Faculty Engagement with Universal Design for Learning in the College Classroom

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The purpose of this qualitative case study was to explore faculty engagement with Universal Design for Learning (UDL) in the college classroom. Specifically, this study sought to uncover how instructors of record of Middleview University (MU) use and experience UDL-based tools and pedagogy. The lived experiences of the participants were examined to reveal any possible challenges, benefits, and level of professional preparedness concerning UDL principles and their application to the classroom.

Semi-structured interviews, classroom observations, and the collection of course artifacts and institutional content were the primary sources of data. The findings of this study revealed that, although the participants did not overtly identify the principles of UDL or recall prior UDL training, they were utilizing UDL in their classrooms because it afforded learning opportunities for students in a dynamic way. This dynamic pedagogical process was demonstrated by the ways in which the faculty of this study were flexible, collaborative, and open to utilizing various types of instructional support. Even though the faculty may have been using pedagogical strategies that mapped onto the UDL framework, their resulting course designs were not able to be designated
as a genuine application of UDL because of their inability to inherently recognize the tenets of UDL.

While using UDL-based strategies, the faculty encountered challenges with the amount of time required to plan and implement these methods, the lack of opportunity for collaboration with colleagues, and problems with technology. The faculty of this study often turned to applicable staff and support offices, such as the university’s Center for Instructional and Professional Design (CIPD) for assistance with any technology issues. Although CIPD is the primary office that supports the development of the faculty’s pedagogical knowledge of UDL, the faculty largely viewed their support as technological rather than pedagogical. This was attributed to the fact that CIPD mainly offers trainings centered on the institution’s learning management system and other educational technology, with little attention devoted to UDL. Thus, the findings of this study suggest the need for Middleview University to dedicate further attention to UDL-related support and education with an emphasis on collaborative opportunities and recognition of those faculty who currently employ UDL-based pedagogy.
FACULTY ENGAGEMENT WITH UNIVERSAL DESIGN FOR LEARNING IN THE COLLEGE CLASSROOM

BY

ERIN WILHELM
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A DISSERTATION SUBMITTED TO THE GRADUATE SCHOOL IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE DOCTOR OF EDUCATION

DEPARTMENT OF COUNSELING AND HIGHER EDUCATION

Doctoral Director:
Katy Jaekel
ACKNOWLEDGEMENTS

While I must contradict the indefatigable, Elle Woods, and assert that, yes, this journey was indeed hard, I certainly could not have undertaken any of this without the immeasurable support and kindness of many people.

I would like to express my deepest gratitude to Department Chair, Suzanne Degges-White, and staff member, Jamie Colbert, of the Higher Education and Student Affairs program for their ongoing encouragement and positivity. I am incredibly indebted to my chair, Dr. Katy Jaekel for her unflagging patience, support, and guidance. Thank you, Dr. Jaekel, for hanging in there with me! I am also extremely grateful to my other committee members, Dr. Gudrun Nyunt and Dr. Carrie Kortegast for their time and help throughout this process. Thank you both for your ongoing academic and emotional support.

I would also like to extend my sincere thanks to Dr. Deb Miller and all the staff I had the pleasure to come to know while volunteering at the Disability Resource Center: Naina, Julie, Caela, Rhiannon, Pam, Amanda, Karen, Carrie, Vivian, and Amylin. Thank you for being the epitome of inclusion and always making me feel welcomed and part of the team. I will always be grateful for your consummate support and sincere empathy.

I am also thankful to my classmates for their editing help, feedback, and camaraderie. Thank you for your moral support throughout this journey. A special thanks goes out to my study participants without whom I would not have been able to accomplish this dissertation. Thank you for being so gracious with your time and so generous with sharing your experiences.
I would be remiss in not mentioning my friends, especially Chynar Amanova, Naina Richards, and Barb Berkowicz. Thank you for always believing in me and helping me to stay motivated. I never would have persisted without the myriad of ways you lifted my spirits.

Lastly, I would like to thank my immediate family for their continual love and words of encouragement. Thank you for being there throughout and never letting me forget that this journey was possible.
DEDICATION

To my parents, Wayne and Lupe Wilhelm, for their indelible love and support,

and to my brother, Phil, for always believing in me
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CHAPTER 1
INTRODUCTION

Every year, students enroll in a myriad of available institutions of higher education in the United States. These individuals will be diverse—an aspect that has only increased over the years. From 1976 to 2015, institutions have reported significant increases in the percentage of college-going individuals who identify as Hispanic (4 percent to 17 percent), Black (10 percent to 14 percent), and Asian/Pacific Islander (2 percent to 7 percent) (National Center for Education Statistics, 2018). Student identities will be multifaceted, however, and it is important to recognize how each student’s race and ethnicity may intersect with other aspects of multiculturalism such as gender, nationality, sexual orientation, and socioeconomic status. Moreover, amongst this increasing population of college-going individuals are international students, students with visible and/or invisible disabilities, and students whose first language is not English. Within the higher educational setting, Universal Design (UD) and Universal Design for Learning (UDL) have been applied to the design of technology, buildings, campus services and curriculum with the goal of “consider[ing] the great diversity of characteristics that users possess, such as those with respect to ability, language, race, ethnicity, culture, gender, sexual orientation, and age” (Burgstahler, 2015a, p. xii). Thus, with such diversity at the forefront, faculty must acknowledge and address the significance of student diversity on the development of course design and methods of instruction by engaging in Universal Design for Learning (UDL) within their college classrooms.
Universal Design and Universal Design for Learning

Originally referred to as barrier-free design, Universal Design (UD) was initially a concept applied to architecture and consumer product development. In the mid-20th century, the United States experienced significant changes that ultimately impacted a substantial segment of the population (Story, Mueller, & Mace, 1998). A post-World War II backdrop saw the United States with an increased population of veterans with disabilities (Story et al., 1998). In turn, medical advances were contributing to longer lifespans not only for this population but older citizens as well (Story et al., 1998). This demographic shift resulted in significant legislative changes aimed at providing opportunities for full participation in education, employment, and public and private services and spaces for individuals with disabilities (Story et al., 1998). As legislative recognition of these areas grew, more attention was also paid to the design of architecture and development of consumer products (Story et al., 1998).

Universal Design (UD), therefore, emerged from the work of architects at the time who realized that creating accessible spaces was not only beneficial to individuals with disabilities but beneficial to everyone (Story et al., 1998). The term, Universal Design, was first coined in the 1970s by an architect and educator named Ronald Mace. He defined UD as “the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design” (Burgstahler, 2008, p. 6). Some examples of how Universal Design has been applied to the environment include features such as automatic doors, building ramps (Burgstahler, 2008; Jiménez, Graf, & Rose, 2007; McGhie-Richmond & Sung, 2013), and the signage used to indicate washrooms and other public areas (McGhie-Richmond & Sung, 2013). Within the postsecondary setting, UD has been applied to the design of a myriad of
areas such as building design and curriculum with the aim of reflecting the broad range of
diversity that users possess (Burgstahler, 2015a). Addressing such characteristics at the forefront
of development results in lesser demands on campus accommodation services and on the
institutional funds that would be required to transform an inaccessible space into an accessible
one (Burgstahler, 2015a, 2015b).

Universal Design for Learning (UDL), a curricular iteration of Universal Design, arose in
the mid-1980s, when the Center for Applied Special Technology (CAST) began to apply the
principles of UD to the learning environment through the incorporation of technology aimed at
promoting accessible and inclusive learning environments (Jiménez et al., 2007). Universal
Design for Learning (UDL) “represents a cohesive approach to promoting inclusion, one that
considers, on an ongoing basis, how curriculum, instruction, and assessment can be designed to
meet the learning needs of the greatest number of students without compromising academic
rigor” (Izzo, Murray, & Novak, 2008, p. 61). Thus, the foundations of UDL are poised to align
with the inherent goals of learning, such as the promotion and fostering of inclusive and
equitable education, and high academic standards for all.

UDL is founded on three main principles: multiple means of representation and
presentation, multiple means of expression, and multiple means of engagement (Beck, Diaz del
Castillo, Fovet, Mole, & Noga, 2014; Davies, Schelly, & Spooner, 2013; Izzo et al., 2008;
Jiménez et al., 2007; Schelly, Davies, & Spooner, 2011). UDL is a flexible pedagogical approach
and applying the three principles to a postsecondary course should be an ongoing developmental
process, rather than a fixed set of rules and procedures (Gravel, Edwards, Buttimer, & Rose,
2015). For example, the first principle, *multiple means of representation and presentation*,
entails educators providing students with various methods/modes of acquiring information (Izzo
et al., 2008; Jiménez et al., 2007), often through the use of technology (Trostle Brand, Favazza, & Dalton, 2012). Most often, faculty use some type of online course management system or social media platform through which to share course materials and/or promote student participation (Gravel et al., 2015; Pace & Schwartz, 2008; Smith & Buchannan, 2012).

The second principle, *multiple means of expression*, entails educators allowing students various options for how they will be assessed (Izzo et al., 2008; Jiménez et al., 2007). When applying this principle, faculty often offer alternative assessments such as individual and/or group projects and presentations, alongside the more traditional paper-and-pencil exams (Gravel et al., 2015; Smith & Buchannan, 2012). Finally, the third principle, *multiple means of engagement*, encourages educators to offer learning opportunities that tap into the students’ interests, thereby promoting active engagement and increasing motivation (Izzo et al., 2008; Jiménez et al., 2007; Trostle Brand et al., 2012). Faculty have applied this principle by employing such techniques as collaborative teamwork in small group projects (Gravel et al., 2015), whole and small group discussions (Black, Weinberg, & Brodwin, 2015), and the use of rubrics to prompt students to self-reflect on the learning process (Gravel et al., 2015). Overall, UDL challenges educators to be flexible with their instructional planning in order to best meet the learning needs of a diverse body of students.

UDL is considered a best practice for instruction (Trostle Brand et al., 2012; Yager, 2015) as it creates more flexible and student-centered learning environments (Vreeburg Izzo, 2012). UDL affords accessible learning opportunities “for individuals with wide differences in their abilities to see, hear, move, read, write, understand English, sustain attention, organize, engage, and remember” (Trostle Brand et al., 2012, p. 134). As such, students have experienced benefits to their academic performance (Black et al., 2015; Davies et al., 2013; Gravel et al.,
and their abilities to access information, participate in the learning process, and build upon their knowledge (Black et al., 2015; Gravel et al., 2015; King-Sears, 2009; Smith & Buchannan, 2012). For example, utilizing alternative modes for the delivery of instruction, apart from lecturing, can be beneficial for students who are deaf, whose first language is not English, or for those who have difficulties with processing language (Gravel et al., 2015). Faculty and instructors should strive to incorporate a wide range of pedagogical approaches within their courses to support the greatest number of students as they engage in the attainment of educational goals and the development of knowledge. These are the hallmarks of UDL.

**Terminology**

Within professional practice and scholarly research, Universal Design has been applied to the educational setting in the form of several approaches. Three of the most notable methods are UDL, Universal Instructional Design (UID), and Universal Design for Instruction (UDI). As these are all reflective of the application of UD principles to the educational environment for the purpose of a more inclusive and accessible learning experience, all three terms were included when conducting the research for this study. Universal Design for Learning (UDL), however, will be used as the all-encompassing term throughout this study.

**Statement of the Problem**

While UDL is known to help faculty and instructors reflect on the development of course content and the overall educational process (Gravel et al., 2015; Pace & Schwartz, 2008), they may often encounter various challenges and barriers during their pursuit of developing and
implementing a UDL-based course, its curriculum and environment (Burgstahler, 2015b; Silver et al., 1998). Much of the research highlights a need for appropriate and applicable training of faculty on the principles of UDL and their application to the various classroom components (e.g., the environment, curriculum, and course materials) (Davies et al., 2013; Izzo et al., 2008; McGhie-Richmond & Sung, 2013; Schelly et al., 2011), but much can impede the availability of training, let alone the general acceptance and application of UDL to an institution of higher education (Burgstahler, 2015b; Silver et al., 1998).

Within an institution, lacking a shared vision or possessing an inclination to adhere to the status quo can often make implementation of UDL difficult (Burgstahler, 2015b; Silver et al., 1998). In addition, it is also a challenge when the faculty themselves do not possess extensive pedagogical knowledge (Burgstahler, 2015b; Silver et al., 1998), nor believe that it is necessary to do more than provide requested accommodations to ensure an inclusive learning environment (Burgstahler, 2015b). Discriminatory attitudes and a lack of willingness to acknowledge the inequities that exist within the accommodation process are also important impediments to recognize (Burgstahler, 2015b). Lastly, “time and cost are often reported as deterrents to the widespread application of [Universal Design for Learning in Higher Education]” (Burgstahler, 2015b, p. 292). Oftentimes it may seem less expensive initially to purchase and/or design campus products with less accessibility but retrofitting accommodations later will likely result in a greater expense to the institution (Burgstahler, 2015b). Therefore, while UDL is known to be beneficial to both faculty and students, few faculty members are actually trained on how to implement UDL within their courses. Thus, UDL goes unused because of the lack of faculty development and/or commitment by the institution.
Purpose of the Study

The purpose of this in-depth, qualitative case study (Merriam & Tisdell, 2016) will be to explore the ways in which faculty utilize UDL in the college classroom. Specifically, this research project aims to explore how faculty use and experience UDL-based tools and pedagogy. My study will answer the following research question: How is faculty engaging with Universal Design for Learning in the college classroom? The three primary guiding questions for this project include: (a.) How are faculty using UDL in their classrooms? (b.) How do faculty address challenges when using UDL in their classrooms? and (c.) What are faculty perceptions of institutional support of UDL in the classroom?

Significance of the Study

My study is significant because it will contribute to both the existing body of scholarly research and current institutional practices. First, this study is meaningful because it adds to the literature by providing information on how UDL is important. Much of the existing research focuses more on the recommendation of best UDL-based practices (Black et al., 2015; Izzo et al., 2008) or the evaluation of the effectiveness and/or need of UDL training (Davies et al., 2013; Izzo et al., 2008; McGhie-Richmond & Sung, 2013; Schelly et al., 2011), while very few studies actually explore in-depth how faculty use UDL-based strategies within their courses (Gravel et al., 2015; Pace & Schwartz, 2008; Smith & Buchannan, 2012). As previously stated, students attending higher education institutions will be diverse and as such, it is imperative that the best pedagogical practices are employed to enable academic achievement and overall student persistence. My study focuses on exploring and reporting on the lived experiences of faculty
engaging with UDL in their courses. Thus, it will supplement the current gap in the research because its findings could potentially assist faculty as they endeavor to best serve their students.

Second, this study is significant because it will provide recommendations for institutional stakeholders about how faculty can implement UDL more effectively. With regard to current institutional practices, my study contributes by implicating a proactive rather than reactive approach to addressing the needs of faculty. By learning about faculty perceptions regarding their application of UDL, this study will provide information at the forefront about potential barriers, needs, and challenges of UDL implementation. Therefore, it is speculated that if the institutional supports and practices are already in place, then it would require less demand on institutional resources later in regard to faculty development of UDL knowledge. As this is a qualitative study, I will be attempting to explore the lived experiences of faculty regarding the possible challenges, benefits, and level of professional preparedness regarding UDL principles and their implementation. In doing so, this study will, in turn, potentially contribute to current institutional practices.
CHAPTER 2
LITERATURE REVIEW

The application of universal design for learning (UDL) to the academic setting is a pedagogical approach for addressing the educational needs of a diverse population of college-going individuals (Burgstahler, 2015c; Gravel et al., 2015). This can include elements such as the architectural design of buildings with accessible entrances, inclusive signage, and automatic doors (Yager, 2015) and the use of electronic textbooks and collaborative group work in the classroom (Gravel et al., 2015). As such, UDL is understood as a set of three principles geared toward removing barriers and making learning, and the learning environment, accessible and inclusive for the greatest number of students (Beck et al., 2014; Black et al., 2015; Burgstahler, 2008; Fovet & Mole, 2013; Izzo et al., 2008; McGhie-Richmond & Sung, 2013; McGuire, 2015).

In this chapter, I will discuss the scholarly literature on faculty engagement with the principles of Universal Design for Learning (UDL) in the college classroom. First, this review of the literature introduces the history of Universal Design (UD) and how UD paved the way for the creation of Universal Design for Learning. Next, this literature review will explore the ways in which students benefit from UDL. Finally, literature discussing the faculty experiences of applying the principles of UDL in their classrooms will be covered.

Historical Overview of Universal Design and Universal Design for Learning

The concept of Universal Design emerged as a result of demographic, legislative, and economic changes impacting older citizens and those with disabilities in the United States during
the 20th century (Story et al., 1998). At the start of the century, older citizens and individuals with disabilities, who were once considered minority groups, were living longer lives due to medical advances and healthier lifestyles (Story et al., 1998). This, coupled with a surge in the population of veterans with disabilities after the conclusion of two world wars, led to an overall population that was more aged and living with disabilities (Story et al., 1998).

During this time frame, the United States saw a huge uptick in enrollment in higher education. Due to the GI Bill, the federal government giving guaranteed loans, and higher education becoming more popular, more and more people were matriculating to institutions of higher education (Thelin, 2011). In particular, the GI Bill, created by President Roosevelt and Congress in 1944 to help ease the nation and its veterans into a postwar lifestyle and economy, guaranteed tuition assistance and a weekly stipend to any veteran accepted into a federally approved higher education institution (Thelin, 2011). By 1950, this resulted in an enrollment of 16 percent of the eligible veterans in higher education institutions, with many colleges and universities even seeing their enrollment numbers double in size (Thelin, 2011).

The United States acknowledged, in particular, those citizens with disabilities through the development of key federal legislation. Inspired by the Civil Rights Movement of the 1960s, the Disability Rights Movement set the tone for legislative changes throughout the latter half of the 20th century (Story et al., 1998). Of particular importance was Section 504 of the Rehabilitation Act of 1973, the Education for Handicapped Children Act of 1975 (now referred to as the Individuals with Disabilities Education Act), and the Americans with Disabilities Act of 1990 (ADA) (Story et al., 1998). Section 504 was the first law that addressed the civil rights of individuals with disabilities and “made it illegal to discriminate on the basis of disability and applied to federal agencies, public universities, federal contractors, and any other institution or
activity receiving federal funds” (Story et al., 1998, p. 8). The Individuals with Disabilities Education Act (IDEA) ensured a free and appropriate education for any child with disabilities and the Americans with Disabilities Act set the tone for widespread acknowledgement of the civil rights of individuals with disabilities (Story et al., 1998). Additional legislation, such as The Fair Housing Amendments Act of 1988 and the Telecommunication Act of 1996, were equally significant as they ensured availability of accessible housing and access to telecommunication devices and services, respectively (Story et al., 1998). On the whole, these legislative changes aimed to grant full access to education, employment, and public and private services and spaces but also began to impact daily living within the home (Story et al., 1998).

Acknowledging that separate accessibility features were not only expensive, but typically unattractive, architects at the time came to the realization that environmental changes designed to grant access to individuals with disabilities could actually benefit everyone (Story et al., 1998). This became the backbone of Universal Design. In the 1970s, an architect and educator named Ronald Mace first coined the term. He would later define UD as “the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design” (Burgstahler, 2008, p. 6). The need for Universal Design became even more apparent during the economic downturn of the 1980s which left very little funding for the improvement of inaccessible public spaces and brought attention to an ever-increasing marketplace of diverse consumers (Story et al., 1998). The affordability of a product’s design was and often continues to be at the forefront of its development and therefore, the concept of Universal Design has become a very appealing method for businesses wishing to be cognizant at the outset of the diverse needs and abilities of consumers (Story et al., 1998).
This desire to accommodate and address diverse individual needs has led to the application of Universal Design to the everyday environment. Some examples of how Universal Design has been applied to the environment include features now considered rather ubiquitous, such as automatic doors, building ramps, and curb cuts for individuals who utilize wheelchairs or strollers (Burgstahler, 2008; Jiménez et al., 2007; McGhie-Richmond & Sung, 2013). Some additional examples include the closed-captioning feature on video outputs and the signage used to indicate washrooms and other public areas (McGhie-Richmond & Sung, 2013).

**Universal Design for Learning**

In the mid-1980s, the Center for Applied Special Technology (CAST) began to apply the principles of UD to the learning environment by incorporating technology to make classrooms and the curriculum more inclusive and accessible (Jiménez et al., 2007). Universal Design for Learning (UDL), therefore, arose from the concept of Universal Design and “represents a cohesive approach to promoting inclusion, one that considers, on an ongoing basis, how curriculum, instruction, and assessment can be designed to meet the learning needs of the greatest number of students without compromising academic rigor” (Izzo et al., 2008, p. 61). Thus, the tenets of UDL are positioned to reflect the inherent integrity of teaching and learning, such as valuing student diversity and promoting equitable education.

Advancements in neurological research has shown that learning happens in various ways across three primary brain networks (Rose & Meyer, 2002). The three primary networks are the recognition system, the strategic system, and the affective system (Meyer & Rose, 2000; Rose, 2001; Rose & Meyer, 2002) (Figure 1). First, the recognition system helps learners identify patterns and make overall sense out of information and concepts (Meyer & Rose, 2000; Rose &
Meyer, 2002). Second, the strategic system assists learners in generating patterns and formulating and monitoring actions and skills (Meyer & Rose, 2000; Rose & Meyer, 2002). Third, the affective system helps learners to evaluate patterns and establish importance to the ideas assigned with emotional significance (Meyer & Rose, 2000; Rose & Meyer, 2002). While these networks may be structurally unique, they are jointly connected and work together throughout the process of learning any task (Rose & Meyer, 2002).

According to Rose and Meyer (2002), “Learners differ within and across all three brain networks, showing shades of strength and weakness that make each [learner] unique” (p. 11). For example, a student may enter the college classroom and be fully engaged in the class discussion, frequently raising their hand to ask or answer questions, but rarely completing assignments in

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Figure 1. Diagram of three neurological systems essential to learning (Meyer & Rose, 2000; Rose, 2001; Rose & Meyer, 2002).
full or on time. Although exhibiting strong affective skills, this student may require assistance with building their strategic skills so that they may plan and self-monitor the process of completing their assignments successfully (Rose & Meyer, 2002). These neurological insights, coupled with technological advances, have contributed to the development of Universal Design for Learning (Rose & Meyer, 2002). Knowledge of the three networks and how they vary from learner to learner, could assist faculty as they develop content, curriculum, and the overall learning environment to best support their diverse population of students (Rose & Meyer, 2002).

According to Izzo et al. (2008), “The framework of UDL consists of instructional approaches that provide students with choices and alternatives in materials, content, tools, contexts and supports they use” (p. 61). UDL is founded on three main principles: multiple means of representation and presentation, multiple means of expression, and multiple means of engagement (Beck et al., 2014; Davies et al., 2013; Izzo et al., 2008; Jiménez et al., 2007; Schelly et al., 2011). The first, *multiple means of representation and presentation*, refers to the multiple methods/modes through which content may be relayed while considering the learners’ diverse experiences and learning styles (Izzo et al., 2008; Jiménez et al., 2007). The second, *multiple means of expression*, allows learners to demonstrate their learning/knowledge through various methods of assessment (Izzo et al., 2008; Jiménez et al., 2007).

Finally, the third principle, *multiple means of engagement*, relates to the incorporation of learners’ interests so as to best address the levels of motivation and relevancy of the learners towards the course curriculum (Izzo et al., 2008; Jiménez et al., 2007). According to Jiménez et al. (2007), “When applied, these principles can assist teachers to recognize barriers to learning, strategically address such barriers and monitor student progress” (p. 45). Thus, UDL challenges educators to be flexible with their instructional planning in order to best meet the learning needs
of a diverse body of students. The intent is to make the curriculum and learning environment accessible to all students who possess both diverse abilities and diverse backgrounds (Izzo et al., 2008).

Figure 2. Principles and guidelines of universal design for learning (CAST, 2018c)

Figure 2, developed by The Center for Applied Special Technology, displays the connection of the three primary neurological networks to the three principles of Universal
Design for Learning. As the affective network helps to establish importance and emotional significance (Meyer & Rose, 2000; Rose & Meyer, 2002), it is logically connected to the UDL principle, providing multiple means of engagement, which focuses on addressing the learners’ interests within and towards the curriculum (Izzo et al., 2008; Jiménez et al., 2007). Next, at the top of the middle column, CAST (2018c) has connected the recognition network to the UDL principle, providing multiple means of representation. As this network helps us make meaning of information and ideas (Rose & Meyer, 2002), it is logically connected to a UDL principle that asserts the use of multiple methods/modes of instruction (Izzo et al., 2008; Jiménez et al., 2007). Then, at the far right, CAST (2018c) has associated the strategic network to the UDL principle, providing multiple means of action and expression. This is also a natural connection as both the network and the principle address the learner’s ability to make plans and to select the ways in which they may demonstrate their skills (Meyer & Rose, 2000).

Listed below each principle are three additional guidelines to assist educators with implementing UDL within their classroom. With regard to the UDL principle, providing multiple means of engagement, CAST (2018c) proposes guidelines aimed at providing options for recruiting interest, sustaining effort and persistence, and self-regulation. This is to say that educators who apply this principle should implement methods, for example, that encourage choice and autonomy, promote collaboration, and engage students in self-assessment and reflection (CAST, 2018b). In the middle column, the guidelines pertaining to the UDL principle, providing multiple means of representation, are geared toward providing options for perception, language and symbols, and comprehension (CAST, 2018c). In this regard, educators should, for example, employ options for presenting auditory and visual information, should clarify language, its accompanying vocabulary and symbols, and guide students through key ideas and critical
features of the curriculum (CAST, 2018b). Lastly, in the right-hand column, the guidelines connected to the UDL principle, *providing multiple means of action and expression*, are aimed at providing options for *physical action, expression and communication, and executive functions* (CAST, 2018c). Educators applying this principle should implement methods, for example, that afford access to technological tools, provide scaffolded support, and promote opportunities for appropriate goal setting (CAST, 2018b).

**Student Benefits of UDL**

According to Burgstahler (2015c),

Universal Design for Learning in higher education, benefits *all* students, including those with various learning styles and technological expertise, those whose native language is not English, those who are older than the average student, and those who are members of racial and ethnic minority groups. (p. 20)

Along this vein, several studies have reported that the application of UDL to the postsecondary learning environment can benefit students by positively contributing to their academic performance (Black et al., 2015; Davies et al., 2013; Gravel et al., 2015; Scott et al., 2003; Silver et al., 1998; Smith & Buchannan, 2012) and by promoting accessibility to content and encouraging participation and ongoing improvement in overall understanding (Black et al., 2015; Gravel et al., 2015; King-Sears, 2009; Smith & Buchannan, 2012).

Students who experience a UDL-based course can benefit from positive contributions to their academic performance because of their experiences with diverse teaching strategies, such as the use of outlines, summarizing techniques, and various modes of multimedia during instruction (Davies et al., 2013). Moreover, as is common in a UDL-based course, students experience straightforward goals and objectives throughout the duration of the course and may find it useful
to receive class notes or lecture slides offered in advance (Black et al., 2015). In addition, students who are afforded the opportunities for collaborative group work, self-reflection, and the use of alternative textbook formats that often allow one to make connections to the material through embedded links are better equipped to make relevant connections between the content and their learning (Gravel et al., 2015; Silver et al., 1998).

Students also benefit from the offering of alternative assessments—ones that align most closely to course objectives, are scaffolded, and have accompanying rubrics (Gravel et al., 2015; Scott et al., 2003). This practice allows students who possess various abilities or backgrounds the opportunity to choose the mode of assessment that best demonstrates their learning (Black et al., 2015; Gravel et al., 2015; Scott et al., 2003). In fact, students regularly demonstrated higher assessment results in the instances where various modes of assessment were offered (Smith & Buchannan, 2012). This result could have been attributed to these students selecting assessments that most closely suited their learning styles and interests (Smith & Buchannan, 2012).

In addition to the positive contributions to their academic performance, students also benefit from increased accessibility to course content, participation, and the continual improvement in their overall understanding (Black et al., 2015; Gravel et al., 2015; King-Sears, 2009; Smith & Buchannan, 2012). Students are afforded greater accessibility when content is provided in multiple formats and posting such content on a course website can be particularly more accessible for those students for whom English is not their native language or for those who have a language-based disability (Gravel et al., 2015; King-Sears, 2009). For example, students have the option of playing back a recorded lecture posted online in order to fill in any information missed during class (Gravel et al., 2015). Moreover, students who benefit from having information repeated or who miss a class due to unforeseen circumstances benefit from
the opportunity to replay lectures as it helps to reinforce their learning (Smith & Buchannan, 2012).

The practice of collecting and sharing student lecture notes on a course website is another example. Not only does this practice increase accessibility, but it helps “students [to] perceive, understand, and prioritize their learning in a range of ways” (Gravel et al., 2015, p. 88). It also allows students to experience being a full member of the class community and helps them to gain insight into their own particular learning process (Gravel et al., 2015; Smith & Buchannan, 2012). Lastly, many students may benefit from electronic versions of the textbooks and the availability of adaptive technology for use during exams (Black et al., 2015).

In addition to these benefits, students who experience a UDL-based classroom can also benefit from impacts on their course participation and on the continual progress towards their overall understanding. This is often experienced through the UDL-based methods employed to engage students in the course. As aforementioned, UDL promotes the use of multiple modes of course content and delivery. For example, students have been found to highly value instructional methods such as whole-class and small-group discussion (Black et al., 2015) since these methods allow students to engage more with course concepts, to check their understanding, and to garner peer opinions and feedback.

Additionally, when instructors utilize a social networking platform in place of a more traditional course website, students are afforded many opportunities for class participation and dissemination of applicable resources (Gravel et al., 2015). “Such uses of contemporary media in the course are mildly engaging for some students, but essential for relevance and comprehensive understanding for others, particularly those who were born in a different generation from their professors” (Gravel et al., 2015, p. 92). Overall, Universal Design for Learning is not a one-size-
fits-all approach for addressing the educational needs of students, but rather, a pedagogical approach that allows for flexibility within the classroom so that the greatest number of students may benefit.

Faculty Experiences and UDL

Much research has documented the implementation of UDL in the classroom (Black et al., 2015; Davies et al., 2013; Gravel et al., 2015; Izzo et al., 2008; McGhie-Richmond & Sung, 2013; Pace & Schwartz, 2008; Schelly et al., 2011; Smith & Buchannan, 2012). While many studies focus more on the recommendation of best UDL-based practices (Black et al., 2015; Izzo et al., 2008) or the evaluation of the effectiveness and/or need of UDL training (Davies et al., 2013; Izzo et al., 2008; McGhie-Richmond & Sung, 2013; Schelly et al., 2011), very few actually explore in-depth how faculty is using UDL-based strategies within their courses (Gravel et al., 2015; Pace & Schwartz, 2008; Smith & Buchannan, 2012).

Overall, faculty utilize strategies that are unsurprisingly reflective of the three principles of Universal Design for Learning (Gravel et al., 2015; Pace & Schwartz, 2008; Smith & Buchannan, 2012). Often an action plan is developed to redesign course features that would potentially decrease the reliance on accommodation requests (Smith & Buchannan, 2012) or would create a more active and accessible learning process (Gravel et al., 2015; Pace & Schwartz, 2008). In particular, faculty make changes to the delivery, communication, and assessment practices of their courses. For example, the use of technology, in one form or another, is evident throughout (Gravel et al., 2015; Pace & Schwartz, 2008; Smith & Buchannan, 2012). Faculty most often use some type of online course management system or social media platform through which to share course materials and/or promote student participation (Gravel et
al., 2015; Pace & Schwartz, 2008; Smith & Buchannan, 2012). The most common course materials posted within this online format include things such as recorded and captioned class lectures, supplemental learning resources, such as PowerPoint slides and/or collected student notes, and alternative textbook formats (Gravel et al., 2015; Smith & Buchannan, 2012).

Additionally, along with the online Blackboard platform, faculty have also utilized a software and device system called Classroom Performance System (CPS) (Pace & Schwartz, 2008). This response pad/clicker system allows for synchronous student participation when pre-written content questions appear within an instructor’s PowerPoint presentation (Pace & Schwartz, 2008). Moreover, faculty have made additional changes to delivery by moving away from lecture-style instruction and instead opting for more hands-on activities (Gravel et al., 2015). This may include mini-lectures followed by students breaking into small groups for collaborative teamwork that focuses on scaffolded activities relating to timely course content (Gravel et al., 2015).

Faculty have also made UDL-based changes to their communication practices by sharing and explaining course expectations in various ways. Two particular strategies include posting an electronic version of the syllabus on a course website or social media platform (Gravel et al., 2015) and the inclusion of accessibility and accommodation statements within the syllabus itself (Smith & Buchannan, 2012). Faculty have also adapted their communication practices by implementing collaborative note-taking techniques involving small groups of students (Smith & Buchannan, 2012). Each group is tasked with working as a team to create a final draft of the notes to post on the course website (Smith & Buchannan, 2012). Moreover, faculty communicate any pertinent class changes and announcements through multiple formats such as emails, texts, and the announcement board on the course website (Smith & Buchannan, 2012)
Lastly, faculty have made UDL-based changes to their assessment practices. Most commonly, faculty afford students their choice of assessment method, offering such choices as projects, presentations, and exams (Gravel et al., 2015; Smith & Buchannan, 2012). These assessments align well with course objectives, are often scaffolded, and expectations for completion are clearly explained by faculty through the use of modeling and the offering of rubrics (Gravel et al., 2015). In addition, faculty have altered their traditional assessment practices by offering students extended testing time for exams and alternative testing locations for when exams run over (Smith & Buchannan, 2012).

Benefits

The research highlights how the application of UDL promotes faculty to reflect on the development of course content and the educational process (Gravel et al., 2015; Pace & Schwartz, 2008; Shaw, 2011). Through the application of UDL’s three principles, faculty and instructors are prompted to consider modes of course delivery and overall course design/content that affords engaging and accessible learning opportunities (Pace & Schwartz, 2008). For example, the technology utilized, a device system called Classroom Performance System (CPS), afforded the opportunity for more active rather than passive class participation (Pace & Schwartz, 2008). Overall, all four professors stated that they would use CPS again in future courses due to the increased levels of student engagement and participation (Pace & Schwartz, 2008).

Faculty reported additional benefits in the areas of classroom accommodations (Shaw, 2011; Smith & Buchannan, 2012) and student assessment (Pace & Schwartz, 2008; Shaw, 2011). As UDL promotes a proactive rather than reactive approach to course design, faculty reported
either that less time was spent on arranging accommodations for individual students (Shaw, 2011) or that retrofitting accommodations was entirely avoided all together (Smith & Buchannan, 2012). In addition, according to Shaw (2011), UDL, “can improve the accuracy of the assessments of all students in a course” (p. 29). When implemented thoroughly, UDL can remove barriers reflective of student diversity (Beck et al., 2014; Black et al., 2015; Burgstahler, 2008; Izzo et al., 2008); barriers that potentially impede the accuracy of student assessment (Shaw, 2011). For example, the four professors who utilized the clicker technology, CPS, were able to assess students formatively rather than summatively by interpreting clicker responses, thus procuring a more authentic assessment of their students’ learning (Pace & Schwartz, 2008).

Challenges and Barriers of UDL

There are many factors that may present as challenges and barriers to the implementation of Universal Design for Learning in the higher education setting. Although much of the research discusses the need for applicable UDL training for faculty (Davies et al., 2013; Izzo et al., 2008; McGhie-Richmond & Sung, 2013; Schelly et al., 2011), many challenges and barriers can hinder the provision of training, let alone the general acceptance and application of UDL to an institution of higher education (Burgstahler, 2015b; Gradel & Edson, 2009; Higbee, 2015; Johnson & Fox, 2003; Pace & Schwartz, 2008; Silver et al., 1998; Yager, 2015). The research highlights aspects pertaining to both institutional and philosophical challenges and barriers (Burgstahler, 2015b; Gradel & Edson, 2009; Higbee, 2015; Johnson & Fox, 2003; Pace & Schwartz, 2008; Silver et al., 1998; Yager, 2015).
Institutional Challenges and Barriers

Institutions often face impediments to UDL application in the areas of vision, time, money, and resources (Burgstahler, 2015b; Gradel & Edson, 2009; Higbee, 2015; Johnson & Fox, 2003; Silver et al., 1998; Yager, 2015). When an institution of higher education and its stakeholders lack a shared vision regarding inclusive educational practices or possess an inclination to adhere to the status quo, then change becomes difficult (Burgstahler, 2015b; Silver et al., 1998). Implementing UDL throughout any campus is notably hindered when confronted with differing viewpoints towards processes, expectations, and outcomes (Gradel & Edson, 2009). The issue of time is another impediment to consider. An institution’s faculty population is the most affected by this aspect (Burgstahler, 2015b; Gradel & Edson, 2009; Johnson & Fox, 2003; Yager, 2015). Faculty often contend with full schedules and more and more job-related demands (Yager, 2015), making the process of examining and redesigning curriculum at the start of a new academic year appear time consuming (Silver et al., 1998). Furthermore, the structure of research universities, wherein faculty only have a designated amount of time to devote to teaching, and the remainder is devoted to disciplinary research, does not lend itself to affording opportunities for implementing UDL-based practices (Yager, 2015).

Of equal importance are the issues of money and resources. Oftentimes, it may seem less expensive initially to purchase campus products with less accessibility but retrofitting accommodations later will likely result in a greater expense to the institution (Burgstahler, 2015b). In addition, many institutions may have budgetary constraints regarding the amount of money allocated for technology (Johnson & Fox, 2003), let alone emerging assistive technology that may require training or the acquisition of new staff. A lack of resources, such as access to
UDL-based training and technological support, is a final impediment to consider. Faculty who may wish to implement UDL-based practices within their classrooms may struggle with their current familiarity with the use of technology or connecting with those within the technology support office (Gradel & Edson, 2009; Johnson & Fox, 2003; Pace & Schwartz, 2008). Moreover, faculty will have a difficult time attending to the diverse needs and learning styles of their students if they are unaware of available resources (Higbee, 2015) or lack training on UDL altogether (Silver et al., 1998). Thus, it is crucial to have access to applicable professional development, such as UDL-based training, and knowledge of additional campus resources, such as a disability services unit or instructional support office (Burgstahler, 2015b; Higbee, 2015).

**Philosophical Challenges and Barriers**

The faculty, themselves, may often possess philosophical challenges and barriers which impede the development and implementation of a UDL-based course, such as a lack of pedagogical knowledge, discriminatory attitudes, and an overall resistance to change (Burgstahler, 2015b; Johnson & Fox, 2003; Silver et al. 1998; Yager, 2015). Faculty are often not pedagogical experts but rather, experts within their academic field (Johnson & Fox, 2003; Silver et al., 1998). Therefore, it is a challenge to UDL implementation when the faculty do not possess extensive pedagogical knowledge (Burgstahler, 2015b; Silver et al., 1998). In addition, many believe it may not be necessary to study teaching methods or do more than provide requested accommodations to ensure an equitable learning environment (Burgstahler, 2015b).

Faculty may also exhibit discriminatory attitudes and an overall resistance to change (Burgstahler, 2015b; Silver et al., 1998; Yager, 2015). When faculty view students with disabilities as a burden and/or view higher education from an elitist perspective (i.e., a “survival
of the fittest” outlook), then the adoption of UDL-based practices will suffer (Burgstaher 2015b; Silver et al., 1998). This is compounded when faculty are unwilling to acknowledge the inequities that exist within the accommodation process (Burgstahler, 2015b). For example, a student who requires digitized versions of course materials may often receive such materials at a later time than other students in the course (Burgstahler, 2015b). Faculty resistance often manifests in the form of instructors who would rather utilize teaching methods that have been previously successful, even though such methods may not be appropriate for a diverse population of students (Yager, 2015). Faculty may also resent institutional efforts to alter their teaching practices since they typically have the liberty to teach in the way they see fit (Silver et al., 1998). Overall, if faculty is unwilling to engage in critical reflection, then they may have little to no inclination to consider redesigning course features, let alone ensuring that such features are universally designed (Johnson & Fox, 2003; Yager, 2015).

Conclusion

Although there is no one-size-fits all solution to inclusive practices within higher education, effective strategies do exist to support equitable learning, performance, and participation. The principles of Universal Design for Learning afford such opportunities. As a pedagogical approach, UDL allows for flexibility in course content, instruction, and assessment which, in turn, affords a learning environment where the greatest number of students may benefit. UDL will not eliminate the need for appropriate accommodations for individual students, but rather affords these students, as well as all students, access to higher education curriculum, learning experiences, and services in the most inclusive and equitable way possible. Although faculty may encounter various challenges to UDL implementation, such as a lack of time,
resources, or institutional support, a UDL-based course design can afford learning opportunities geared toward removing barriers and addressing the diverse needs of a diverse population of students—thus enabling academic success and overall persistence.
CHAPTER 3

METHODOLOGY

This chapter provides an overview of the research design and methodology of my study. I briefly re-introduce the purpose and research questions of my study and then I establish and discuss my epistemology. Next, I present a description of my research design which details my rationale for choosing a qualitative case study approach. This is followed by a description of the case site and the techniques I will utilize to recruit and select research participants. Then, I explain my procedures for data collection and analysis and discuss my positionality to the research. In addition, I share the strategies I will use to ensure trustworthiness. Lastly, I identify foreseeable limitations of my study.

Purpose and Research Question

The purpose of this case study of a four-year public research university was to explore the ways in which the faculty engage in the use of Universal Design for Learning (UDL) within their courses. My study explored the following research question: How do faculty engage in the use of Universal Design for Learning in their postsecondary courses? By interviewing faculty, observing classrooms, and conducting content analysis on relevant documents related to courses, this study sought to better understand how faculty defined, used, and leveraged UDL in their courses.
Researcher’s Epistemology

Before explaining the research design I used to answer this question, I discuss my epistemology as a researcher. Specifically, I focus on my worldview and how my worldview influences my approach to research design. This entails my views and beliefs as a social constructivist and how this lens impacts the way I perceive knowledge and reality. In addition, this discussion explores how my social constructivist worldview compels me to seek out qualitative research methodologies.

I view the world through a social constructivist lens. Social constructivism hails from the work of noted psychologist, Lev Vygotsky (1978), who believed that learning is constructed jointly by individuals and as such, one’s cognitive growth first occurs socially and then, individually. Along this vein, I believe that reality and knowledge are formed and shaped by people’s perceptions of their social interactions with others (Phillips & Soltis, 2009) and are heavily influenced by the context of the interaction and the culture of the individual(s) (Kim, 2001). I think research should strive to explore the lived experiences of individuals to increase our understanding and overall knowledge of these social experiences and perspectives (Hultgren, 1989). As a social constructivist, I am drawn to qualitative research methodologies because qualitative research strives to gain insight into how individuals construct and assign meaning to their lived experiences (Merriam & Tisdell, 2016). Moreover, because these types of methodologies focus on context and participants’ perspectives, I, as a social constructivist, am drawn to qualitative research designs’ focus on naturalistic settings where the researcher seeks to gather the participants’ perspectives about a designated area of interest (Creswell, 2013; Merriam & Tisdell, 2016).
I feel that the researcher’s role throughout this process is “to make sense of (or interpret) the meanings others have about the world” (Creswell, 2014, p. 8). Similar to Creswell (2014), I believe that researchers must approach these interpretations with a clear understanding of their own experiences and backgrounds as these aspects affect how one collects, analyzes and interprets the data. By carefully reflecting on one’s own experiences, the researcher can become more open to participants’ perspectives and viewpoints. This approach also connects to the way in which I believe a researcher should conduct interviews with participants. I believe that the researcher should ask open-ended questions to illicit rich data about the participants’ views about a situation and/or experience. The researcher should strive to listen intently to be ever mindful of the social, cultural, and contextual details of the participants’ responses—aspects that are also indicative of the social constructivist paradigm.

Research Design

This project used a qualitative case study design approach. Qualitative case studies seek to uncover an extensive description and analysis of a clearly identified case (Creswell, 2013; Merriam & Tisdell, 2016) that exists within a real-life context (Yin, 2002). As is typical of qualitative case studies, I selected a case that was bounded, which means the circumstances of the case were limited within time and space (Creswell, 2013; Merriam & Tisdell, 2016). My case was one four-year public research university in the Midwest. The participants were instructors of record of an undergraduate and/or graduate course who identified that they engaged with UDL in their courses. This is an appropriate methodological approach for this study because it is a bounded system and as such, this allows us to inquire within a space that has a particular context
which will, in turn, afford us with a better understanding (Creswell, 2013; Merriam & Tisdell, 2016).

In an effort to get an in-depth understanding of the case, I utilized multiple and extensive data collection methods—another characteristic indicative of qualitative case study design (Merriam, 1998; Stake, 1995; Yin, 2009). Consistent with this method, I conducted semi-structured interviews (Patton, 2015), performed classroom observations, and analyzed documents and institutional content, all of which were focused on gathering and identifying participants’ perspectives (Stake, 2005). As my end goal was to afford a thorough understanding of how faculty engaged with UDL in their college classrooms, I sought to uncover an extensive description of the emerging themes of my case by conducting multiple rounds of coding—an approach typical of qualitative research (Merriam & Tisdell, 2016). Next, I will provide a description of my site which will illustrate the focus on context, a characteristic typical of qualitative case study design (Merriam, 1998; Yin, 2002).

Site

Since context is important in case studies, it is essential to understand the type of institution where this study took place. Middleview University (the pseudonym selected for this study) was a four-year public research university that served a population of 17,169 students. This includes students pursuing undergraduate, graduate and law degrees. The institution served both in- and out-of-state residents, as well as international students hailing from 77 different countries. With regard to their undergraduate population, 55% were White, 15.8% were Black, 17.9% were Hispanic/Latino, 5.4% were Asian, 0.1% were American Indian, and 3.7% were two or more races. Of this population, 50.8% reported their biological sex as male and 49.2%
reported their biological sex as female. With regard to their graduate student population, 61.1% were White, 6.3% were Black, 7.6% were Hispanic/Latino, 6.8% were Asian, 0.1% were American Indian, and 2.7% were two or more races. Of this population, 46.6% reported their biological sex as male and 53.4% reported their biological sex as female. The institution did not currently collect data on students’ gender or sexuality.

Middleview University had an instructional faculty population of 1,177 individuals. The institution also employed 1,182 graduate assistants—816 of whom were instructional. Of this instructional faculty population, 17% had achieved the ranking of Full Professor, 21% as Associate Professor, 14% as Assistant Professor, 31% as Instructor, and 17% as School of Professional Studies. Middleview University reported that 71.8% of their full-time faculty was White, 2.9% was Black, 2.5% was Hispanic/Latino, 6.6% was Asian, 0.2% was American Indian, 0.5% was two or more races, and 14.3% were non-residents. Of this full-time faculty population, 52.3% reported their biological sex as male and 47.7% reported their biological sex as female.

Middleview University had two campus offices available to faculty seeking to diversify their curriculum and/or address the inclusion of all students within their courses. The first was The Center for Instructional and Professional Design (CIPD), which provided professional development, program design, and assistance with the incorporation of effective educational technology for the instructional faculty of Middleview University. Some program offerings were delivered as face-to-face workshops, while others were offered online. Faculty, instructors, and teaching assistants could access support and/or trainings related to areas such as the Blackboard classroom portal, dynamic teaching strategies, techniques for managing online courses, and the use of technological tools such as clickers, PowerPoint, and Adobe Presenter.
In addition, through their website, the center provided recordings of previously offered online workshops. These workshops were originally presented live and were then available for on-demand viewing. The workshop recordings were organized according to four categories: teaching and learning, online teaching and learning, Blackboard, and technology. Amongst the myriad of topics, the center offered access to three workshop recordings about Universal Design for Learning— each one dedicated to a separate principle of UDL. Each workshop began by presenting an overview of UDL and its three principles and then delved further into the particular UDL principle selected for discussion. The workshops concluded by offering strategies and techniques for applying each principle to one’s course design and curriculum.

The second campus office available to faculty at Middleview University was the Disability Resource Center (DRC). The DRC worked to create accessible and inclusive learning environments by ensuring an effective process to request and receive accommodations, by engaging in consultations with faculty and staff on how to best decrease barriers for individuals with disabilities, and by providing trainings and collaborative programs for faculty, staff, students, and the surrounding campus community. Alongside their resources for students, families, and visitors, the Disability Resource Center website provided information for faculty and staff regarding areas such as academic accommodations, university policies, syllabus accessibility statements, and teaching diverse students. It is here where any faculty or staff member could access direct links to resources dedicated to providing information about Universal Design for Learning. For example, there were links to the Center for Universal Design in Education at the University of Washington and the UDL page of the Center for Applied Special Technology (CAST). Lastly, there was also a link that directed one to the Center for Instructional and Professional Design and its available resources on UDL.
Participant Selection and Recruitment

This study sought to interview instructors of record at Middleview University. Participants were recruited through convenience sampling (Merriam & Tisdell, 2016; Patton, 2015). I did this by first introducing myself and the purpose of my study via an e-mail sent out to the staff at the university’s CIPD (Appendix A). I asked the center to disseminate my e-mail to any instructor of record who is known for utilizing UDL in their courses. After gaining some participants, I then used snowball sampling (Merriam & Tisdell, 2016) by asking those who agreed to participate if they knew of other instructors of record who were using UDL principles and would be interested in participating in the study. In total, six instructors of record agreed to participate in the study.

Data Collection Methods

Once I identified instructors of record who were willing to participate, I began the data collection procedures. As is typical of qualitative case studies, I utilized multiple data collection methods (Yin, 2009) to obtain an in-depth understanding of my case (Creswell, 2013). The first data collection method consisted of two semi-structured interviews (Patton, 2015). Prior to the interviews, consent forms were completed (Appendix B). Due to the pandemic occurring concurrently with my data collection process during the Summer and Fall semesters of 2020, all interviews were conducted online through the platform of Zoom. The first interview for participants lasted between 60-90 minutes and the second semi-structured interview lasted between 45-60 minutes. During each interview, I took notes on my corresponding interview protocols (Appendices C and D). Of the six participants, only five completed both rounds of
semi-structured interviews. All participants were assigned a pseudonym (Merriam & Tisdell, 2016), and interviews were recorded and transcribed verbatim using Otter.ai and/or Rev.com.

Additionally, of the six participants, five agreed to allow me to observe their class sessions. These class sessions lasted between 60 minutes to three hours, depending upon if they were undergraduate courses (which typically lasted 60 minutes) or graduate courses (which lasted 3 hours). To ensure observations provided data around UDL principles and their uses, I asked the instructors of record to identify at least one day that I could observe their class where UDL was being used. After the instructors of record identified days, I arranged with them when I would attend. Because data collection occurred during the COVID-19 pandemic, all observations were done online. During observations, I kept my camera on, arrived when the class session began, and stayed the entire duration. Instructors of record typically introduced me to their class, explained why I was observing, and provided the opportunity for students to ask me questions. After the introductions, I took the stance of observer as participant. As described by Gold (1958), the observer as participant is a role in which the researcher’s activities are known to the group, but his/her primary role is to collect information rather than to actively participate (as cited in Merriam & Tisdell, 2016).

During each observation, I took notes on my observation protocol (Appendix E). The observation protocol had space to record both observational and reflective field notes. This reflective component equates to the beginning stages of the analysis process and it, alongside observational data, is a crucial element to qualitative research (Merriam & Tisdell, 2016). I designed the observation protocol to reflect my research purpose and used the sheet to attend to aspects such as the types of teaching methods used and the ways in which the students were demonstrating their knowledge and skills. After leaving each observation, I immediately wrote a
data collection memo. By doing so, I had a more descriptive narrative of what I observed which assisted my analysis process.

I also collected artifacts from participants in the form of electronic and/or hardcopy documents that participants used in relation to their engagement with UDL. I asked participants to share any documents that reflected their use of inclusive teaching methods and strategies that leveraged UDL. Five participants gave me their course syllabi. Some participants provided additional documents such as goal worksheets, and documents that gave instructions on a course assessment/activity, however, overall, participants did not provide any other documents.

**Content Analysis**

Lastly, as part of my data collection process, I explored the UDL-related content and resources available through Middleview University’s CIPD website by engaging in content analysis (Hsieh & Shannon, 2005). Here, content analysis is a flexible tool for analyzing texts and serves as an analytical approach that “…focuses on the characteristics of language as communication with attention to the content or contextual meaning of the text” (Hsieh & Shannon, 2005, p. 1278). Thus, I examined when UDL was mentioned, where UDL was mentioned, and how it was discussed on the CIPD’s website.

Upon visiting CIPD’s website, I examined all links, tabs, and articles for mention of UDL. I read through articles, upcoming workshops, about their programing history, and it was there that I found a three-part UDL workshop series. This workshop series, which was delivered in 2016, was divided into three parts. I analyzed the information about the workshops, noting how principles of UDL were noted, discussed, and/or explained. I also did a search on their website to find any other mention of UDL on their site. The only other item that came up was a
“Resources Page” that gave links to other institutions that use UDL and/or could give tips to users.

Data Analysis Process

As is characteristic of qualitative research, data analysis occurred concurrently with my data collection process (Creswell, 2013). I employed the process of descriptive coding throughout my data analysis. Descriptive coding is a method by which the researcher examines a section of qualitative data and summarizes what is talked or written about with a word or short phrase (Saldaña, 2016). This process affords a straightforward method of categorizing the data and is a very applicable coding process to use with field notes, artifacts, and documents (Saldaña, 2016).

My coding process entailed multiple rounds of coding, which is typical in qualitative research (Creswell, 2013; Merriam & Tisdell, 2016). During my first round of descriptive coding, my aim was to produce a better description of my case. In this round, I marked any data that was important to include in the case description. In my second round of descriptive coding, I coded based on my research question. In this round, I went through data multiple times to look for aspects related to the participants’ experiences with UDL including, but not limited to, any possible obstacles they may have faced and any possible benefits they may have encountered. Subsequently, during my third round of descriptive coding, I examined the data for emerging themes and how those may interconnect. Finally, I performed a final round of descriptive coding looking specifically for data that contradicts my themes.

Once coding was performed and themes had begun to emerge, I triangulated this information among my other sources of data. I utilized multiple methods of data collection to
enact the process of triangulation. I compared the emerging themes from the analyzed interviews to those from the observations, artifacts and collected content, looking for evidence that corroborated the themes between the four data sources (Creswell, 2013). This data analysis process ended when I reached data saturation—saturation occurs when one begins to recognize within the data “the same or similar kinds of information related to the categories of analysis” (Jones et al., 2006, p. 71). Upon similar findings, I concluded I had reached saturation from this data set.

Trustworthiness

To ensure the trustworthiness of my study, I utilized several well-established validation strategies typical of qualitative research: triangulation, peer review, and the use of thick, rich descriptions (Creswell, 2013; Merriam, 1998). As aforementioned, triangulation of data from different sources was a key component to my data collection and analysis procedures. The triangulation process is important because using multiple methods of data collection will provide a more in-depth understanding of my case, thereby increasing its validity (Creswell, 2013; Merriam, 1998). I also utilized a peer review process. I shared aspects of my study with classmates within an informal writing group and with a faculty member within my department. Moreover, I continually checked in and garnered feedback from my dissertation chair throughout the course of conducting this study. Lastly, I provided thick, rich descriptions of my case and the participants’ experiences within my findings section. Thick, rich descriptions are a key component to increasing the prospect of transferability of my findings to other studies or settings (Creswell, 2013).
Researcher’s Positionality

As previously asserted, I believe that researchers must approach their studies and subsequent interpretations with a good understanding of their own experiences and backgrounds (Creswell, 2014). As such, this section presents an overview of my personal and professional experiences and how these experiences influenced my approach to this research study.

I have some insight to the research because of my professional and educational experiences. Because of my time spent as a public-school teacher, I have classroom experience and a firm grasp on my own pedagogy and educational philosophy. Moreover, throughout my course work as a doctoral student, I have developed a foundational understanding of Universal Design for Learning (UDL), its three principles, and their applicability in the classroom. As such, I believe in the full implementation of UDL but sought to listen intently to participants’ perspectives and be mindful of the possibility that they did not feel the same.

I am an outsider to the population I am researching because I have no personal experience with teaching at a four-year research university. To gain my participants’ trust, as an outsider, I utilized approaches that demonstrate the utmost sensitivity and regard for the individuals participating in my study. When interviewing participants, I picked as neutral of a location as possible, so that they would feel comfortable and safe to share and/or disclose experiences. I also built rapport with participants by asking ice breaker-style questions at the beginning of each interview. It is my sincerest hope that these efforts exemplified my true concern and consideration for how this sample population makes meaning of their everyday experiences and lived truths.
Limitations of Study

There are a few potential limitations in this study. First, there is a possibility that the classroom observation process might have influenced participant behavior and/or influenced the likelihood of gaining participants. Often, when a person observes another person teaching, the individual doing the teaching tends to get very nervous. Thus, this may influence how a specific course session unfolds and in turn, may skew the observational data. Moreover, a participant’s personal aversion to being observed may motivate them not only to refrain from participating in the study but refrain from recommending others as well. To address this, I worked to reassure all participants that the purpose of my observations was not to judge but rather, to come to know how they are engaging with UDL in their classrooms. I suspect this is why one of the participants decided not to allow me to observe their class session.

In addition, there is a likelihood that the instructors of record at Middleview University might be using UDL but not labeling it as such. Moreover, there is a possibility that nobody is actually using UDL and therefore, there will be no participants for this study. To address this, I exerted efforts to humbly educate the instructors of record at this campus. I included in my e-mail to recruit participants (see Appendix A) a list of what UDL looks like in action. This entailed a checklist of questions so that individuals could reflect on their personal teaching practices and deduce the degree to which they are currently engaged with UDL in their courses.

Finally, this study was conducted during a global pandemic. Thus, all data was collected through virtual means and during a stressful time for both faculty and students. To that end, it is possible that this moment in time impacted how faculty engaged in teaching, learning, and instruction.
Conclusion

This chapter described my research methodology. I used a qualitative case study design to answer my research question. The purpose of this case study of a four-year public research university was to explore the ways in which the instructors of record at this institution engaged with Universal Design for Learning within their courses. I discussed how I used multiple methods of data collection including: two semi-structured interviews with each participant, observations, collected course artifacts from participants, and an analysis of UDL-based content provided by the institution. I also discussed how I analyzed the collected data through multiple rounds of coding to look for aspects related to the instructors’ experiences with this UDL-based course and whether they encountered any benefits and/or challenges during these experiences.

In chapter four, I will present my findings which will include a detailed description of my case and a discussion of themes about the experiences of instructors who utilize UDL that emerged from the data. Finally, in chapter five, I will provide a discussion that elucidates the meaning of these themes and explores implications for future practice and research.
CHAPTER 4
FINDINGS

The purpose of this study was to explore the ways in which faculty at Middleview University (MU) utilized Universal Design for Learning (UDL) in their college classrooms. The three research questions that guided this study include:

1. How are faculty using UDL in their classrooms?
2. How do faculty address challenges when using UDL in their classrooms?
3. What are faculty perceptions of institutional support of UDL in the classroom?

The faculty perspective was the primary focus when delving into the usage of UDL-based pedagogy in the college classroom. This chapter provides findings from the interviews with faculty/instructors, as well as the findings from observations, applicable classroom artifacts, and a content analysis. Three primary themes emerged from this study and will be discussed in further detail in this chapter. These findings were: 1.) participants found that UDL was a dynamic pedagogical process, 2.) faculty challenges to UDL implementation, and 3.) institutional support as technological rather than pedagogical support.

UDL as a Dynamic Pedagogical Process

Despite the fact that the majority of participants did not overtly identify the principles of UDL or really hearken to a time when they had been formally taught about UDL and how to implement it, they did share how they adopted and applied these principles in their interviews. Participants shared that they utilized UDL because it provided a way to represent information
and facilitated learning opportunities for students in a dynamic way. This dynamic pedagogical process manifested in the ways in which faculty were flexible, collaborative, and willing to utilize various types of instructional support.

**Flexibility**

All participants discussed flexibility through the ways in which they described and demonstrated their instructional approach and designed their overall course curriculum. The participants detailed a flexible, open, and student-centered approach to instruction and displayed flexibility through their utilization of a variety of course activities, assignments and/or assessments.

**Instructional Approach**

All participants described themselves, and their approach as an instructor, in a manner that emphasized their belief in flexible, student-centered instruction. Many participants discussed and/or exhibited this approach through their use of adaptable teaching methods, the incorporation of student interests, backgrounds, and learning styles into the curriculum, and a motivation to promote engagement between and amongst students. For example, Laura overtly described her instructional approach as student-centered when she shared,

> I definitely use a student-centered approach. I feel like I learn as much from the students as they learn from me. And I try and set up a classroom so it's a fertile space for learning. And I do that basically, I think it's really important to honor where the student is at. And to respect that and to just try and both of us together move forward. So they gain something from the course.

Laura explained her instructional approach in terms of her belief in reciprocal learning opportunities and through her acknowledgement of, and respect for, the skills, knowledge and/or
experiences her students may bring with them upon beginning her course. In doing so, Laura believed she would be setting up opportunities for successful learning.

Another participant, James, described his flexibility and student-centered instruction in terms of changing course topics and class discussions to better align with student interest. He offered,

I will change the topics from week to week, depending on the class, what they're interested in, maybe what they shared with me, they wanted to talk about more. So again, I'm trying to get them to learn from each other, but also in the course of the class, especially early on, I'm trying to learn about them. So we try to adapt some of the topics and the conversation based on stuff that I learned early on about them and what their interests are.

Regarding James’s instructional approach, he emphasized his willingness to be amenable to change based on his students’ needs and interests. He strived not only to learn about his students from the start, but to incorporate what he learned from them and worked to adapt the curriculum on an ongoing basis.

Elaine and Paul also described their readiness to acknowledge and integrate student needs, interests, and/or backgrounds into their instructional approach. Elaine mentioned that she instructed multiple course sections and stated, “Even from section to section, I try to adjust, I try to reflect the personality and the needs of the students in that classroom.” Paul also elaborated and explained how he is flexible with this teaching due to his willingness to attend to his students’ unique backgrounds.

And I think, each time, you would like to say you are improving, and I think that that's certainly the case. You get better at it. But each instance, because the individuals bring their own backgrounds, it's something unique every single time. So there's always something you're adapting to. And I've gotten really comfortable with the discomfort of not knowing exactly what is going to happen.
Paul described how his adaptable instructional approach was a result of his ability to acknowledge the rich experiences and unique backgrounds that his students possess and bring with them to the classroom. Although the breadth of these experiences tended to ebb and flow, Paul seemed to welcome and embrace the uncertainty.

In regard to the promotion of engagement through their instructional approaches, many participants expressed the degree to which they emphasized student engagement in the classroom. They acknowledged how important it was not only for students to engage with one another, but for instructors to engage with students as well. For example, Rachel discussed her commitment to be engaging with her students and the part it plays when building a sense of community in the classroom. She offered,

> I try to personalize myself, humanize myself from the very beginning, and use humor. Let's pair and share and get some ... Let's talk about what are things of interest to you. “Who's your favorite band?” So I try to kind of do that early-on engagement in the classroom to form that sense of community and humor, and just it can be funny but appropriate. So I'm not a very tightly laced facilitator by any means.

When describing her instructional approach, Rachel emphasized her belief in the use of humor to promote student engagement, thereby fostering an authentic feeling of community with and amongst her students. She felt her use of humor would also, in turn, convey her commitment to flexibility and approachability as an instructor to her students. This was also seen in observations when one participant, Elaine, made small talk with her students about their pet cats, thereby building community in the classroom.

Another participant, James, shared his belief in student engagement and its importance to the learning process:

> I'm trying to get students to learn from each other and share experiences. In my course, it's really not a talk-to-you instruction. And I can share my past experiences and what I know about the university, but it's really more about engaging each other, connecting
with each other, and figuring out where they fit at [MU], and what they want to do moving forward.

James highlighted how student engagement is key to his instructional approach because his focus is less about talking at his students and more about promoting engagement amongst them. In doing so, James hoped to cultivate the most impactful and worthwhile learning opportunities for his students.

In addition to their readiness to be adaptable to student needs and interests and provide opportunities for student engagement, many of the participants detailed and/or exhibited a flexible, student-centered instructional approach through their willingness to offer students choices of assessment and/or alternative assignments. For example, Laura discussed how she gives her students a choice of what they would like to do as their final assessment. She explained, “This year I let them choose for the first time. They can do a project, they can do a presentation or they can write a paper. And I think that gets to people's learning styles a little more accurately.” By giving her students a choice, Laura felt that she was affording the students agency to decide the mode of assessment most appealing to their individual learning styles.

Another participant, Mary, described how she provides her students choices in assignments. She shared,

I give a lot of various choices in the assignments. There's one in my sexuality class where we talk about gender and they have their choices of maybe four videos they can watch. And one deals with women advertising. One still deals with the man, and somebody else in culture. And so they pick which ones they want and they will pick the ones that a.) they feel they can do well in. Two, that they're interested in.

Mary illustrated how she afforded students the opportunity to make choices by providing them with various options within a singular course assignment. Much like Laura, Mary believed that
this would enable students to select an assignment that most closely aligns with their learning styles and academic interests.

The final way in which participants demonstrated a flexible, student-centered instructional approach was evidenced by their views towards deadlines and traditional grading requirements. For example, Laura explained how she “give[s] due dates, but [she] [doesn’t]
require you then to adhere to due dates.” She elaborated,

   And you can tell right away the students who maybe have more anxiety about school or assignments, and the students who maybe need a little more structure. So, I try and tell them, look if you're someone who needs a deadline, there are deadlines. And if you're someone who needs an extension on a deadline, talk to me. I believe a lot in natural consequences, not made up consequences. I'm not sure if my students get what they need, and I'm not sure that my students are able to communicate what they want out of my course in any high level. I know when they’re interested and excited. And so I'm constantly going for that, because if all else fails, if they're interested and excited, they'll gain something.

Laura described how her flexibility towards deadlines is indicative of her view towards accountability, student engagement, and learning outcomes in general. By communicating with her students about her positionality towards due dates, Laura believed that her students should also communicate with her regarding their request for assignment extensions, thereby encouraging them to be accountable. She also emphasized the importance she places on trying to continuously engage and ignite student interest because, in her opinion, student learning is born from a true spark of excitement. Laura’s flexible pedagogical approach was also seen during the observation of her course session. For example, I observed Laura explaining to her students in class that there would be opportunities to re-take their online quiz since “[her] goal [was] to learn.” Again, this demonstrated how much Laura valued a flexible learning process.
Paul also explained his flexibility in terms of his grading methods. He was less concerned with the ways in which students format their written assignments or their ability to adhere to traditional grammar rules. He shared,

I'm looking for is there an equivalent somewhere, three to five salient ideas, whether they're complete sentences or not. Some students have done an amazing job, and they put these things together with their name and heading and the date, like I would if I were submitting it, double spaced. They followed the syllabus to a T. I think that part of it is, again, for those who have the opportunity to save it to a PDF and upload it. Others have found it easier just to type into the chat in the technology itself. So, I'm not going to ding them if it's not Times New Roman, because the chat doesn't support it, or the submission doesn't support it. Is this something that they can have as useful to them? They get full credit.

Paul described his grading approach in a way that highlights how unbothered he is by his students’ ability to follow proper grammar rules or to demonstrate standard formatting for academic work. Instead, Paul was more focused on the extent to which his students related to the course material. For Paul, it was more important that his students were able to identify and explain something meaningful from the curriculum, especially if they could make personal connections between themselves and the topic at hand.

Course Curriculum

The participants also demonstrated flexibility through the ways in which they designed their overall course curriculum. This was shown through their usage of an assortment of activities, assignments, and/or assessments.

The participants utilized an array of classroom activities which included both traditional and non-traditional activities. For instance, the participants frequently employed whole group discussions, small group breakout sessions, discussion board prompts, partner work, the use of case studies, and writing prompts. They also utilized experiential-type activities, student-led
lessons, one-on-one meetings, and rapport-building activities. Moreover, the participants used a variety of online activities such as presentations of YouTube videos, and the use of polling and quiz websites. One participant, James, described a couple of student-led activities he utilizes in the classroom, when he offered,

I do one group assignment where they're teaching their classmates. I assigned a chapter from the ebook and had them discuss what was in it. What were the high points, what they took away from it, whether it was meaningful, how it connected to them, and shared a 20-minute presentation. And the other one that I kept is the one where I assign them three offices around campus and ask them to go and report back. And again, what's the highlights to them, what the students need to know, have they used it prior? What didn't they know going in about the office? And so, I think that's worked out really well versus, "Everybody go to every office and try to do something." And then it's been more beneficial to ... three is enough. And if you can present ... then you'll hear about the other offices around campus [and] will be listening to your peers.

James shared how these activities enabled the students to take ownership over their learning process because the students were given the responsibility of gathering, organizing and delivering key information applicable to the course. Not only are the students placed at the center of their own learning, but they were afforded opportunities to engage with and benefit from the knowledge shared by their peers.

Another participant, Rachel, shared an example of an experiential learning activity that she used in her course. She stated,

I have [staff member name redacted] come in and talk about the resources that we have on campus, and then I take them over to the career center, because it's one thing for me to be like "Go to the career center." It's another thing to physically for us to be in that space so that they feel comfortable going there, and so then we talk about what you need to do to be career ready and how you need to present yourself at an internship, how you need to get your resume and all those kind of fun things. So yeah. I mean, we talk about it, I think, within that context and kind of organically weaved in.

Rachel explained how she utilized an activity that immersed the students into an interaction with the university’s career center. This type of experiential learning activity provided a more
realistic, hands-on experience with an on-campus resource, thereby making it more meaningful for the students.

The participants also used a variety of course assignments and/or assessments within their course curriculum. This included, but was not limited to, quizzes, article reviews, classroom participation, group presentations and projects, cooperative group essays, and role play assignments. Many participants also implemented assignments and assessments centered on reflections. These were in the form of self-reflections/assessments, reflections on guest speakers, and peer reviews. In addition, some participants utilized ePortfolios, a business scenario assignment connected with an online database, and an online simulation game. The majority of participants also utilized rubrics when assessing their assignments and assessments.

One participant, Elaine, shared an overview of her role play assessments:

So, I mentioned earlier that one of the biggest things, like project, in my sales classes, are those three role-plays. They build on each other. So go through the first one, which then leads you to the second, which then leads you to the third, right before you finally close the deal. They typically do those role-plays with business professionals, not other students.

Elaine’s students worked with real-world, industry-related professionals to act out sales-related scenarios in an attempt to sell a designated product. These role play projects not only provided an experiential-learning opportunity for the students, they also allowed Elaine to assess her students’ abilities to be flexible and creative with the task at hand. Elaine stated that she stresses to her students that, “This is a conversation. There's certain things you have to hit within the conversation, but you can do it a million different ways. There's an infinite number of ways to do it." This was a prime example of how Elaine demonstrated and implemented her own flexible instructional approach with her students.
Mary, who utilized cooperative group essays as a form of assessment, explained why she decided to use more group work in her course curriculum. She offered,

So yes, I have gone to a lot more group work, probably more in the last, maybe five years than even, prior. Doing the group work, kids will learn more from groups and that collaborative effort. That's been a lot more in the last five years than it was prior. So anyway, that's how I approach, how I design my courses. They're all the same framework, a lot of cooperative learning. Some have, because of the numbers in my classes this last time I went to group projects online and I thought, "People that hate group projects are going to hate the class." Well, it turned out to be the other way. They really liked it because this was their way of getting other people's opinions.

Mary clarified that her reason for incorporating more group work into her curriculum was due to her belief that students will be more academically successful if they are afforded opportunities to collaborate with others. Even in those instances where she feared an online platform might hinder her students’ enthusiasm for group work, Mary still received positive feedback. Her students were pleased with working with their classmates because it provided them a chance to make connections with their peers.

The participants of this study disclosed and/or exhibited flexibility through the ways in which they approached their instruction and overall course curriculum. In addition to their interview statements, this flexibility was further illustrated in my observations of their teaching and in their provided classroom artifacts. The participants presented a malleable, student-centered instructional approach through their receptiveness and adaptability to students and their unique needs and experiences. They also set out to provide opportunities for student engagement in order to promote meaningful learning and to build community and rapport in the classroom. Moreover, some participants displayed flexibility by shirking more traditional approaches to grading. Lastly, the participants displayed flexibility by using a wide selection of course
activities, assignments and/or assessments that often veered away from the more traditional methods.

**Collaborative**

The participants’ application and implementation of UDL as a dynamic pedagogical process also manifested in the ways in which faculty were collaborative. This was discussed and/or displayed through forms of instructor-to-student collaboration and forms of student-to-student collaboration.

**Instructor-to-Student Collaboration**

Most participants described and/or demonstrated methods of collaboration with their students in the forms of feedback, scaffolding/modeling, and goal setting.

**Methods for obtaining feedback.** The participants often showed their receptiveness to student feedback through their use of both informal and formal methods of formative assessment. Informally, the participants employed verbal check-ins and icebreaker activities as a way to gather feedback on student needs and curricular aspects in need of clarification. For example, Laura spoke on her use of verbal check-ins with her students when she offered,

> The other ways, you'll find that very often, I'm checking in with them saying, "Does that make sense? Or do you know what I mean?" I'm trying to create that dialogue where they can say, "No, actually, I don't." And that is another way to assess it. One of the best ways is in those individual groups. So, they're putting together their thoughts in that individual group, they're coming back to the big group, and they're presenting. And I am hopefully making corrections and reorienting them to the right way. And when those go really wrong, I know that it's something I have to touch back on.

By checking in with her students, Laura felt that she was affording them opportunities to ask questions and/or seek clarification. Moreover, Laura reciprocated by utilizing moments of small
group share-outs to provide students with feedback and would make sure to take note of any particular course topics that were proving to be problematic.

Another participant, Rachel, described her use of an icebreaker called, “Rose and Thorn.”

...so I did this, checking in, "Let's do the rose and the thorn," and so they all had to go around and talk about what was their high at this point in the semester and what was their low today or at this point in the semester and what do you need. That was the primary. I was trying to make sure that we were checking in with them, and it ended up that everything ... They were all so connected, and they all almost kind of needed the same things at that time, but yeah. I feel like most of those conversations are organic.

Rachel utilized the “Rose and Thorn” icebreaker as a way of conversationally inquiring about the positive and negative aspects her students had experienced thus far in the semester. Rachel’s primary goal, however, was to provide an opportunity for her students to share out and to offer feedback so that she could ascertain the needs of her students. This activity was also seen being implemented during the observation of Rachel’s course session.

Conversely, the participants also utilized more formal surveying tools to obtain student feedback. In fact, Elaine shared how she utilized both formal and informal methods for collecting feedback from her students:

At the end of every semester, depending on which class, I do either a detailed Qualtrics survey and have the students rank different activities that we did, like which they got value from and which they didn't get value from, which ones they liked, which ones they didn't like, or I'll have them group up in groups of two or three and then they'll answer some questions as a group and just scratch it out on some notes about classroom policies, activities, would they like to see more or see less. So I take that feedback very seriously, and that's one of the reasons that I've adjusted some of the things that I do…

Elaine described how she created and implemented both formal and informal techniques for garnering student feedback. She designed a formal survey through an online platform, but also employed informal writing prompts during small group work. Either way, Elaine’s end goal was the same—to gather student input on the nature and design of her course. She valued this
feedback as it often influenced her course planning and curriculum. Furthermore, during classroom observations, Elaine demonstrated her use of techniques for obtaining student feedback by informally polling her students about how confident they were feeling about their role play projects.

**Scaffolding/modeling.** Three participants (Paul, Laura, and Elaine) explained and/or exhibited methods of collaboration with their students in the form of scaffolding and/or modeling. Paul described his overall approach to scaffolding and how it is rooted in his belief that students possess rich experiences that they bring with them to the classroom. He explained:

I also believe strongly that people's experiences are incredibly rich, and that the learning and instruction process is really based around helping people take experiences that they've already formed, to redirect them and apply them to either new definitions, new concepts, new terms, and to help build a personal connection to those things based on what they already know. So, it might be an unfamiliar term, or an unfamiliar concept, but once they understand the mechanics of that, there is, most times than not, an opportunity for them to reconstruct using their own experiences, so that now they have brought familiarity to the unfamiliar in that they can design something on their own.

Paul detailed how he believes that learning and instruction stem from assisting students through the process of building upon their prior knowledge and experiences. After first acknowledging these previous experiences, the process continues with an explanation of the unfamiliar and proceeds by guiding the students through the journey of connecting the old information with the new. In doing so, Paul believed that students would be well equipped to tap into their creativity and innovation.

Laura also revealed how she utilizes scaffolding within her classroom. Specifically, she has applied it to the way in which she has designed her final project, as she shared,

So, what little bit I know about education and teaching and pedagogy is the idea of scaffolding and building on. And the article review and the case brief, it all layers on top of each other to their final project. So, their final project is pick any topic related to higher education and law, and either do a project on it or do a paper on it…
And it isn't so much the law review or the article review that I'm after. But I'm after them to get started thinking about their topic, and how they feel or what their side is going to be so that they can then build and they can start that final paper without feeling so overwhelmed like they're starting from a blank piece of paper.

Laura applied scaffolding techniques to the way she designed and prepared her students for the final assessment of her course. This assessment required certain components which Laura identified and gave out as individual assignments throughout the course of the semester. Although not required, the students were strongly encouraged to complete these individual assignments with their final topics in mind so that they would be better equipped to incorporate this work into their final project and thus, be less stressed over the magnitude of the assessment.

As previously mentioned, Elaine utilized three role play projects in her course. These assessments were scaffolded to reflect the skills required to navigate the process of securing a sales contract:

So, I mentioned earlier that one of the biggest things, like project, in my sales classes, are those three role-plays. They build on each other. So go through the first one, which then leads you to the second, which then leads you to the third, right before you finally close the deal.

Rather than performing just one role play to enact the entire sales process, Elaine designed it so that her students would progress to the point where they were practicing the acquisition of a sales contract. In regard to her scaffolded approach, Elaine also discussed how she encouraged her students to collaborate with her throughout the process.

I'm like, "I'm going to walk you through it step-by-step. All you have to do is engage with me, and then you're going to be great, because I'm not looking for perfection. I'm looking for effort."… We debrief and we laugh because somebody always says something that's really fricking hilarious.

Elaine shared how she discussed the overall process with her students to ensure that they were aware and reassured by her expectations. Elaine was not expecting her students to be perfect but
rather, to be willing to engage with her and the activity. Elaine also detailed how she would allot
time to examine the process afterwards and how this would often lead to moments of rapport and
frivolity in the classroom.

    Goal setting. Two participants (Rachel and Paul) discussed collaborating with their
students by practicing the skill of goal setting. Rachel explained her method of guiding her
students through the goal setting process when she offered:

        I made this kind of goal checklist. So I have their SMART goals. I guess we do kind of
check in, but there's no way for me to really know if that's honest, but I will assume. I
always want to assume the best. But so they're checking in with their goals. We have this
part about midway through where we check in and I do this individual meeting with
them, and I'm like "Okay. This was your SMART goal. Where are you at with it? I want
you to quantify it," so if the goal is ... In part of the goal, I think there is a whole section
on academics. With those courses, I want you to quantify where you're at right now.

Rachel described how she has her students write SMART goals and complete a goal checklist
which she then revisits partway through the semester during one-on-one meetings with each
student. Through the course of these meetings, Rachel would check-in with her students about
the progress of their goals. This was not the only instance, however, when Rachel would inquire
about the students’ goals. She stated,

        Their goals, I think...we talk about them throughout, and because we talk about them
early and frequent, it's easy for me to be like "Oh, hey. By the way, there's an engineering
fair going on. You might be interested in going to that.”

Rachel indicated that her students’ unique goals were something that was established early and
discussed frequently throughout the semester. In doing so, Rachel could naturally weave these
goals into conversations, thereby enabling her students to be attentive and proactive towards
achieving their goals.

        Paul also explained how he utilized a goal setting process with those students who have
fallen behind in their assignments in his course. He stated,
So I have a whole group of students that, for one reason or another, they haven't done many assignments. I just had the students go through and review what they're missing, send me an action plan of how they'll make those up. I don't know if all professors or instructors are doing this, but I'm holding students harmless.

Paul’s method for addressing missing assignments was to approach those particular students and ask them to review what they were missing and then draft a plan for how they would undertake their completion. Although a necessary goal setting process, Paul did not view his students disapprovingly as a result. He acknowledged, in fact, that a few different factors could exist which were negatively impacting his students and their ability to complete assignments on time.

He shared,

So I think that's the approach that I've been taking is trying to make sure that there's a ton of grace given, because the technology certainly could be an obstacle or it could just be poorly communicated because I'm not understanding [inaudible 00:26:32] e-portfolios as well.

Paul described how he was willing to grant his students some grace due to mitigating factors such as breakdowns in communication or unreliable technology. He acknowledged that these aspects create barriers and hinder his students’ ability to complete assignments and be successful.

Paul elaborated further by detailing how his students can take this goal setting task and apply it to their academic careers moving forward:

So I think that's where the students who are behind, who haven't submitted assignments, it's really gotten to the point where send me your plan for how you're going to make these things up between now and the end of the semester without having points deducted. But then telling them that this is very different for this class, because you're likely to have points deducted for all other classes that you're in. So let's look at what the challenge is using this class as a laboratory, and then fix it. So that way, as you move forward, you'll not have the same issue affecting you in other classes.

Paul explained how part of this goal setting process entailed clear communication with his students. Although he was willing to be flexible about allowing late work to be submitted without penalty, Paul made sure to explain to his students that this would most likely not be the
case with other assignments for other instructors. The overarching goal, therefore, was for students to critically examine why they were struggling at this particular moment in Paul’s class and then formulate a plan for addressing any identified issues so that, in the end, they would be better equipped for the future.

Student-to-Student Collaboration

Alongside their methods of instructor/student collaboration, all of the participants also described and/or presented various types of student-to-student collaboration. This was most often in the form of group/partner work such as small group breakout sessions, student-led lessons, the opportunity to practice applicable skills with partners, performing peer reviews and providing feedback, and small group presentations and assessments. For example, Elaine described one of her group presentations:

They do do a presentation. I have them read the Dale Carnegie “How to Win Friends and Influence People.” They get assigned two principles. It's a group, two or three students. They have to do an experiment on the principle in real life and then they present to the class on what is the principle, what was their experiment, how did it work, would they use it again. They're easy, right? They actually kind of like them, I think. The ones who actually do it the way they're supposed to, they actually get a lot out of it. So then when I grade them on that, I grade them on, "Did they answer the questions in the rubric?"

Elaine shared a group presentation that she utilized where the students were tasked with applying main concepts from a common reading experience to their actual lives. Afterwards, the students in each group were responsible for creating a presentation that included answers to key questions applicable to the experience. Elaine reported that most of her students who followed directions benefitted from this assignment and expressed their enjoyment with the process. She also explained how the accompanying rubric aligned with the key questions that the students were required to answer and include in the presentation.
Another participant, Mary, also explained her usage of group work in the classroom. She utilized an assessment she referred to as a cooperative group essay. Mary detailed the way in which she provided guidance for accomplishing this task. She stated,

Every person in the group has a job. Right? One person is a leader. They are responsible for sending out that initial email, or, they just kind of get the ball rolling. Somebody's got to get the ball rolling. Another person is what I call the communicator. If a group has a lot of questions, that's the one that asks me… I have a recorder. This is more important than the total online. But the recorder writes down who in the group is doing what part of the assignment… And the other person, I think I have two people. Well, I have these four roles. They can split them up how they want. And then the other person, everybody sends their documents to the submitter, I call it. The assignment uploader. And they're the person that is responsible for actually turning the assignment in on time.

Mary described how she guided the students through this group assessment by establishing four distinct roles: the leader, the communicator, the recorder, and the submitter. This provided some structure and enabled each group to be more organized while completing their essay. It also afforded some flexibility for the students as Mary was not concerned with who took on which role within the group.

Mary elaborated further by providing an example of one of her cooperative group essays. She explained the general requirements and guidelines of the assessment when she shared,

And out of a series of... and that's emotional health, so the topic was stress. How does stress affect your mental-emotional health? And do we have positive stress? We have negative stress. I give them some guidelines. What will happen if we never experience stress? Why do we need it? Why are some people affected more by it than others? And basically, how does it affect your mental-emotional health? They had a video to watch. And there were several items. Usually there's about four or five items that they have to refer to. So, if you work it right, each student would do one thing, write on that, and then they'd pull it together in one essay. So far it's worked.

Mary outlined how the students had key questions to address within the essay and were also provided with resources, such as videos, to refer to throughout their work. The provision of such resources was seen during my observation of Mary’s course session, as well. She explained how
the students could collaboratively decide on how they would like to divvy up the work and then reconnect later to compile it into one essay. She also reported on its overall success thus far.

The participants of this study defined and/or presented their approach towards collaboration through many forms of instructor-to-student collaboration and student-to-student collaboration. Alongside their interview statements, this collaboration was further exhibited through observations of the participants’ teaching and through their classroom artifacts. The participants worked alongside their students to gather and provide feedback, to utilize scaffolded instruction and assessments, and to guide them through the goal setting process. The participants afforded many opportunities for collaboration amongst their students as well. Whether during small group breakout sessions, student-led lessons, or group assignments/assessments, the students were engaged with one another and practicing their ability to communicate and to work as a team.

**Types of Instructional Supports**

The final way that the participants revealed their utilization of UDL as a dynamic pedagogical process was through their selection and implementation of various types of instructional supports. They used technology as well as other modes of content delivery to strengthen their instruction. This was discovered during interviews as well as observations.

**Use of Technology**

All participants utilized technology to some degree in their classrooms. Most participants employed technology beyond that of typical online course shells, emailing, and video
conferencing by including examples designed to enhance accessibility or interaction in their course.

With the presence of a global pandemic, all participants were primarily teaching within an online platform such as Blackboard Collaborate or Zoom. They utilized digital course shells through Blackboard to provide a platform through which the students could access course content and submit assignments. The participants also employed presentation tools such as PowerPoint, GoogleSlides, YouTube videos, and LinkedIn Learning. For example, Mary shared an overview of some of the technology she has used in her courses:

Okay. Other than the power points, I'll find a YouTube clip and put it in there. And yeah. I will design a Prezi. I find they don't like to follow those that much. It's just tried and true. What else have I done? My methods course, I show them a lot of websites like a Canva or is it Canvas? What's the one where you design the posters? I think it's Canva.

Mary described how she chose to use not only PowerPoint, but YouTube, Prezi and Canva to present content applicable to her course. She found these methods to be reliable and effective overall.

The participants also supplemented their instruction by using digital or web-based forms of content. Most often these were in the form of webinars, podcasts, e-books, applicable websites, instructor-created videos, and/or recordings of guest speakers. Elaine shared how she utilized technology to record her guest speaker,

But I had a guest speaker for my [redacted] class who normally comes in every semester and does an in-person thing. He's from Enterprise Rent-a-Car, and he couldn't come in. They weren't letting their people come in, plus we weren't even in class. And so I had him record his voice on the PowerPoint, or his picture, and I converted it into a Kaltura file. And then I was able to do little quiz questions, a couple, three or four quiz questions partway through the video to make sure they were watching it. It was so easy.

Elaine discussed how she used Kaltura, a video capturing technology, to convert and then share a presentation given by a guest speaker in her class. This format afforded Elaine the opportunity to
embed a small assessment into the recording. She expressed how easy she found the entire process.

Most participants also discussed and/or demonstrated their use of online, interactive technological tools such as Kahoot! and Poll Everywhere. These web-based learning platforms provided opportunities for student engagement through the ability to partake in quiz-based games and interactive polling, respectively. For example, Mary described the reasons why her students enjoyed using Poll Everywhere so much when she shared,

They like to see other responses all at once. They like to see that word cloud move and move the words. They like to see percentages. They like to know what the others in the class is feeling, because they can't get that when they're not in the classroom. If you're in a classroom, you can sense that. Raise your hand this and this, and they can get that right away. But they don't get that unless they see it on a poll.

Mary explained that her students appreciated being able to use Poll Everywhere because of the ways in which it aggregated and displayed the responses of their classmates. Poll Everywhere provided both visual and statistical representations of student responses and Mary mentioned how much her students enjoyed having access to the opinions and feelings of their peers. This was an aspect much more difficult to ascertain outside of the typical, face-to-face classroom format.

One way in which the participants addressed the aspect of accessibility was through their use of closed captioning. Three participants (Rachel, Laura, and Paul) explicitly described and/or demonstrated their use of closed captioning with the videos they utilized in class. Laura commented, “So every time I show a video, I turn on closed captioning. That's an easy one. Anybody can do that.” Paul elaborated further and stated,

I make it available to everybody for a variety of reasons, mainly being that if there's something else going on or if you get a call or you find yourself having to multitask, at least you can see the transcriptions that are happening there. Or if you are a dual mode

learner or multi-mode learner, then having it be reinforced through the text is certainly useful.

Paul explained how his decision to utilize closed captioning was due to more than just his attention to ensuring appropriate accommodations. Instead, he also utilized closed captioning and the university’s transcription services to assist those students trying to manage both academic and personal commitments as well as those who acquire information through more than one mode of learning.

Use of Online Chat Feature

One of the most prevalent avenues through which the students engaged with technology and with their classmates and instructors, by extension, was the online chat feature available through Blackboard Collaborate. Students were observed utilizing the chat feature before, during, and after online course sessions to communicate with their classmates and instructors about both on- and off-topic subjects. All participants reported feeling positively about their students’ use of the chat feature. For example, Rachel stated,

I love it. I wish they would engage more with it, to be honest with you. That's why... So that was when, uh, I want to say week two or three somewhere in between there, I was just like, you know what, just build a Teams, just for your class and let them know, and do a tutorial and let them know they could still chat on that. Yet they don't. And so I... or they do, but not as much as I guess I would like them to do. I just want them to be, like, family, I guess.

Rachel described how much she enjoyed the chat feature and actually wished for her students to utilize it more. She attempted to extend the opportunity for student engagement by establishing a group on Microsoft Teams with which the students could interact but reported how infrequently the students used it. Rachel viewed the use of the chat feature as a means for building feelings of cohesiveness and camaraderie amongst her students.
Laura also discussed her views towards the chat feature and how she believed it provided an alternative means of engagement for the students in her classroom. She stated that,

I think there's also an opportunity there for people who maybe don't want to engage verbally, to engage with less threat through the chat feature. There's a certain amount of distance there that they can feel a little safer [about] throwing out a comment or a question. And I'm all for it. I just have to remember. And I do most times put the chat up so I can see it when I'm talking. Yeah, it's a good way to communicate.

Laura explained how the chat feature afforded opportunities for engagement for students who would prefer not to participate verbally or who would enjoy having a more indirect form of communication or interaction. Either way, Laura expressed how she was a proponent of its use because she found it to be an effective method of communication.

Although the participants looked very favorably upon the chat feature, its use by the students was not beyond reproach. For example, Mary spoke on what she believed to be the downside of the chat feature:

The negative, you will be on a topic, blah, blah, blah, and then maybe I'll go on to something else, and then all of a sudden, three chats later, someone will type in something that was related to the other question. You see, by the time they figured out, "Oh, I want to share that," and they type it in, you could be on a whole other topic. And you could have had four other chats there for any other topic, and then boom. And then, hers comes in. That's the negative.

Mary detailed how the students’ use of the chat feature could often pose challenges to the pacing of her lessons. If a student decided to type a comment or question within the chat after Mary had already proceeded to the next topic, then this could potentially hinder her ability to accomplish the designated objectives of that particular lesson. Moreover, Mary explained how this could also be difficult to navigate with multiple chat threads attempting to coexist within the platform.
Other Modes of Content Delivery

In addition to technology, the participants discussed and/or demonstrated the use of many other modes of content delivery. They utilized both traditional and non-traditional methods. The more traditional practices included examples such as short lectures, the use of the course textbook, and the provision of applicable handouts, worksheets, and scholarly articles. Conversely, the more non-traditional approaches included practices such as the furnishing of lesson and/or video transcripts, the incorporation of guest speakers, and the utilization of a flipped classroom. For example, Elaine discussed how she provided transcripts for any videos that she incorporated into her curriculum:

And, I've done things like I try to provide transcripts if we're watching a video. I try to provide the transcripts whenever I can. YouTube's really great. A lot of them, they already have the transcripts done. If I need to pick between one video or another that's similar content, I'll pick the one with the transcript for people.

Elaine shared how she sought to provide transcripts for her students whenever possible and that she explored specific resources that would make the task easier. For example, she found that YouTube often had videos with completed transcripts. When faced with selecting one video over another, Elaine described how she would choose the one with an accompanying transcript, particularly if there was no discernible difference in content.

Bringing guest speakers into the classroom was another non-traditional method of content delivery for all of the participants in this study. For example, James stated:

I try to bring in guest instructors. So I brought in [name redacted] to talk about career services. I've had people from Rockwell come in to talk about mindfulness exercises, leading them through different things. So I do try to change it up, so it's not just me that they're speaking with.
James described how he incorporated guest lecturers into his classroom to discuss topics such as campus career services and mental wellness. He explained how he aimed to integrate guest speakers into the curriculum as a means of providing his students exposure to multiple sources of information.

In addition to the provision of video transcripts and guest speakers, some participants utilized a flipped classroom approach as another non-traditional form of providing content to their students. Two participants (Paul and Elaine) discussed their usage of a flipped classroom. Paul stated:

So, I'm a big believer in a flipped classroom. So being able to view material, whether it's in a PowerPoint and, or a video, or a handout, and providing background information first, so the people can think about these things.

Paul explained how strongly he believed in a flipped classroom due to its influence on the structure of his course. He believed in the practice of providing his students with course materials in advance so that they would have the opportunity to review them prior to each course session.

Elaine also discussed how she implemented a flipped classroom approach. She described how her course moving to an online format actually motivated her implementation of a flipped classroom. She offered,

The benefits of being able to connect with more students is something that's important to me, therefore I adjust my approach to try to connect with more students ... and to kind of force me to try new things. One of the things with the shutting down of the in-person classes was it forced me to do some things that I had been brainstorming but hadn't taken action on, kind of the flipped classroom approach... So, I recorded my PowerPoints, the content, and they were expected to review those, to listen to and review them before we met our Zoom calls or whatever. Then we would do an activity. I even broke them out into groups virtually and we did the activities that way. I'd been kind of wanting to do the thing where you record the slides and make them listen to them ahead of time, and this kind of forced it.
Elaine shared how much she valued being able to connect with as many of her students as possible. As such, she was motivated to adapt her instructional approach to incorporate new techniques. Never was this more apparent than when the pandemic forced face-to-face classes to move to an online format. Elaine detailed how this prompted her to implement a flipped classroom approach wherein she was creating and supplying her course materials in advance of each scheduled course session. The students were required to review those materials in preparation for each lesson. Then, during the actual course session, Elaine was able to employ related activities, often in the form of small group work.

The participants of this study displayed their use of UDL as a dynamic pedagogical process through the ways in which they utilized numerous types of instructional support. This utilization was demonstrated not only through their interview statements, but through their teaching and supplied artifacts as well. The participants strived to use technological tools as well as other modes of content delivery to bolster their instruction and encourage student engagement. They employed various forms of technology such as digital presentation tools, web-based learning platforms and closed captioning/campus transcription services. Moreover, the participants embraced alternative methods of student engagement by way of the online chat feature available through the Blackboard platform. Furthermore, they utilized an array of additional methods for delivering course content. This included, but was not limited to, the use of lectures, guest speakers, and a flipped classroom approach.

Primary Challenges to UDL Implementation

While most of the participants did not inherently describe and/or identify specific tenets of UDL, they were implementing it throughout their uses of the dynamic pedagogical process.
However, they noticed that there were challenges in engaging in teaching in these manners. The three primary challenges most participants shared were a lack of time, the importance of collaboration, and problems with technology.

### Lack of Time

Many participants revealed the lack of sufficient time to plan and/or implement inclusive practices. For example, Elaine described the amount of time that was required when she utilized inclusive teaching strategies,

> Well, I feel like to be inclusive, it takes more time. You have to be a little bit more deliberate about it. You have to think it through. The longer I've been teaching, the better I've gotten at it just because I've got more experience, so I can see opportunities, but it takes more time. I have to challenge myself because my own style is kind of impromptu. I don't have what I'm going to say, what I'm going to lecture written out. I put the slides together and I just talk off the cuff about it, but when I'm being inclusive, I need to make sure that I'm giving those breaks, that I'm planning for being inclusive. I'm planning for another learning style.

Elaine described how she viewed inclusive strategies as a way to recognize diverse learning styles within her instruction. This required Elaine to be more conscientious and careful with her instructional planning, a process that ultimately necessitated more of her time.

Another participant, Laura, also explained how much more time was necessary when designing and implementing an inclusive pedagogical approach. She shared,

> There have been just minor barriers. One being it takes more time. You can't get through as much material if you're going to make it accessible to all. And maybe I'm wrong, but I don't think so in my years of teaching, I don't think so. If the modalities are going to be different and you're going to spend the time, it means you can't get through as much material. But the material you do learn you're going to learn well.

Laura described how much more time was required when selecting and applying accessible instructional strategies, such as the use of alternative modalities for delivering content. While
Laura believed that the utilization of such inclusive strategies impacted the pacing of her course curriculum, she did still view the practice as worthwhile.

In addition, Mary shared a particular instance where she discovered that extra time was required when employing an inclusive instructional strategy. She offered,

So they have this breakout group set up. And the problem is, you cannot set up those groups ahead of time. You have to wait till your class starts. That's a disadvantage. So, I just type in the names of their groups. And then, I don't put them in those groups. Kids would say, "I can't find it. I can't find my group." So, I physically would go find them and put them in the right group. Update, Update, Update. That takes time.

Mary explained how she was trying to engage her students in collaborative group work by utilizing the breakout sessions available through her online course portal. Unfortunately, Mary not only discovered that she was unable to set up these separate breakout groups prior to the beginning of class, but that once the group work commenced, her students were having difficulty locating their assigned breakout rooms. Thus, Mary found the entire undertaking to be more time consuming than she had originally thought.

**The Importance of Collaboration**

Most participants also discussed the importance of collaboration and how the opportunity to confer and work with colleagues was essential to their success as instructors. For example, Paul shared how often he relied on colleagues to help him review his curriculum. Paul stated,

So, I spend a lot of time in making sure that the language that's used isn't going to create a barrier for somebody to learn where it sounds like it's too complicated, or it's an unfamiliar term that I'm introducing first, and it is also just plainly not offensive. So, you have to really listen a lot, and I rely on sharing things first with colleagues, and just being able to say, "Would you review this in advance for me? That'd be great."

Paul detailed how he sought out colleagues to garner their opinions on the design of his course materials and curriculum to ensure that he was not making any missteps with his language choice
or lesson content. Paul welcomed the opportunity to attentively engage with his colleagues prior to the start of each semester.

Rachel also discussed how she viewed collaboration with colleagues as beneficial to her pedagogical process:

When other people want to use your stuff, I think that that's always nice, because we work in a community where we should be sharing. If you know something or you're doing something, let me know, because I want to try that. It may or may not work or I might have to put my own little flavor and spin on it, but I want to know, because I want to engage the students in different ways.

Rachel explained how collaborating with other instructors provided opportunities for the reciprocal exchange of ideas. She appreciated any chance to learn about the instructional techniques of her colleagues and was always willing to share hers, in return. In acquiring new ideas, Rachel was continuously able to incorporate methods geared toward student engagement.

In addition to seeing the value in collaboration, Elaine described how the lack of opportunity to work with colleagues posed a challenge to her implementation of inclusive teaching practices. Elaine offered that,

Sometimes, I'd say one of my challenges is having somebody to collaborate with. I love it. I've had a couple different people that I've been able to collaborate with on the Intro to Sales class, and it's been awesome because they brought completely different perspectives, backgrounds, and approaches. That's probably the biggest challenge, is having people to collaborate with.

Elaine discussed how much she enjoyed the ability to collaborate with her colleagues in the past because she greatly appreciated being privy to these individuals’ unique experiences and viewpoints. The ongoing challenge for Elaine, however, was the ability to find other instructors to collaborate with regarding their use of inclusive practices in the classroom.
Problems with Technology

In addition to the lack of time or opportunities for collaboration, most of the participants also reported and/or exhibited problems with technology. Although the technology issues primarily stemmed from the functionality of Blackboard and Blackboard Collaborate, there were other obstacles as well.

In regard to the Blackboard platform, the learning management system used by the institution, Mary explained how her students had to watch videos of a certain length on their own devices due to buffering issues with Blackboard Collaborate. She shared,

We were watching some movies and they had to write about, okay? So the movie was, maybe, close to an hour. See, they all watched it on their own devices, because technically, the Blackboard, like, it's not set up for them to watch that long. So, it streams from my computer to 45 other computers. All right? And for that long of a time, there's buffering, there's a lot of things, I learned.

During an online synchronous course session, Mary attempted to show her students a nearly hour-long video as part of a class activity. Unfortunately, she encountered buffering issues with Blackboard Collaborate and the students, instead, had to utilize their own personal devices to complete the assigned task.

Paul also experienced problems with Blackboard. He explained how the functionality, not the use of the platform, itself, was the most challenging aspect of Blackboard:

For me, not with the use of a technology. I think the functionality of the technology in Blackboard has been confusing for me and for the students, mainly in the area of the e-Portfolio. When we look at how that setup goes early on, there was a mid-change to the template that was going to be used for the e-Portfolio. So that, plus you don't see the template until you post your first portfolio piece. So, you really have to know the idiosyncrasies to Blackboard portfolio.

Paul described how he used Blackboard Portfolio as a shell for managing the organization and submission of his e-Portfolio assessment. He and his students contended with issues, however,
with the platform’s functionality. Paul shared how changes with the technology and unforeseen problems with its usability left him and his students feeling puzzled on how to best manage the platform.

Although Elaine expressed positive feelings towards Blackboard, she did share how she felt about the breakout group function available through Blackboard Collaborate when she said,

I like it. I'm used to it. It's smooth. It's easy for the students to find the link. I did discover that there's a breakout group function, but it's a little clunky. If you try to label the breakout groups and then you leave and come back, then you lose those labels.

Elaine stated how much she enjoyed and was accustomed to Blackboard and how she felt it was user-friendly for her students. Nevertheless, Elaine did find the breakout group function to be rather cumbersome and counterintuitive. This was seen during observations, as well. For example, I witnessed Laura and her students struggle with the use of the breakout group function when Laura used it to conduct small group discussions.

Alongside issues with Blackboard, the participants encountered additional technological obstacles such as connectivity problems and challenges with transcription services. For example, Rachel explained an instance where the audio failed during one of her online synchronous course sessions. She shared that,

The very first, really super interactive [session], I was super psyched. I had IT give me administrative access so I could download Poll Everywhere, so that I could use those. It would just embed in my PowerPoint. I was super jazzed, just was super psyched, and I couldn't hear them, they could hear me. And so, the whole point was I didn't want them to really lean on me. I wanted to facilitate an entire situation where they were involved and we were communicating and it ended up being something IT had to fix, and I feel like those have been a lot of glitches along the way for many.

Rachel was very enthusiastic about a particular online session in which she had incorporated activities geared toward student engagement. Unfortunately, she had to grapple with audio issues. This caused the focus of the lesson to be entirely on Rachel as hers was the only side of
the conversation able to be heard, thereby derailing what was supposed to be a more student-centered lesson.

Elaine was also confronted with connectivity problems. She invited a guest speaker to do a live presentation and her students had the option of attending either in person or online. Elaine elaborated,

The regular person was sick and so they sent the B-team in, and he did not know how to do it. I use Blackboard Collaborate, well you know, because you've seen it. And he didn't know how to set up the Blackboard Collaborate. And my speaker wanted to use the presentation from her laptop, not on a thumb drive, because sometimes when you save a PowerPoint and put it in a different computer, it screws up the fonts and the formatting. And he couldn't figure out how to connect the laptop to display, and we couldn't figure out how to show the people online the presentation and pipe in the audio. So it was ugly.

Elaine explained that an issue arose when her guest speaker wished to utilize her own laptop to give her presentation. An employee from the university’s technical support team was on hand to assist, but Elaine described how neither she nor this employee were able to rectify the problem with the connection to Blackboard Collaborate. This resulted in those students attending online being deprived of the opportunity to listen and watch the guest speaker’s presentation.

Furthermore, Paul shared how he experienced issues with the transcription services he requested through the university’s Center for Student Accommodations.

Yeah, because I saw the box open as well. I clicked on it, and then I wasn't seeing anything in there. I had reached out afterwards and privately chatted with the person from [Disability Resource Center]. I said, "Did it work properly?" Then I clarified, I said, "Was it something that I didn't set up?" She said, "Nope, totally my issue." She had gone using another system. I don't know if it was just texting or something like that, but she said she was able to do it…

Paul requested the services of a live captioner, but on the day of his online synchronous course session, the captions were not appearing on the screen. This was also seen during my observation of Paul’s course session. Paul followed up afterwards with the center to inquire about the source
of the problem in case it related to an aspect that he could have addressed. The issue actually stemmed from a malfunction with the technology being used by the captioner and during class, she was able to revert to another method of transcription.

Addressing the Challenges

The participants addressed these challenges by seeking out campus resources (e.g., applicable staff, university-provided tutorials and/or professional development), soliciting help from colleagues, and/or relying on their own ingenuity and ability to problem solve any complications. For example, Elaine stated, “I've reached out to the training and development team...One of the things I do is I always go to those institute things. Always. I think I've missed one in nine semesters, or eight semesters.” Moreover, Laura described how she took an online tutorial course through Blackboard about how to teach online:

So, before the semester started, they had a Blackboard how to teach online course. And I took that. And I was hoping it would have more actual practice. And it didn't. It just explained a lot of theory, and it gave you some resources. So, I use some of those.

Although she had hoped for more practical applications, Laura shared that the tutorial did in fact provide other resources that she was able to utilize.

Paul also discussed how he pursued campus resources, such as applicable staff members, for their assistance with Blackboard-related issues.

[Staff member name redacted], and the person that usually emails me back after I ask [name redacted] a question, I cannot remember that individual's name at the moment. But then also [name redacted], I'll jump on to her office hours and say, "How are we doing this? How do you get this to work with Blackboard?” It's certainly not unique this year. There's always been one or two things Blackboard wise that I've had to ask how is that working, or things like that.
Paul explained how he seized the opportunity to request assistance from staff members within university offices such as technical support and first-and-second-year experience. Paul relied on their input regarding any problems with Blackboard, a rather persistent challenge to Paul’s instructional process.

In regard to soliciting help from colleagues, Rachel explained a situation where she relied on a coworker to help her troubleshoot a problem she was having with digital presentation tools. She offered,

So, a lot of times what I've seen is that when people present and they go to play a video, the other person, the other side, can't hear. And so, I had one of my colleagues come over. I said, "Hey, you were in the next room, let me play this, through Teams" and she was like, “Can't hear it. Come here, I'm going to show you something. Can I come over?” I said, "Yeah." So, she did. And then she showed me and I was, "All right, we're golden." So, I'm not beneath asking anybody anything that will help…

Rachel shared how she often noticed audio issues occurring when presenting a video and requested help from a colleague. After witnessing the issue, the coworker was able to provide Rachel with a viable solution for addressing the problem moving forward. Rachel also expressed her overall willingness to turn to others for assistance when the need arises.

Relying on her own ingenuity, Elaine discussed how she dealt with the cumbersome nature of the breakout rooms in Blackboard Collaborate. She explained,

Yeah, so I figured out a workaround because I didn't even realize we had the breakout groups. I just created additional rooms and I'd say, "Okay, you guys go to this room. You guys go to this room," and then I'd say, "Okay come back at 1:35." And that seems to work. It was a workaround, which is probably what I'll go back to.

Elaine described how she circumvented the breakout function altogether by creating additional rooms. This allowed her to assign students more clearly to groups and proved to be a successful solution, one that Elaine would most likely utilize in the future.
Paul also tapped into his own resourcefulness by trying to anticipate students’ technological needs and providing applicable resources. Paul stated,

There are some direct web pages for students with getting help with Blackboard. I don't know necessarily that students would know exactly where to begin or what to do... I think what students are going to find is that they have a question or a need and they're not going to be marching through the links in a linear fashion. They're going to be looking for what they need. So typical I try to anticipate what students are going to need and put those links in...So I've been doing it a lot myself to provide those resources directly to students, and to avoid having it be a barrier.

Paul explained how he understood that his students might potentially have problems with Blackboard and that they would most likely seek out a resource that would best fit their needs. Therefore, he provided links to applicable websites so that they could more easily locate the appropriate assistance. By doing so in advance, Paul hoped he would prevent any issue with technology from becoming a barrier to learning.

Two participants (Laura and Mary) relied on their own self-awareness and ability to problem solve to address the challenges they encountered. Laura described how she knew simple repetition would help her overcome any technological obstacles. She stated, “So, I'm like, ‘Okay, fool me once, I'll give you this one.’ But overall, generally, to me, it's a repetition thing. The more I do it, the more I'm able to anticipate problems and break it down.” While Laura acknowledged that repetitive use of technology would be beneficial, Mary recognized that she had to anticipate some extra time would be involved to respond to the issues she had faced with the online breakout groups. She elaborated,

So I physically would go find them and put them in the right group. Update, update, update. That takes time. And that was a planning thing that I didn't anticipate. Now I have to anticipate about 10 minutes. If I'm giving them group time, let's say I want them in their group for 20 minutes. I have to add on about 10 minutes. But by the time it takes them, techno wise, to get into their groups, to hook back up to the audio, blah, blah, blah... you just have to add that on. That's all it is. So that takes time.
Through straightforward problem-solving, Mary acknowledged that she had to expect that her use of the online breakout rooms would require more time. She often needed to assist students in finding their assigned groups while the students, themselves, also required some extra time to adjust their technology. As a result, Mary concluded that she needed to allot about 10 minutes of additional time when implementing the activity.

The participants of this study shared three challenges they encountered when using UDL in their classrooms. In addition to their interview statements, these challenges were witnessed when observing their teaching as well. The participants contended with the lack of time, the need to collaborate with colleagues, and issues with technology. When planning and designing inclusive instructional strategies, the participants expressed how extra time and the ability to confer with colleagues were important aspects to successful implementation. The participants were additionally confronted, however, with technological issues such as audio/visual problems and performance-related issues involving the Blackboard platform. They often turned to applicable staff, colleagues, and university-provided resources to mitigate these challenges but were not hesitant to rely on their own capabilities as well.

Institutional Support as Technological Rather than Pedagogical

In regard to institutional support, the participants most often referenced the availability of technological assistance offered through the university’s Center for Instructional and Professional Design (CIPD). Five participants (Laura, Rachel, Paul, Mary, and Elaine) remarked on the availability of support through CIPD. For example, Laura acknowledged the resources she had found:
The, what is it, [Center for Instructional and Professional Design], what used to be faculty development, I mean, they're awesome. And I've used them for other kinds of activities. I think sometimes, they can talk at a higher level than a lot of us are probably at. They're generally aware of that...But generally speaking, their online resources are good. When they opened up Zoom...their online resources for Blackboard are awesome. When they opened up [MU] Zoom, the majority of the resources were from Zoom and they weren't as helpful. So, I think next year, the Institute will do a better job of having resources if it chooses to teach on Zoom.

Laura expressed her overall enthusiasm regarding the support provided by CIPD. Although she recognized their availability for varied support, Laura highlighted their attention to helping with online platforms such as Blackboard and Zoom.

Rachel also referenced CIPD as a source for institutional support. She described some of the topics for which CIPD offers assistance:

Blackboard, how to navigate through Blackboard using...what is the video feature? Collaborate. Using Collaborate in Blackboard. I think those were the two primary things, because even, once again, faculty weren't 100% sure about how to navigate Blackboard, and then we expect the students to know that as well. So, there were some tutorials on that.

Rachel explained how she was aware of tutorials pertaining to the use of Blackboard and Blackboard Collaborate available through CIPD. She shared that these were two technological areas with which both students and faculty struggle so therefore, both populations could benefit from the provided resources.

While Mary expressed a rather indifferent view towards the availability of institutional supports, she still recognized CIPD as a source of assistance. She explained,

There probably is support. I think if I don't realize it is because I have such a huge background in education and teaching methods prior to coming here. They probably do support it. I probably haven't gone out of my way to look for it. Put it that way. I think as far as the Blackboard, when they do all those faculty developments that is outstanding. And I will try to take one all the time and I have called them a lot with questions on this one, I was trying to do Collaborate, very supportive. So, I think in that fact, I'm amazed at all that they tried to do to keep their faculty, the professional development with Blackboard.
Although Mary acknowledged she was not aware of many available supports, she did share her knowledge of faculty resources pertaining to the use of the Blackboard platform. Mary explained how pleased she has been with this source of professional development and how often she has relied on them for help with Blackboard.

Only two participants (Laura and Elaine) made reference to institutional supports pertaining to Universal Design (UD) specifically that were offered through CIPD. Laura stated,

In 2011, I took universal design and accessibility for online courses. And then in 2020 I took the new one which is called, what is it called? Preparing the kids online. And that wasn't specifically [like] the original design course, but it had elements of that.

Laura explained how she had previously experienced Universal Design-based trainings over ten years ago. Although the most recent training included aspects of UD, Laura described how it actually related more to preparing students for the transition to online instruction rather than defining, discussing, and implementing UD principles.

As Elaine shared her experience with UD training, she also revealed some difficulties surrounding her department’s investment in the use of inclusive instructional practices. She offered that,

There's certain individuals within my department that are great about sharing what they're doing and [inaudible] you have to drag it out of them a little bit. Some of them volunteer it a little easier, but I think there could be more of it. We never have a conversation about it in a department meeting that I can recall. Earlier on, a couple years ago, our department had required that we all go through the Universal Design training. That make sense? Okay. Yeah, because that's what they're using for the online classes, and we all had to go through that training.

Elaine described how she wished more instructors within her department would be willing to discuss the strategies they utilize in the classroom. Unfortunately, Elaine found this to be inconsistent. Moreover, she could not seem to recall discussing inclusive instructional methods
during departmental meetings. Her department did require the faculty to attend training on Universal Design, but only as it pertained to the structuring of online courses.

While those interviewed spoke highly of the Center for Instructional and Professional Design (CIPD) and their various types of technological trainings, very few participants could really note specific UDL-based workshops or resources. This was further illustrated by the content analysis of the UDL-based institutional supports offered by the university. The content analysis revealed that resources pertaining to Universal Design for Learning were primarily housed and/or offered by the Center for Instructional and Professional Design. Although CIPD offered 85 recorded workshops for faculty/instructors through their website, many of these trainings pertained to the university’s learning management system, related technology, or general instructional support such as motivating students to read assigned texts and constructing a course syllabus. In a comprehensive review of these recorded workshops, only three centered on the topic of Universal Design for Learning.

These three UDL workshops, authored and presented by the staff of CIPD in 2016, were originally delivered as online, interactive training sessions. They were found to be the most frequently archived and referenced UDL-based workshops on the CIPD website. They were entitled, “Universal Design for Learning: Part 1,” “Universal Design for Learning: Part 2,” and “Universal Design for Learning: Part 3.” They centered on the three principles of UDL—multiple means of engagement, multiple means of representation, and multiple means of expression—respectively. In the trainings, a CIPD staff member(s) provided a brief overview of the three principles of UDL followed by a more in-depth exploration of the specific principle being featured and how it connected to one of the three primary neurological networks. The trainings proceeded with the facilitator(s) discussing specific aspects of the featured UDL
principle while also periodically pausing to engage the online attendees in discussions through the use of the online whiteboard feature. During these discussions, the facilitator(s) was often not inclined to expand on the ideas offered by the attendees. Instead, simple affirmative feedback was provided.

Overall, little attention was paid to providing concrete examples of how to apply the three principles of UDL to the college classroom. Although practical ("how-to") applications of UDL did exist within these recorded workshops, a viewer would need to devote time to the exploration of these resources in order to find this type of information. Moreover, these trainings privileged those with some amount of teaching experience, as well as those with a familiarity of higher-level, academic vernacular. Furthermore, due to the way these workshops were designed and facilitated, they also privileged those attendees without disabilities. The use of the online whiteboard feature, coupled with improper closed captioning, would likely present barriers to those with sensory impairments (i.e., hearing/vision loss), physical, fine motor difficulties, language processing difficulties, and/or those who may experience problems understanding English.

The participants of this study primarily perceived institutional support of UDL in the classroom as technological, rather than pedagogical support. These perceptions were expressed not only in their interview statements but through the content analysis as well. The majority of the participants revealed how they sought out resources available through the university’s Center for Instructional and Professional Design (CIPD), particularly in the form of support with the learning management system, Blackboard. Although CIPD offered a substantial number of trainings for faculty/instructors, the vast majority of these trainings focused on the Blackboard platform, educational technology, and applicable course activities. Very few trainings were
devoted to the topic of Universal Design for Learning. Thus, the perceptions of the participants of this study aligned with the types of supports offered by the institution.
The findings of this qualitative case study revealed that the faculty/instructors at Middleview University were utilizing Universal Design for Learning (UDL) within their college courses despite not being able to inherently identify the three principles of UDL. Nevertheless, the faculty were implementing UDL-based teaching strategies because they recognized that these methods promoted opportunities for dynamic teaching and learning. This dynamic pedagogical process was exhibited through the ways in which the faculty demonstrated flexibility, encouraged collaboration, and utilized various types of instructional support.

Although the faculty did not overtly recognize the framework of UDL, they were, in fact, using pedagogical methods that aligned with its three principles. For example, the faculty utilized teaching methods that would appeal not only to their students’ learning styles and interests, but to their unique backgrounds as well. Moreover, they provided their students with various pathways of acquiring course-related information through their use of instructional supports such as guest speakers, instructor-created recordings and lectures, and applicable websites and podcasts. In addition, the faculty afforded opportunities for their students to select their choice of assessment and promoted goal setting and scaffolding techniques to best prepare their students for success.
Examining UDL as a Dynamic Pedagogical Process

As previously stated, the three principles of UDL are: multiple means of engagement, multiple means of representation and presentation, and multiple means of expression (Beck et al., 2014; CAST, 2018b; Davies et al., 2013; Izzo et al., 2008; Jiménez et al., 2007). In regard to the principle of multiple means of engagement, the faculty in this study employed instructional strategies that mapped onto the principle’s three primary guidelines. The faculty were willing to offer their students choices in assignments, address student engagement by recognizing and incorporating student interests and backgrounds into the curriculum and used humor to foster community and interpersonal connections between and amongst students. For example, James was inclined to change course topics and class discussions from week to week to better align with the students’ interests and to best reflect their educational needs. These methods were indicative of the principle’s first guideline, provide options for recruiting interest, which promotes pedagogical strategies that address students’ choice and autonomy with activities and information designed with their interests in mind (CAST, 2018b). Moreover, these strategies are cultivated within a supportive classroom environment (CAST, 2018b).

The principle’s second guideline, provide options for sustaining effort and persistence, supports the use of pedagogical methods that offer flexibility in what is considered acceptable performance, promote collaboration, and increase the frequency of relevant and constructive feedback (CAST, 2018b). This was exhibited in the ways in which the faculty were flexible with deadlines and traditional grading requirements which highlighted the faculty’s concern with both student accountability and level of saliency to the course material. Moreover, the faculty employed student-centered, collaborative strategies such as student-led lessons and various
forms of group/partner work. For example, Mary utilized cooperative group essays because the assessment afforded an opportunity for collaboration and connection amongst students. Furthermore, expectations of student work were established through the faculty’s use of rubrics and scaffolding techniques, the latter of which emphasized to the students the importance of practice and engagement, rather than perfection.

The faculty also utilized strategies that pertained to the principle’s third guideline, *provide options for self-regulation*, which encourages instructional approaches that motivate learners to set goals, develop individualized coping skills, and practice self-assessment and reflection (CAST, 2018b). Specifically, this was demonstrated through the faculty’s use of a myriad of assignments that encouraged the students to self-assess and/or reflect, either on themselves or their coursework, or the coursework of their classmates. In addition, the faculty promoted goal setting and self-reflection by working with students who were falling behind in their coursework. For example, Paul would approach those particular students with missing coursework in his class and ask them to devise a plan for how they would tackle these assignments. In doing so, he hoped to prompt these students to self-reflect and then set goals that would serve them well at present and in the future.

Concerning the second principle of UDL, multiple means of representation and presentation, the faculty used pedagogical approaches that connected to the three main guidelines of this principle, as well. The first, *provide options for perception*, stresses the importance of providing students course information through various modalities and adjustable formats (CAST, 2018b). This was exhibited by the faculty’s attention to the availability of options for accessing auditory information, such as their use of closed captioning and the provision of transcripts of
video materials. Many of the faculty also offered course readings in both printable and digital formats.

The principle’s second guideline, *provide options for language and symbols*, emphasizes instructional strategies that ensure that both linguistic and non-linguistic information are provided through various means to assure the likelihood for clear understanding on the part of all learners (CAST, 2018b). By creating video-lectures and/or recordings of guest speakers wherein they would have a human voice recording to accompany digital text, the faculty increased accessibility to course content. Moreover, the faculty’s use of multimedia, such as Poll Everywhere, YouTube, Kahoot!, and an online simulation game, enhanced and enlivened the course curriculum and overall learning process. For example, Mary explained how her use of Poll Everywhere, which provided both visual and statistical representations of student responses, afforded her students a means of engagement with both the curriculum and with their peers.

The faculty also used pedagogical methods that were indicative of the principle’s third guideline, *provide options for comprehension*, which advocates for the thorough and appropriate design and presentation of information so that all learners may have the ability to acquire knowledge (CAST, 2018b). This was exhibited through the ways in which faculty acknowledged the skills, knowledge, and experiences of their students as well as the fact that these students brought with them an array of unique backgrounds. Moreover, the faculty utilized scaffolding techniques and provided various pathways through the course content in the forms of webinars, podcasts, and applicable websites to personalize the students’ learning. For example, Paul described how his approach to scaffolding was based on recognizing and building from the unique knowledge and rich experiences that students bring with them to the classroom.
Furthermore, the faculty utilized specific opportunities to review and practice the curriculum using small breakout sessions and multimedia such as Kahoot!.

Regarding the final principle of UDL, multiple means of expression, the faculty applied instructional approaches that were characteristic of the principle’s second and third guidelines. The second guideline, *provide options for expression and communication*, proposes the provision of alternative methods for expressing knowledge or ideas in the classroom (CAST, 2018b). For example, Elaine employed three role play projects which were scaffolded so that her students would gradually practice the necessary skills involved with securing a sales contract. Many of the faculty also facilitated communication and engagement through their use of in-person and/or virtual partner/group work, discussion (board) prompts, and use of the online chat feature through Blackboard.

The faculty also engaged in the application of the principle’s third guideline, *provide options for executive functions*, which focuses on supporting and guiding students through the goal-setting process as well as facilitating their organization and self-monitoring skills (CAST, 2018b). This was demonstrated in the ways in which the faculty engaged in goal-setting activities with their students. For example, Rachel had her students write SMART goals and complete a goal checklist, both of which were revisited throughout the semester. This allowed Rachel to guide her students through the goal-setting process while also affording them the opportunity to continuously monitor their progress. The faculty also promoted self-monitoring by providing rubrics, and by utilizing course activities and assignments centered on self-reflections and peer practicing and feedback.

Although the faculty of this study did employ pedagogical strategies that aligned with the three principles of Universal Design for Learning, there were aspects that were lacking. This was
primarily noted in the faculty’s lack of attention to assistive and multimodal technology and to any potential barriers that may be imposed by their use of multimedia and overall curricula. The third principle of UDL, multiple means of expression, notes its first guideline, *provide options for physical action*, as one that proposes “providing materials with which all learners can interact” (CAST, 2018a, para. 1). This is to say that all students must be provided with an equal opportunity to interact with every learning experience and that proper tools should be provided to ensure that all students can fully participate in the classroom (CAST, 2018b).

Many types of digital tools could be used to reduce barriers and increase student success (Rao, 2021). For example, screen readers, text-to-speech applications, and literacy support extensions, such as Read and Write for Google Chrome, could aid in the students’ reading and writing (Rao, 2021). Moreover, applications such as Flip and Padlet could afford students the chance to demonstrate their knowledge through the creation of collaborative videos and virtual bulletin boards (Rao, 2021). Overall, faculty should be purposefully designing their course materials so that they may be accessed easily with assistive technology, thereby reducing and/or eliminating any potential barriers to the students’ learning (CAST, 2018b). While the faculty in this study attempted to address accessibility with closed captioning and the provision of certain course materials in both digital and hardcopy formats, they unfortunately fell short in their attempt at a more comprehensive integration of multimodal supports and assistive technology (Rao, 2021).

Overall, it is interesting to note that while the faculty in this study were able to utilize instructional strategies that supported the framework of UDL, they did not necessarily inherently know the ways in which these strategies mapped onto said framework. Thus, while the faculty may be engaging in dynamic teaching processes, their resulting curriculum and course designs
could not be classified as authentic and overt applications of Universal Design for Learning. This is largely an institutional issue, however, as Middleview University has offered very few trainings, learning materials, or reward structures to promote or foster faculty engagement in Universal Design for Learning. Therefore, it is imperative to note that instructors are doing the best they can with what little professional development is available.

Exploring the Challenges to UDL Implementation

The faculty in this study noted specific challenges while engaged in the use of these dynamic pedagogical processes in their courses. Specifically, they expressed that a lack of time, the ability to collaborate, and problems with technology were the primary challenges to the design and implementation of an inclusive pedagogical approach. The faculty shared that more time was required when utilizing inclusive teaching strategies. They also asserted how the ability to collaborate with other educators and professionals was beneficial to their pedagogical process. This collaboration could be in the form of opportunities to review curriculum with colleagues, to exchange course materials or simply to be privy to the ideas and experiences of other professionals. Additionally, the faculty in this study encountered problems with technology. Due to the Covid-19 pandemic shifting everything to an online format, it was unsurprising that many of the technology issues stemmed either from the learning management system, Blackboard or from general network and connectivity issues of the online course. The faculty of this study addressed these problems with technology by seeking out campus resources in the form of applicable staff or university-provided tutorials or trainings. They also sought help from colleagues or relied on their own problem-solving abilities.
The finding regarding the faculty’s lack of time when implementing inclusive teaching methods is consistent with existing studies (Burgstahler, 2015b; Gradel & Edson, 2009; Higbee, 2015; Lachheb, Abramenka-Lachheb, & Huber, 2021; Yager, 2015). The faculty in this study reported that more care and conscientiousness with instructional planning was necessary, but difficult due to issues of time constraints. They also noted that utilizing these elements required the use of more time-consuming technology features as well as more time required when selecting and applying accessible instructional strategies, like the use of alternative modalities for delivering content. These findings were consistent with literature that discusses challenges faculty face when applying UDL strategies (Burgstahler, 2015b; Gradel & Edson, 2009; Yager 2015).

Participants also noted a lack of collaboration with other faculty. Literature has also noted issues with a lack of social interaction with other faculty while engaging in professional development (Craig, Smith, & Frey, 2019). While participants vaguely mentioned that there was a single, stand-alone training that discussed UDL, little collaboration and/or social interaction was given the faculty participants. Wynants and Dennis (2018) noted that professional development trainings should be offered to a faculty group so that there can be collaboration, sharing ideas with others, and interactions amongst each other. Importantly, faculty need strategies and social support to be able to foster the use of UDL and curricular changes (O’Meara, Kaufman, & Kuntz, 2003). Through these social collaborations in faculty development, there are opportunities for reflection, mentoring, and facilitated changes in teaching (Behar-Horenstein, Schneider-Mitchell, & Graff, 2008). The ability to have positive interpersonal relationships with colleagues, engage in modeling and mentorship, and working
with others within departments can be key factors that support faculty leadership (Caffarella & Zinn, 1999).

Another challenge participants in this study noted were problems with technology. This is also noted in the literature, particularly with UDL. Faculty may struggle with their familiarity with technology or connecting with those within the tech support office (Gradel & Edson, 2009; Johnson & Fox, 2003; Pace & Schwartz, 2008). In addition to struggling to learn technology, issues of budget constraints further impact the use technology. Whether it be a budgetary cut to staff who can assist in the use of technology or less money allocated for technology (Johnson & Fox, 2003), faculty need support in learning not just how to use the technology, but possibly how to assist their students’ uses of the technology, too.

Viewing Institutional Support as Technological

When exploring the ways in which the faculty in this study utilized the supports provided by Middleview University, they most often discussed seeking out help with technology. In particular, they often referred to the technical assistance offered through the university’s Center for Instructional and Professional Design (CIPD). They turned to CIPD to access their tutorials on how to use Blackboard and Zoom and for general support with Blackboard Collaborate. While institutional supports related to Universal Design were referenced by two faculty members in this study, little institutional attention was being paid to the development of UDL-based trainings. CIPD did offer a significant amount of trainings dedicated to providing support to the university’s faculty, but the majority of these trainings centered on assistance with Blackboard and other educational technology, and the development of course materials.
To date, no literature discusses how the faculty of colleges and/or universities view the supports provided by their institutions. The participants in this study shared how they sought out support from Middleview University’s Center for Instructional and Professional Design. This support, however, was in the form of technological, rather than pedagogical assistance. CIPD is the primary office that supports the development of the faculty’s pedagogical knowledge of UDL and yet it has spent little to no effort in doing so. This has implications for Middleview University. The fact that the institution’s Center for Instructional and Professional Design appears to be avoiding the pedagogical aspect of UDL altogether indicates that their view of UDL is not actually UDL. The university is not viewing UDL as a best practice for instruction but rather, a mutually exclusive area of professional development. This sends the message that this is all UDL is, which supports the previous findings regarding how the faculty’s application of UDL is not an authentic one, and that faculty could be implementing even more dynamic practices if there was more support and collaboration.

Recommendations for Supporting Implementation of UDL

Many participants stated how highly they valued collaboration with colleagues and often relied on their input to shape their own pedagogical process and course design. The participants, however, frequently had to seek out these collaborative moments, themselves and even contended with an overall lack of opportunity to confer with fellow professionals. To address this need, research supports the use of faculty learning communities. Here, Middleview University could establish small groups of cross-disciplinary faculty/instructors who could meet and collaborate on an ongoing basis to engage in pedagogical discussions (Cox, 2003) related to Universal Design for Learning and its implementation in the college classroom. In these learning
communities, faculty can provide peer support, exchange ideas regarding various pedagogical methods, and even ideas around different uses of technology.

When needed, these faculty learning communities could reach out for additional support from the university’s Center for Instructional and Professional Design but overall, however, this could be mostly faculty led in order to encourage buy-in and foster camaraderie. Throughout this year-long commitment, the learning communities could engage with relevant UDL-related literature, set goals for UDL-implementation, and then discuss their progress with their colleagues within the group, thereby leaning on one another for feedback and support. Each learning community could also be encouraged to share their outcomes in the form of conference presentations, reports, portfolios, and/or whole-group gatherings (Cox, 2003).

In addition to the utilization of faculty learning communities, it is critical that Middleview University dedicate further time and efforts to the development of UDL-related support and education. As previously stated, while many participants of this study could not inherently identify the principles of UDL, they were still utilizing various UDL-based teaching strategies within their classrooms. This is a promising beginning for potential campus-wide implementation of Universal Design for Learning by the faculty/instructors of Middleview University. There is clearly interest in utilizing UDL in the classroom and Middleview can harness this interest to better educate faculty on the uses, benefits, and nuances of UDL. To promote this implementation, however, the university’s Center for Instructional and Professional Design (CIPD) could offer more resources geared toward the practical application of UDL to the faculty’s course design, curriculum, and classroom environment. CIPD could approach this in two ways: offering more concrete examples of UDL-based pedagogical strategies and facilitating
a teaching institute twice a year dedicated to the discussion and exploration of UDL and its
application to the college classroom.

As the current UDL-based supports contain very few practical applications of UDL, it is
highly recommended that CIPD present an array of resources that afford a realistic glimpse into
what UDL can look like when applied to the classroom. For instance, CIPD could offer an
example of a UDL-based syllabus, sample rubrics, and general checklists for UDL
implementation which could include, but would not be limited to, potential methods for
incorporating students’ backgrounds and interests into the curriculum. Alongside their
Blackboard-related resources, CIPD could provide additional examples of how technology is
potentially utilized within a UDL-based college classroom. For example, CIPD could present
resources such as a chapter of an electronic textbook highlighting embedded links and
accompanying visuals, a sample of an accessible PDF document, an example of a social media
classroom page, and video recordings of instructors implementing UDL-based pedagogical
practices (e.g., scaffolding, formatively assessing, and goal setting) within their classrooms. All
of these resources should be offered, whenever possible, in both electronic and hardcopy
formats. Furthermore, these supports should be made available with the understanding that they
are only examples of UDL and not an exhaustive selection because, at its core, UDL advocates
for a flexible approach to instructional planning (Izzo et al., 2008; Jiménez et al., 2007; Rose &
Meyer, 2002).

Faculty would be further assisted in their uses of UDL if CIPD facilitated a teaching
institute centered on UDL and the various ways it can be applied to the classroom. The institute
should be offered prior to the start of both Fall and Spring semester as this would most likely
align with when the faculty would be typically planning and/or designing their courses. The
attendees would best be served if the institute took place over two days. This would afford time not only for providing education regarding the tenets of UDL but also opportunities to workshop potential teaching strategies, course materials, and activities. In addition to supplying a setting dedicated to the creation and/or application of UDL-based pedagogy, the institute would also grant the opportunity for collaboration and support between colleagues, an aspect that was noted of high importance to many participants of this study.

Lastly, Middleview University could promote how strongly it supports the application and implementation of UDL by offering rewards to those faculty/instructors who engage in the proposed faculty learning communities or who are already employing UDL-based methods within their courses. This could be executed as part of the review process for tenure/promotion. Faculty’s engagement and commitment to UDL could be acknowledged by adding this aspect to the university’s application for promotion and/or tenure. Implementation of UDL could be added to the current list of justifications for tenure or promotion. For example, this could be described as “Teaching Methods: provide a list and description of UDL-based curricular and classroom strategies employed within your courses.” As UDL implementation and application requires more time initially on the part of the faculty/instructors, these individuals should be commended for their commitment to its application and best practice.

Conclusion

This study explored the ways in which faculty utilize UDL-based tools and pedagogy in the college classroom. Universal Design for Learning is a flexible pedagogical approach that, when applied to any classroom, creates an accessible and inclusive learning environment to best support a diverse student population with diverse needs (Gravel et al., 2015; Izzo et al., 2008;
Jiménez et al., 2007). Not only does UDL provide more educational opportunities for students with disabilities, but those students with a wide range of differences in their personalized learning styles and backgrounds will also benefit. Moreover, its application ensures high academic standards for all (Izzo et al., 2008) because it promotes flexibility in the demonstration of student understanding and gains in knowledge (CAST, 2018b; Izzo et al., 2008; Jiménez et al., 2007). Therefore, UDL is a best practice for instruction (Trostle Brand et al., 2012; Yager, 2015) as its goal is to promote student-centered classroom environments (Vreeburg Izzo, 2012).

It is clear that faculty in this study had a genuine interest and some knowledge about UDL and its application into their classrooms. Throughout this study, faculty noted that they utilized several components of UDL, despite having little formal learning about it. Participants noted they their uses of UDL supported good teaching and learning. Yet, between few resources and little institutional support, many faculty noted that it was difficult to implement and, at times, lonely since they had little peer support on campus. Given the importance of UDL, the ever-changing landscape of the modality in which students learn, and how UDL supports student engagement in their learning, it is critical that institutions provide education, support, and resources to faculty to assist in their implementation of Universal Design for Learning.

UDL is so much more than the incorporation of technology into the curriculum. Its application in the classroom represents a shift in our educational philosophy—one that prioritizes accessible learning for all and proactive rather than reactive curricular design. While this philosophy may require more time at the forefront, its implementation is designed for present and future success, particularly when combined with institutionally provided education and ongoing support for faculty. As with every educational philosophy, it should be implemented
with intentionality and mindful purpose. In doing so, the greatest number of students will benefit,
leading to an increase in persistence and overall student success.
REFERENCES


APPENDIX A

EMAIL SENT TO RECRUIT PARTICIPANTS
Hello!

I hope this email finds you well! My name is Erin Wilhelm and I am a doctoral student in the Department of Counseling and Higher Education. My focus is on Higher Education and Student Affairs. I have just been approved to begin the data collection phase for my dissertation and am extremely excited to begin seeking out participants.

**The title of my study is:** How Faculty Engages with Universal Design for Learning in the College Classroom.

**The purpose of my study** is to explore the ways in which the faculty engage in the use of Universal Design for Learning (UDL) within their courses. I hope to uncover any benefits and/or challenges the faculty may encounter when using UDL in their courses.

**What does UDL look like in action?**

- **As an instructor, are you someone who uses a variety of methods to give information to students?** Does this include not only print, but multimedia formats as well?

- **As an instructor, do you engage students in relevant learning experiences that provide students with opportunities for self-reflection and collaboration?**

- **As an instructor, do you utilize various methods to assess student knowledge and skill attainment?**

- **As an instructor, are you someone who uses a variety of methods to review, clarify understanding and build upon knowledge as the learning progresses?**

As an instructor, if you can answer **YES** to any of these questions, then you are using UDL in your classroom.

I am aiming to recruit instructors of record of any undergraduate and/or graduate course on campus who utilize Universal Design for Learning within their course(s). To do so, I was hoping to trespass a bit on your time and kindness to ask if you might be willing to disseminate this email to any/all instructors of record who fit this description.

Thank you so much for your time and help! I greatly appreciate it!

Please feel free to contact either me or my dissertation chair should you have any questions/concerns.

Sincerely,
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APPENDIX B

CONSENT FORM
Consent to Participate in a Research Study

Faculty Engagement with Universal Design for Learning in the College

Title of Study: Faculty Engagement with Universal Design for Learning in the College Classroom

Investigators

Name: Erin Wilhelm  Dept: CAHE  Phone: [redacted]
Name: Dr. Katy Jaekel  Dept: CAHE  Phone: [redacted]
Name:  Dept:  Phone: [redacted]

Key Information

• This is a voluntary research study on how faculty (i.e., instructors of record) engage with Universal Design for Learning (UDL) in their college classrooms.
• This semester-long study involves participants being interviewed twice and providing access to course documents for researcher analysis. Each participant’s course will be observed once by the researcher.
• The benefits include: uncovering information about the benefits and challenges associated with the application of Universal Design for Learning to the postsecondary classroom and its accompanying environment; the risks include: there are no foreseeable risks to this study.

Description of the Study

The purpose of the study is to explore the ways in which faculty engage in the use of Universal Design for Learning within their college courses. If you agree to be in this study, you will be asked to do the following things:

• Participate in an initial interview within the first half of this course (lasting approx. 1 hr.)
• Participate in a second interview within the last few weeks of this course or within the weeks immediately following the researcher’s observation (lasting approx. 1 hr.)
• Be observed once; researcher will observe for the duration of one course session
• Provide an artifact: this may be any electronic and/or hardcopy document/course material that reflects the application of UDL

Risks and Benefits

• There are no reasonably foreseeable (or expected) risks to participating in this study.
• The benefits of participation include: a contribution to the existing scholarly research about the experiences of instructors/faculty who engage with UDL in their college classrooms; potential implications for curricular improvements and/or design that may contribute to the persistence and retention of students with disabilities and the general student population; potential implications for changes to the support and funding offered to faculty and instructors in the areas of professional development and instructional design.
Confidentiality
This study is confidential.

- The records of this study will be kept strictly confidential. Research records will be kept in a locked file, and all electronic information will be coded and secured using a password protected file. Audio recordings of interview responses will only be shared with a reputable and confidential online transcription service. At the conclusion of the study, the audio recordings will be erased. We will not include any information in any report we may publish that would make it possible to identify you.

Your Rights
The decision to participate in this study is entirely up to you. You may refuse to take part in the study at any time. Your decision will not result in any loss of benefits to which you are otherwise entitled. You have the right to skip any question or research activity, as well as to withdraw completely from participation at any point during the process.

You have the right to ask questions about this research study and to have those questions answered before, during, or after the research. If you have any further questions about the study, at any time feel free to contact the researcher, Erin Wilhelm, at ewilhelm@niu.edu or by telephone at [insert phone number]. Questions may also be directed to Dissertation Chair, Dr. Katy Jaekel, at kjaekel@niu.edu or by telephone at [insert phone number]. If you have any questions about your rights as a research participant that have not been answered by the investigators or if you have any problems or concerns that occur as a result of your participation, you may contact the Office of Research Compliance, Integrity, and Safety at [insert phone number].

Future Use of the Research Data
Your information collected as a part of this research will not be used or distributed for future research, even if all identifiers are removed.

________________________________________________           ______________________
Participant’s Signature      Date

Your signature below indicates that you have decided to volunteer as a research participant for this study, and that you have read and understood the information provided above. You will be given a signed and dated copy of this form to keep, along with any other printed materials deemed necessary by the study investigator.

I consent to participate in the following activities (please check the applicable boxes):

- [ ] Interviews
- [ ] Observation
- [ ] Collection of course documents

[ ]
I give my consent to be audio recorded during interviews.

________________________________________________           _____________________
Participant’s Signature      Date

Preferred e-mail address: ________________________________________________________
Interview #1 Protocol

Date: ____________ Time: ____________ Place: _______________

**Potential questions to establish rapport:**

a.) How is your semester going so far?

b.) What have you enjoyed most about the semester so far?

c.) What have you enjoyed least about the semester so far?

**Potential interview questions:**

a.) How would you describe your instructional approach?

   i. How much, if at all, does your approach change at the beginning of each new academic year?

   ii. How much, if at all, has your approach changed since you started teaching?

b.) How would you describe your familiarity and/or experience with inclusive teaching methods, strategies, and/or practices?

   i. Please describe how you first came to know of these types of inclusive methods and practices.

   ii. Please describe any training(s) you have received about these teaching practices.

   iii. Please describe some of the inclusive teaching methods you implement within your course and its curriculum.

   iv. In what ways do you provide course content and materials in a variety of formats?

   v. In what ways do you provide the students with opportunities to demonstrate their knowledge and skills?

   vi. In what ways do you incorporate the students’ interests into the curriculum?

   vii. Please describe your students’ reactions/responses to these teaching practices.

c.) In what ways, if any, have you experienced challenges with implementing inclusive teaching methods, strategies, and/or practices in your classroom?

   i. Please describe how you addressed these challenges.

   ii. What resources of assistance, if any, did you seek out to address these challenges?
iii. To what degree were these resources helpful and/or useful?

iv. Please describe the ways in which you see this institution supporting your use of inclusive teaching methods and practices.

d.) In what ways, if any, have you experienced benefits when using inclusive teaching methods in your classroom?

i. Please describe any unique circumstance that has occurred in your classroom that you attribute to your use of inclusive methods in your course.

ii. How, if at all, did these benefits impact your instructional approach?
APPENDIX D

INTERVIEW #2 PROTOCOL
Interview #2 Protocol

Date: ____________ Time: ____________ Place: _______________

**Potential questions to establish rapport:**

a.) What were your feelings regarding the class session I observed?

b.) What, if anything, would you have done differently?

**Potential interview questions:**

a.) I noticed ______ when I observed your class session the other day. Would you please elaborate more on _____, _____, and ____?
APPENDIX E

OBSERVATION PROTOCOL
**Observation Protocol**

Date/Place: ________________  
Start Time: ________________  
End Time: ________________

<table>
<thead>
<tr>
<th>Observational Notes:</th>
<th>Reflective Notes:</th>
</tr>
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| **Multiple Means of Representation:**  
*In what formats are the content and materials being presented?*  
*Are the concepts/lesson being scaffolded and/or clarified? In what ways?*  
*Is background knowledge being built upon and cognitive strategies supported? In what ways?* | |
| **Multiple Means of Expression:**  
*In what ways are students demonstrating their knowledge and skills?*  
*In what ways are students physically interacting with instructional materials?*  
*What tools, formats, opportunities are being offered to students to demonstrate their knowledge/skills?*  
*Is students’ progress monitoring being supported? In what ways?* | |
| **Multiple Means of Engagement:**  
*In what ways are students provided with varied opportunities to develop/sustain interest?*  
*In what ways are the learning activities relevant & authentic?*  
*In what ways are collaboration & self-reflection being fostered?* | |