1. What online accommodations do you often request for from your school	Extra time on test, quizzes, assignments and notes.	Specific online resource Time management

1b. Please share your experiences with the online accommodations.	Professors talk way to fast and cannot understand. Assignments she need someone to explain them in details slowly. Need one on one with professors. ASL teachers do not respond to email. Did not get a note taker as she needed. She has reduced questions on test. In order to understand, in HS the inclusion teacher provide notes and summary of chapter and she understand better.	Specific online resource
2. What accommodations have you found to greatly contribute to your academic success (i.e., access to learning materials, understanding course content, and assignment or exam completion)	Extended time on test.	Time management
2b. Why do you think this accommodations has greatly contributed to your academic success.	If she has more time on assessments, she is able to read the question again if she does not understand it, even 3 times.	Time management
How has the use of online accommodations enhanced your learning and provided you with multiple ways to access course materials or resources	Online is easy, but takes time to upload and do stuff. She is tech savy and can type and turn things in properly without any problems.	Access to material
How has access to online learning contributed to your better understanding of course materials	Need time to go through course materials, she needs to ask for help, she goes into office hours, ask questions in class to clarify. Some things she does not understand.	Access to material Time management
How has online accommodation ensured that all your learning needs are met through diverse options and choices	Textbook is read aloud, audio. She ready read it, study it, and memorize it. She does not need to rely on audio for everything.	Audio reading materials
5b. Please share your experiences		

5c. How did it make you feel when your learning needs were not		
all met	What she is learning, she feel it is met. In person, she can talk without questioning herself. In person, she is scared and does not talk. Online gives her a chance to have a voice.	Access to material
5d. How did it make your feel when your learn needs were met	Be easier on her and flexible. She wants to do the work, but she cannot do all of it. Multiple assignments for one class due on the same day.	Specific online resource
RQ2: What accommodations do higher education students who are registered with disability offices perceive are needed to overcome existing barriers contributing to their academic success		
1. What hurdles do you often experience when accessing online accommodations at your school	Online is easier, she do wants one on one help in person. She does get more help online due to office hours. Does not need a coach in college, she does not need someone to sit there an help her. More self-discipline, declined college coach.	Specific online resource Access to material
2. What accommodations do you think are needed to overcome the identified hurdles and ensure your academic success in the online course	Note taking assistance, teachers talk to fast. PowerPoint slides switch fast and hard to keep up with her disability. She had supposed to get a note taker at the college, but that did not happen. Someone in class needs to volunteer but no one did.	Specific online resource
What are other ideas you would like to share in regard to your online learning accommodations experience	Student has a speech issue. Do not understand assignment, she asks someone or have a one on one. She asks the person to explain and break it down for her.	Accommodation

	Do you best, do not expect to do everything for you if you are capable of doing it, be independent.	
11. Participant 11		
RQ1: What accommodations in online learning do higher education students who are registered with the disability offices perceive as contributing to their academic success		
1. What online accommodations do you often request for from your school	Extra time on assignments and exams.	Time management
1b. Please share your experiences with the online accommodations.		
2. What accommodations have you found to greatly contribute to your academic success (i.e., access to learning materials, understanding course content, and assignment or exam completion)	The added time helped her and the online group work and platform. Online classes provides her more time to study. The school provide for her the online resources which helps with studying.	Specific online resource Time management
2b. Why do you think this accommodations has greatly contributed to your academic success. It helps her understand the concept more.	Can understand and tackle each question in the exam room.	
3. How has the use of online accommodations enhanced your learning and provided you with multiple ways to access course materials or resources	Can access multiple resources at the same page on Canvas. She does not have to go all over in a library to find resources.	Specific online resource Access to material
4. How has access to online learning contributed to your better understanding of course materials	When she is reading on her own, she has the resources with her. She can ask for clarification on something online and gets more understand from that.	Specific online resource Access to material
5. How has online accommodation ensured that all your learning needs are met	With online learning she receives feedback at any time and quicker.	Access to material

through diverse options and choices		Time management
5b. Please share your experiences	Limited time on person.	
5c. How did it make you feel when your learning needs were not all met	Makes her feel like her time is not put into good use, she feels bad. The network or the data is not provided on time to access the online class.	Time management Specific online resource Access to material
5d. How did it make your feel when your learn needs were met	Feels good, she feels appreciated and made good use of time and understand concept very well.	Time management
RQ2: What accommodations do higher education students who are registered with disability offices perceive are needed to overcome existing barriers contributing to their academic success		
1. What hurdles do you often experience when accessing online accommodations at your school	Network issues with the platform and home.	
2. What accommodations do you think are needed to overcome the identified hurdles and ensure your academic success in the online course	School provide financial earlier to gain access to online resources using third party software. Would benefit with having multiple attempts on exams.	Specific online resource Access to material
What are other ideas you would like to share in regard to your online learning accommodations experience	Better understanding with online learning accommodations.	Accommodation
12. Participant 12		
RQ1: What accommodations in online learning do higher education students who are registered with the disability		

offices perceive as contributing to their academic success		
1. What online accommodations do you often request for from your school	Extended time on exams and assignments is most often requested for at your school. Mainly assignments need more time.	Time management
1b. Please share your experiences with the online accommodations.		
2. What accommodations have you found to greatly contribute to your academic success (i.e., access to learning materials, understanding course content, and assignment or exam completion)	Need some time to complete it as it is very challenging. Exam completion is very important and extended time assist her in order to move forward to the next chapter.	Time management
2b. Why do you think this accommodations has greatly contributed to your academic success	You need more time and helps with learning needs.	Time management
3. How has the use of online accommodations enhanced your learning and provided you with multiple ways to access course materials or resources	Some questions posted on the assignment is helpful and provided with clear instructions.	Specific online resource
4. How has access to online learning contributed to your better understanding of course materials	It has more instructions online that are given.	Access to material
5. How has online accommodation ensured that all your learning needs are met through diverse options and choices	Have leaders to assist with online accommodations. Meet weekly with them on progress.	Specific online resource Accommodation
5b. Please share your experiences:	Leaders are helpful. If complain, they note everything she says. Anything bad going on, a positive change occurs.	Specific online resource
5c. How did it make you feel when your learning needs were not all met?	Leader talked to the professor when she missed assignment and	Specific online resource

	the issue was resolve, she was able to submit.	
5d. How did it make your feel when your learn needs were met?	If feels nice to be cared for. Feels appreciated.	
RQ2: What accommodations do higher education students who are registered with disability offices perceive are needed to overcome existing barriers contributing to their academic success		
What hurdles do you often experience when accessing online accommodations at your school	You spend a lot of time in the hospital. She needs <mark>more time</mark> than other students.	<mark>Time management</mark>
What accommodations do you think are needed to overcome the identified hurdles and ensure your academic success in the online course	<mark>Extension</mark> of the assignment or exam. Assignment. Assignment should be down by 5 hours or at your own time and then submit instead of like down by 9a – 1p.	<mark>Time management</mark>
What are other ideas you would like to share in regard to your online learning accommodations experience	First time, experience was not good and challenging at first. She likes the experience now as she is use to it.	Accommodation
<mark>13. Participant 13</mark>		
RQ1: What accommodations in online learning do higher education students who are registered with the disability offices perceive as contributing to their academic success		
1. What online accommodations do you often request for from your school	<mark>Extra time</mark> on assignment.	<mark>Time management</mark>
1b. Please share your experiences with the online accommodations.		
2. What accommodations have you found to greatly contribute to your academic success (i.e., access to learning materials,	<mark>Assignments</mark> improve the performance.	<mark style="background:cyan">Specific online resource</mark>

understanding course content, and assignment or exam completion)		
2b. Why do you think this accommodations has greatly contributed to your academic success.	You have ample enough time. You are able to gain knowledge. Another way of reading.	Time management Audio reading materials
3. How has the use of online accommodations enhanced your learning and provided you with multiple ways to access course materials or resources	School supportive with network to access elearning. Can access notes through the elearning process.	Specific online resource Access to material
4. How has access to online learning contributed to your better understanding of course materials	The resources are included in the school fees. Performance has gone high to elearning. You have more time to study and gain knowledge. You get enough time to do work.	Specific online resource Time management
5. How has online accommodation ensured that all your learning needs are met through diverse options and choices	When instructor give materials, they check on your progress exams.	Specific online resource
5b. Please share your experiences		
5c. How did it make you feel when your learning needs were not all met	Yes	
RQ2: What accommodations do higher education students who are registered with disability offices perceive are needed to overcome existing barriers contributing to their academic success		
1. What hurdles do you often experience when accessing online accommodations at your school	Instructor delay to post materials online. Students need it for the assignment.	Access to material
2. What accommodations do you think are needed to overcome the identified hurdles	Network in order to access the resources online. Would benefit from extended time on assessment.	Time management Access to material

and ensure your academic success in the online course		
What are other ideas you would like to share in regard to your online learning accommodations experience	Improve elearning support when students have trouble with access. Materials are in PDF.	Specific online resource Access to material

Appendix C: Codes Generated into Themes

Codes	Themes
Good Time management	Positive Assessment
Available Specific online resource	
Accommodation with positive impact	
Access to material for online accommodation	
Anxiety reliever	
Available Audio reading materials	
Poor Time management	Negative Appraisal
Insufficient Specific online resource	
Lack of accommodation	
Lack of access to material	
Anxiety	
Lack of Audio reading materials	
Accommodation availability	Applied Accommodations
Lack of accommodation	
Time management	Knowledge gained via experience
Specific online resource	
Access to material	
Anxiety	
Audio reading materials	
Accommodation	

Appendix D: UDL Principles

Principle 1	Multiple methods of representation
Principle 2	Diverse modes of student engagement
Principle 3	Multiple means of student action and expression