Universal Design for Learning (UDL) in Graduate Education: Investigating Faculty Perspectives

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ABSTRACT

Universal Design for Learning (UDL) is the proactive concept of creating a student-focused learning environment that meets students' variable needs. This qualitative phenomenological study interviewed five active graduate education faculty members on their knowledge and resource support with UDL initiatives. Findings included a variety of knowledge sources for UDL and inclusive initiatives, support services, and constraints on multiple levels. Discussion includes themes of faculty desire to promote and support inclusivity, UDL and professional licensure examination incongruencies, and the grassroots nature of UDL initiatives. Implications for practice include adopting UDL on a larger scale, designing flexible licensure exams, and recognizing and addressing student needs holistically.

Keywords: universal design for learning, udl, graduate education, faculty perspective, qualitative, action research, licensure examinations

DEDICATION

This research is dedicated to my daughter, Kiera; my stepson, Ryan; and my nephew, Colten; for being the best teachers in love and life. You are the light of the world.

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CHAPTER 1

INTRODUCTION

In spring of 2022, a graduate student approached the library inquiring about an essential book required for class. The library had a copy of the textbook in print; however, the student needed the book in a different format since they had low vision. A few weeks later, the Dean of Students inquired about accessing a variety of textbooks through formats that would accommodate different students' needs. The researcher started to ponder, "how are students able to keep up with their courses if they do not have what they need to start?"

Two additional interactions prompted more questions around this subject such as "how do the student accommodation office and faculty members differ in supporting students throughout their postsecondary education?" and "how could faculty proactively address a variety of student needs?" Lombardi and Lalor (2017) ascertain "by creating a more accessible and inclusive environment, more people with disabilities will be afforded [upward mobility and long-term quality of life improvement potential] for a college education and beyond" (p. 118). This action research project establishes the investigation of knowledge, education, and support of faculty's inclusive practices.

Background Information

The Americans with Disability Act (ADA) was passed into law July 26, 1990. The ADA has been requiring organizations to provide access and accommodations to people with disabilities for over forty years. In addition, the Higher Education Opportunity Act (HEOA) was signed into law in 2008, expanding opportunities for more diverse, equitable, and inclusive educational opportunities (Congressional Research Services [CRS], 2008).

In higher education, students are required to self-identify before disability services can be provided (Advisory Commission on the Accessible Instructional Materials in Postsecondary Education for Students with Disabilities, 2011). In other words, a higher education institution is legally bound from reaching out to request information regarding abilities from matriculating students. Instead, students with accessibility needs must first inquire about services prior to an institution assisting.

Amongst the many opportunities available to students with disabilities (SWD), the Office of Postsecondary Education is a specific program to help the transition from secondary education to postsecondary education (Office of Postsecondary Education, 2024). This governmental program provides technical, process, and procedure assistance. SWD have a variety of protected rights.

Challenges

Despite the protected rights, systemic inequity continues to saturate the educational environment for those with differing abilities (Broderick & Lalvani, 2017). Emong and Eron's (2016) study indicates specific themes surrounding the inequities of SWD in higher education including: admissions, lecture access, assessment, examination, and library services access. Although the study was conducted in Uganda, these issues have been assessed in multiple countries (Garcia et al., 2024; Shpigelman et al., 2022), including the United States (Aquino, 2023). Isaacs (2020) gives a first-hand account of a SWD being brushed off when seeking help, being told to take care of their disability on their own time and dissuaded by their professors from seeking a higher-level degree in their chosen profession. This exemplifies the lack of an educator's support for this student. How often are students with disabilities obtaining the assistance they need?

Accommodations benefit those who seek them. Meeks et al., 2021 identifies students' "fears regarding [accommodations] disclosure are partially evident in the disconnect between confidential self-disclosure of disability status…and individual disclosures and accommodation requests" (p. 1). These fears include stigmatization (Meeks et al., 2021). In other words, postsecondary SWD may not be seeking out accommodation even though they might be having difficulties in learning or may be unable to learn altogether in their current circumstances. Inclusive efforts such as the Universal Design for Learning (UDL) attempt to eliminate the need for accommodation and are intended to provide flexibility in the educational setting by design.

Another identified challenge is higher education's pressure on faculty and students to teach and learn the depth of a subject in a specific unit of time (Isaacs, 2020). Johnson (2016) mentions the general framework of many postsecondary institutions exhibits a cash-for-credit model, where time is a main focus for students and their families paying tuition. If time is a focus, how can this be inclusive for students having different timing needs? These time-focused situations could also contribute to a state of reactive accommodation compliance since efficiency in delivery could be of higher importance than ensuring an inclusive educational environment.

It is estimated that less than twelve percent of graduate students report themselves as having a disability (National Center for Education Statistics, 2016). SWD may be underrepresented in graduate education. These SWD may be a smaller population of individuals which may have their needs met individually through the mandated disabilities office. Furthermore, at the graduate student level of education, SWD may have found a learning method that works for them in the mainstream educational system. Despite these possible explanations, SWD could be facing extra challenges without need.

In addition to possible internal challenges, SWD often face pressure from their peers. For example, Rankin et al. (2010) identified challenges with placing nursing students with disabilities in the same positions as able-bodied professional nurses. The professional nurses and their organizations identified SWD's inability to perform certain tasks, maintain patient safety, and having more difficulty with time management, as compared with their peers (Rankin et al., 2010). These were main causes of concern. In Hinman et al.'s (2015) study, the majority of physical therapy program faculty preferred a requirement that both didactic education and the physical competency (with or without accommodations) be requirements of the program. Some of those in Hinman et al.'s (2015) study even suggested creating a different degree/credential for graduating physical therapists with disabilities. With challenges of self-disclosure, time-measured achievement, and lack of peer support, how are SWD able to get what they need to learn? Even though the ADA and HEOA were designed to remove barriers, they cannot remove biases.

Solutions

Some studies show participants within inclusive environments promote a higher level of understanding for all involved. For example, Sapp et al. (2021) identified the benefits of having residents or faculty with disabilities included in emergency medicine residency programs. In addition, Peel and Posas (2009) outlined an inclusive project where undergraduate students were paired with adults with learning disabilities—for an overall positive experience.

Additionally, technology products continue to be developed to assist those seeking to create an inclusive educational environment. One example, Ally software, "scans course material for accessibility problems and provides a review that includes an overall course accessibility ranking, the distribution of course content by a form of curriculum, and a list of all

accessibility issues" (Almuffareh et al., 2021, p. 85). This could provide critical information for faculty seeking to create an inclusive learning environment. Recently, President Biden signed an executive order to assist students with disabilities even further (Exec. Order No. 14091, 2023), and data continues to be collected.

Human resource solutions are abundant. The Association on Higher Education And Disability (AHEAD) is the "leading professional membership association for individuals committed to equity for persons with disabilities in higher education" (AHEAD, n. d.). This organization focuses on keeping the professionals in disabilities services educated and informed. On an important note, professionals in disability services are not teaching students daily nor are they assessing the students regarding educational content.

Universal Design for Learning

Another solution could involve adapting the classroom environment proactively by design. Universal Design for Learning (UDL) is an educational framework focused on building a flexible, inclusionary environment. It focuses on three pillars that provide multiple channels of the same actions to provide more opportunities for all students. These pillars include multiple means of engagement, multiple means of representation, and multiple means of action and expression (CAST, 2024). These three pillars provide options for all students with differing needs.

The UDL three pillars are areas of creating flexibility within the learning process (CAST, 2024). Each of these pillars involve a different action in the learning process: engagement, representation, and action and expression. All these pillars are considered based on the students' actions, denoting a student-centered approach. Each of these pillars include multiple checkpoints which help describe UDL further.

Multiple Means of Engagement

Engagement can be described as the "why" of learning (Meyer & Rose, 2005). Considering engagement as the start of the learning process, it is imperative to get a student to engage with what is being conveyed. High levels of inclusion could be utilized if instructors considered what learners find engaging, threatening, and relevant (Meyer & Rose, 2005). An environment including coping skills, types of feedback, and ability to persist should also be considered (Meyer & Rose, 2005). If the learning environment is not reflected upon, it is possible learners may not fully engage.

Multiple Means of Representation

Meyer and Rose (2005) describe multiple means of representation as an assortment of representation. What one learner understands in listening, another learner may understand in watching. A third learner may learn best by participating in a simulation. Even for learners who can understand in a variety of ways, Meyer and Rose (2005) identified that multiple means of representation can supply "a rich cognitive learning environment where varied options and interactivity create a more nuanced experience, enabling learners to explore the content from multiple points of view" (p. 56).

Multiple Means of Action and Expression

Meyer and Rose (2005) describe the *how* of learning in focusing on learners being able to "navigate a learning environment and express what they know" (p. 58). Providing an environment in which what is being assessed remains the same but how one demonstrates their knowledge may be different. For example, learners having the option of writing a paper, recording a video, or teaching others in a mock environment allows flexibility for learners to

show *how* they know the material in a variety of ways. In other words, the assessor can focus more on what is being assessed versus the mode in which it is demonstrated.

With this variety of support, information and resources are abundant. Yet, time is not abundant for faculty seeking to provide inclusionary practices. How is an inclusive system such as UDL communicated to faculty members in postsecondary education?

Research Problem

This action research project establishes the investigation of faculty members' knowledgebase, learning, and support of inclusionary UDL efforts in graduate education.

Research Purpose and Questions

The purpose of this qualitative phenomenology is to raise awareness of faculty understanding and needs for utilization of the inclusivity principles of Universal Design for Learning (UDL) in graduate education. This study intended to answer the following research questions:

1. How are faculty learning inclusionary practices such as UDL framework components to apply in instruction practices and courses?
2. What support do faculty have for implementation of inclusionary UDL components within instructional practice?

Definitions and Assumptions

Accommodation—aiding students with accessibility needs to provide a more equitable experience.

Center for Applied Special Technology (CAST)—The non-profit organization that created and promotes Universal Design for Learning.

Equity—Fair treatment. This can include providing extra assistance to some involved so that all can reach the goal or achievement.

Inclusion—Providing an environment or platform that encompasses the different needs of those involved.

Institutions of Higher Education (IHE)—postsecondary institutions including colleges and universities.

Students with Disabilities (SWD)—any student or group of students who may be potentially disadvantaged or excluded from learning in a traditional general classroom environment.

Universal Design for Learning (UDL) —"a framework to guide the design of learning environments that are accessible, inclusive, equitable, and challenging for every learner" (CAST, n. d.).

Significance of the Study

There is a gap between accommodation services and inclusionary classroom efforts (Hill et al., 2020). Faculty are often challenged with time: needing to stay abreast of contributions in their fields, creating scholarly output, and service within their professional community. Fovet (2021) indicates how departments or ideas can be siloed within an institution. With disability services and faculty having different expertise and department focuses, blended inclusionary efforts may not leap to the forefront of their minds. With accommodation support from other departments, how are faculty learning new educational practices that benefit their instruction? How are faculty supported in expanding their knowledge in inclusionary educational practices?

Organization of the Research Report

This chapter introduced the need for inclusionary efforts such as UDL in higher education. Chapter 2 will present a literature review of UDL in the same setting. Chapter 3 will

describe this qualitative phenomenology's research methodology and methods. Chapter 4 will report and discuss the findings and results. Chapter 5 will conclude the final report by discussing implications for practice and offering recommendations for future research.

CHAPTER 2

LITERATURE REVIEW

Introduction

The purpose of this qualitative phenomenology was to raise awareness of faculty understanding and needs for utilization of the principles of Universal Design for Learning (UDL) in graduate education. This study intended to answer the following research questions:

1. How are faculty learning inclusionary practices such as UDL framework components to apply in instruction practices and courses?
2. What support do faculty have for implementation of inclusionary UDL components within instructional practice?

This chapter investigates creating an inclusive teaching environment using the principles of UDL. It considers the existing research surrounding the application of UDL in the higher education setting. Additionally, this chapter reflects upon research on the history of UDL, related research, UDL effectiveness, supporting UDL, and faculty considerations. With this evidence, the researcher intended to investigate resources and support for faculty implementing the UDL framework and inclusionary practices in graduate education.

Literature Review

History of UDL

The founding principle of UDL is based on Universal Design (UD). UD was promoted by architects to describe "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" (College of Design, 1997). UD is an inclusionary designing mindset that promotes such ideas as curb

cutting. Curb cutting is where the physical sidewalk edge has the curb cut away or is sloped, so that those with mobility issues, strollers, and others' needs have an easier time moving from sidewalk to sidewalk without a physical step as a barrier (Burgstahler, 2020a). A variety of other subsets of UD include instruction, technology, and higher education. All exist with the same UD principles. The idea being that the design is universally usable. The *universal design* concept has been noted in literature since 1985 (Simmons, 2020). While there are a wide range of disciplines focused on incorporating UD principles, the larger topic of UD was out of scope for this literature review.

UDL is one subset that applies to this principle by applying UD to learning. UDL originators were concerned with finding ways to use technology to assist students with disabilities (Burgstahler, 2020a, 2020b; CAST, n.d.). Specific to learning, the idea for what is ultimately the UDL framework was initiated in 1984 (CAST, n.d.).

As time moved on, laws changed and technological advances continued exponentially; scientists concluded through neuroscience research that UDL framework was beneficial to the learner (Meyer & Rose, 2005; Rose, 2000; Rose & Meyer, 2002). Along with this evidence, contributors to UDL identified that conceptualizing disability should no longer be based on a medical frame which singles out individuals based on a diagnosis (Rose et al., 2006). Instead, contributors consider SWD in a societal frame where every learner has a different set of skills and needs, shifting the learning responsibility upon the curriculum and not the student (Rose et al., 2006).

While the research and usage of UDL has evolved for almost four decades, most of the early research was based in K-12 education. The Higher Education Opportunity Act (HEOA) included UDL-specific wording suggesting the creation of more flexible, inclusive higher

educational environments (HEOA, 2008). This opened more investigation of UDL research in the higher education setting.

Related Research

Another UD subset of philosophies is the Universal Design for Higher Education (UDHE). Immediately, the name seems it should be the focus of the review, considering the full name includes "higher education." However, it is important to note that the higher education aspect of this research is less focused on universal learners and is less specific in nature (Burgstahler, 2020b). Instead, UDHE generalizes on universal design in higher education, including physical environment and supporting staff. In addition, UDHE has very few original research articles in the literature; much of the literature searching with the UDHE acronym resulted in a large percentage of literature with Sheryl E. Burgstahler as an author. Because of the possibility for unintended author bias, the more recognized UDL framework has been considered for diversity in perspective.

Closely related to UDHE is the Universal Design for Instruction (UDI). Universal Design for Instruction has been described as utilized at the university level of education (Carballo et al., 2021). While UDI and UDL are closely related, UDL "provides specific guidance for designing curricula that enables all individuals to gain knowledge, skills, and enthusiasm for learning" (Burgstahler, 2020a, p. 2). While there are original research studies in UDI (Black et al., 2015; Diaz-Vega et al., 2020; Parette et al., 2010; Roberts et al., 2011; Scott et al., 2003), most of these studies also include the more common UDL term. Additionally, Espada-Chavarria et al. (2023) ascertain that only UDL applies to all education levels. Therefore, the focus of this literature review has been UDL, due to the specific guidance that can be compared in research design and high utilization of *UDL* in the literature.

It is important to note it is not necessary that UDL be the sole source of proactivity in creating more accessible and inclusive environments. Some faculty have been implementing portions of the UDL without direct intention. Chen et al. (2018) surveyed over 500 undergraduate students regarding online instructional design elements for online courses. In this study, Chen et al. (2018) identified online beneficial components that did thematically match UDL elements. This exemplifies taking inclusive action without necessarily intentional and specific UDL application.

Another example is inclusion-specific quality improvement in medical education. Singh and Meeks (2023) suggested universal inclusive access for all medical education programs. This quality improvement plan applied to medical education suggested aligning a humanization culture throughout the medical education system (Singh & Meeks, 2023). While UDL was not mentioned in this paper, establishing this field-specific quality improvement involves multiple avenues of applying inclusive principles in the appropriate settings. This would suggest an unintentional alignment with UDL elements, working to achieve similar goals.

With the variety of acronyms and related UD approaches, the literature search resulted in identifying UDL as a widely utilized terminology for an inclusive learning framework over a variety of higher education disciplines. In addition to its historical roots of overcoming barriers by utilizing inclusive technology, UDL continues to evolve, providing a more inclusive framework for all. As Scanlon et al. (2018) state "who we are prepared to teach indicates who we expect to participate in the … community" (p. 020101-1).

Effectiveness of UDL

While history and related research point to overall benefits, stakeholders have the responsibility to deeply investigate UDL effectiveness. Gaining more information of a detailed

perspective, it is possible students and faculty from the general learning community may have advantages or disadvantages from application of UDL principles. Therefore, UDL efficacy exploration has been investigated for these purposes.

King-Sears et al. (2023) provided evidence suggesting overall UDL efficacy. In this meta-analysis, one of the research questions inquired, "Does learner achievement differ between non-UDL and UDL-based instruction?" (King-Sears et al., 2023, p.13). Through the investigation, the authors identified the UDL-based instruction had higher achievement (King-Sears et al., 2023). Although the majority of studies analyzed were based on K-12 education, the results suggested a similar outcome for any group of learners.

Indeed, research results suggest a time of change for instruction in higher education. Balta et al. (2021) investigated how they could apply the UDL framework in the anatomy curriculum of first-year medical students. In this paper, researchers mapped the core principles of UDL to their implementation strategies that were key to providing a UDL-informed atmosphere (Balta, et al., 2021, Figure 1). Balta et al. (2021) also described a variety of multiple means of representation including three specific checkpoints: different ways of customizing content (dissection, models, computer learning), different ways of decoding information (multimedia, variety of texts and atlases), and grounding information processing by including background knowledge (lectures, self-directed quizzes). The granularity in this description provides an in-depth example of UDL framework application. Although effectiveness was not quantified for this paper, the results of the redesign demonstrated investment in exploration of UDL at the graduate level.

Student Perspectives

Smith (2012) partnered UDL science with a college instructor to test effectiveness. They proactively investigated the UDL multiple methods of engagement pillar of the UDL framework within the instructor's college research class. Smith (2012) surveyed groups of graduate level education students over four semesters of a required course where UDL principles were applied to identify student perspectives, engagement, and the relationship between the two (Smith, 2012). Results showed a positive correlation between student perspective and engagement when UDL principles were applied (Smith, 2012).

Specifically, Smith (2012) concluded that with the instructor's utilization of ten different types of multiple means of representation, the students identified four types of representation that they used at least "often" as marked in the survey. The four types included reading lecture notes, listening to lecture, viewing summaries in a graphic organizer, and viewing other handouts with summaries. This indicated that students report utilizing the multiple means of representation within the class. It is important to note with the Smith (2012) study, the student participants were pursuing education careers; therefore, this may account for some of the positive feedback in the research. Still, the study provided insight into redesigning a graduate course with the UDL framework.

On the contrary, Reyes et al. (2021) surveyed first year university chemistry students at three separate universities where content was made available online. They noted a mixed student reaction to the UDL framework applied to the online classroom environment. Specifically, in the online environment, students perceived that having too many multiple means of representation and expression left them confused (Reyes et al., 2021). Therefore, blanket application of UDL without attention to detail is not necessarily a surefire approach for successful inclusivity.

Additional studies have shown UDL practices in the classroom resulted with student responses of positive effects (Black et al., 2015; Bradshaw, 2020; He, 2014; Kennette & Wilson, 2019; Kumar & Wideman, 2014; Lohmann et al., 2018; Palmer, 2015; Rao & Tanners, 2011; Scanlon et al., 2018; Schelly et al., 2011; Scott et al., 2015). A variety of research methods with these practices included questionnaires, interviews, surveys, focus groups and case studies. The overall results provided evidence of a general positive effect of UDL effectiveness in the classroom from a student perspective.

Faculty Perspectives

Of course, investigation from faculty stakeholders is imperative to ensure the successful application of the UDL framework. Parette et al. (2010) piloted the application of UDL/UDI principles with fifteen faculty members responding to the overall survey. The responses indicated a positive impact of applying the UDL framework within their courses by review of student success feedback.

In the same vein, Dempsey et al. (2023) investigated faculty knowledge and incorporation of UDL framework and principles. Within their survey, the researchers asked anatomy instructors from multiple institutions about specific multiple means of representation with teaching methodologies that ranged from didactic and peer-instructed learning to kinesthetic (body painting) and gamification (A. Dempsey & Y. Nolan, personal communication, February 9, 2023). They learned that while only 31% of faculty respondents had heard of UDL, 84% of respondents had utilized at least one checkpoint in multiple means of representation (Dempsey et al., 2023). This would be another example of faculty demonstrating UDL framework effectiveness without necessarily intentional UDL application. Every respondent affirmed incorporation of some parts of UDL in the curriculum with positive responses (Dempsey et al.,

2023). While UDL as an entire system may not have been adopted, the components suggest inclusionary efforts were considered, utilized, and successfully implemented.

With the variety of evidence presented, UDL has shown effectiveness time and again when utilized in higher education. From a range of student and faculty perspectives in different disciplines, UDL has had an overall positive impact on providing inclusivity in higher education.

Multiple Perspectives

UDL effectiveness can be less clear from the perspectives of both students and faculty. While the theory of UDL is to provide an inclusive environment for all, the application of the framework can propose challenges. Not all the UDL framework application is designed the same, as some of the research participants' feedback suggests.

Kennette and Wilson (2019) surveyed students at a Canadian college regarding the usefulness of a portion of UDL principles. After the student survey, researchers surveyed the same college's faculty and compared student perspectives with faculty perspectives. Kennette and Wilson (2019) found mismatched viewpoints between the groups. Some key differences in opinion and definitions were concerning hands-on activities, distraction-free environments, and autonomy (Kennette & Wilson, 2019). In detail, where faculty identified a classroom as a distraction-free environment, the students did not agree citing distractions such as mobile phones, other students, and lighting (Kennette & Wilson, 2019). More broadly, although both faculty and student surveys identified UDL as being moderately helpful, the amount of helpfulness differed between collective student and faculty responses (Kennette & Wilson, 2019). Lack of shared definition of *distraction-free environment* may blur the application of UDL in some context.

Fovet and Mole's (2013) research included a qualitative study that sought effectiveness feedback from multiple stakeholders one year after Universal Design discussion and implementation. When implementation was still in progress, Fovet and Mole (2013) identified an opportunity to collect feedback from different stakeholders including faculty, student services, and senior administration. In the feedback, faculty identified concern about the amount of additional work, departments expressed positivity to the ideas of utilizing common language across institutions as well as higher awareness of equity and diversity, and senior administration discussions produced themes concerning resource management, sustainability, and institutional unawareness of inclusion (Fovet & Mole, 2013). Especially notable from the study was the insight of capitalizing accessibility and inclusion efforts to push larger equity and diversity awareness in all learners (Fovet & Mole, 2013). Similar to Kennette and Wilson's (2013) study, effectiveness was generally gleaned from UDL implementation, and specific research results demonstrated differing opinions in the details.

Not all cases in UDL research show a resounding positive effect from stakeholders. Whether it is the instrument design, application of UDL principles, or the perception of the participants, difference of opinion was discovered at more in-depth levels. Identifying participant perception and understanding could provide opportunities for changes in future research.

Supporting UDL

In the higher education community, UDL inclusive efforts concern stakeholders beyond faculty-student relationships. Administrative and departments may provide funding, staff workers, or other modes of support. These stakeholders are tied to the success or failure of the institution's investment in inclusivity implementation efforts.

Administrative Considerations

With conflicting perceptions, higher education administrators have a role to play. Lombardi and Lalor's (2017) chapter identified how faculty and multiple support departments are often siloed due to the differences in reporting structures. Because student services and academic departments were not integrated, neither were likely to exchange or collaborate on a great deal of inclusionary information regularly. Although it would be a top-down approach, higher education administrators support the success of the students, faculty, courses, and programs of the institution. Research has identified higher education administration as an important component for supporting UDL implementation. Perhaps intervention at an administrative level could help stimulate more interdepartmental integration on the basis of inclusion.

Fovet's (2021) phenomenological reflections on their large scale UDL implementation identified the silos between the disability office and educators. This silo-ing effect could suggest that inclusive projects may be sending positive initiatives in conflicting directions; a loss of momentum could be a result in the process (Lombardi & Lalor, 2017; Fovet, 2021). Furthermore, because of these siloed tendencies and possible conflicting initiations, higher level institutional leaders are needed to overcome and lead these initiatives (Fovet, 2021). Fovet (2021) encouraged leaders to wholistically consider the institution for successful implementation of UDL.

For adopting inclusionary efforts, administrator proponents of UDL need faculty and department buy-in. For example, research suggests united training for university faculty and support staff is necessary to create shared language and understanding in accessibility and inclusion (Cuenca-Carlino et al., 2023; Fovet, 2021; Fovet et al., 2014; Tobin, 2021). In addition,

Tobin (2021) advocated for a large overhaul led by university administration requiring faculty to create their courses designed to meet the needs of all users. This up-front work, Tobin (2021) contended, would pay off in the long run. Tobin (2021) suggested the work from university administration would trickle down to result in students having less confusion at the beginning of their courses.

The purpose of Hills et al.'s (2022) study was to "explore faculty awareness and understanding of UDL to identify bridges and barriers to broader implementation of UDL practices" (p. 3). Hills et al.'s (2022) mixed method study began with interviews of over 200 faculty members. Within the interviews, some interesting themes emerged. Faculty identified the institution's current structure of providing accommodation upon request as inefficient and cost prohibitive (Hills et al., 2022). In addition, barriers included inconsistencies amongst faculty, uninformed points of view, time constraints, and lack of comfort (Hills et al., 2022).

Hills et al. (2022) utilized these interview themes as the basis of a survey distributed to Canadian higher education faculty. While the laws require accommodations, Hills et al. (2022) suggested reallocation of funds, possibly to a UDL advisor or other accommodations professional. The researchers also identified two proponents for UDL adoption: committed institutional champions and growing faculty awareness (Hills et al., 2022). While others suggest a mandate or top-down approach for the institution (Cuenca-Carlino et al., 2023; Fovet et al., 2014; Tobin, 2021), the combination of champions from both top and bottom organizational stakeholders provided a unique strategy. With these in mind, Hills et al. (2022) suggested an administratively engineered top-down *and* bottom-up approach for a more effective UDL adoption.

Not all research has resulted in calls for higher administrative intervention. In fact, one report explains the progress on an institutional level UDL implementation. Cuenca-Carlino et al.'s (2023) study separately surveyed students and faculty before selecting focus groups to work together and review literature. Cuenca-Carlino et al. (2023) identified the need for a "holistic and integrated framework that would create a common language all faculty and administrators could use when talking and thinking about teaching and learning with equity, diversity, inclusion, and access efforts" (p. 6). In other words, a signature pedagogy emerged (Cuenca-Carlino et al., 2023). As Cuenca-Carlino et al. (2023) reported, involving multiple stakeholders is important in every step of the planning and implementation process.

For example, students, faculty, and support service departments were sought for their input throughout the learning and creation process (Cuenca-Carlino et al., 2023). Faculty were given a voice and incentivized with institutional support including workshops and grants (Cuenca-Carlino et al., 2023). Eventually, leadership added inclusionary efforts to their faculty promotion and tenure process (Cuenca-Carlino et al., 2023). Since this framework was created relatively recently, there are no studies yet of long-term impact. Further research is needed to identify if the amount of executive level support helped facilitate a larger campus-wide acceptance of UDL inclusionary implementation.

If the executive level of an institution was interested in applying the UDL framework campus-wide, research suggests they must also consider planning, timing, and resources. Some of the research points to higher level administration as key to UDL inclusionary implementation. Cuenca-Carlino et al. (2023) have started reporting on UDL-invested institutions that could prove a broader implementation useful or not over time.

Support Departments

From an institutional perspective, utilizing support departments that are dedicated to assisting every campus program could also be considered. Support departments such as instructional design and disability support have a stake in the success of the institution. These departments have knowledge and skills that can be utilized throughout campus to advance technology driven UDL initiatives.

The growing areas of instructional design and educational technology have been trained to help translate faculty content into digital learning (Lomellini & Lowenthal, 2022). Regarding supporting faculty in applying UDL principles to the classroom, many faculty are supported by those certified in instructional design (Lomellini & Lowenthal, 2022; Tobin, 2021). Lowenthal and Lomellini's (2022) study explored the knowledge-level of instructional designers, disability services, and faculty regarding UDL in online instruction. Researchers surveyed different perspectives of accessibility readiness from disability services, educational technology designers, and directors. Results indicated a growing need for education and understanding in accessibility for both instructional designers and faculty (Lowenthal & Lomellini, 2022; Singleton et al., 2019).

The areas of instructional design and educational technology provide advanced certificates (Lowenthal & Lomellini, 2022). Some schools utilize these specialists in providing the skills for adapting a faculty member's content to an online format (Lowenthal & Lomellini, 2022). While inclusive specialization was an option, UDL was not a universal requirement for either of these growing fields (Lomellini & Lowenthal, 2022).

In addition to instructional designers providing support, the disability support service department could also be considered for planning, implementing, and training UDL in higher education. Bedrossian (2018) had identified in Canadian higher education that most UDL and

inclusive initiatives have come from the disability support services departments. After all, these service departments were focused on accommodating SWDs; therefore, they could have been eager to introduce an inclusive model (Fovet et al., 2014). In addition, many connected accommodations with inclusion (Lomellini & Lowenthal, 2022) even though they are separate terms coming from different frames of thinking.

Support departments have knowledge and skills to address some of the components in applying UDL in institution-wide inclusionary efforts. They can provide technology skills and accommodation knowledge to help fulfill an institutional application. Highlighting the skills of these professional resources could benefit initiatives to apply inclusive practices.

Faculty Considerations

While considering many of the stakeholders with designing and implementing UDL strategies in higher education, research suggests the most impactful change is related to direct instruction from faculty members (Espada-Chavarria et al., 2023). Although there is a range of initiation from individuals to institutional levels, a variety of research suggests specific consideration for faculty support of UDL implementation. These considerations include psychological support, resource support, and implementation experiences.

Psychological Support

Introducing UDL in higher education settings is not a matter of pushing a button or engaging a factory setting. The humans involved also need to shift their viewpoints on what UDL means for the collective. Some of the research reported psychological barriers of the stakeholders when attempting to implement UDL principles.

While perspectives of UDL framework generally have had a positive impact, additional psychological barriers for faculty members have been documented. Black et al. (2014) sought to

answer what current faculty practices, attitudes, and knowledge were focused on accessibility and inclusion efforts. In the results, Black et al.'s (2014) study identified that faculty perception of SWD may come from an uninformed point of view. In addition, Cumming and Rose's (2022) rapid literature review sought out the knowledge, efficacy, and recommended guidelines for implementation of UDL at a post-secondary level. Cumming and Rose (2022) noted that while the literature suggested positive results from students, an important barrier to adopting UDL in higher education was faculty attitudes and approach.

de Bie et al. (2022) investigated faculty members' introduction and orientation to accessibility as well as the complexities within their rationale. de Bie et al. (2022) identified themes of the psychological considerations of faculty anonymously surveyed to identify the faculty mindset of accessibility and inclusion. Themes resulting from this research indicated mindsets of "charity, mandated, the right thing to do, effective strategy, or profitable" (de Bie et al., 2022). If faculty were considering accessibility as a charity, it is likely they were looking at specifically helping someone with a disability. As previously established, UDL principles are based on moving the mindset away from disability as a medical condition into a societal framework. Therefore, administratively mandated UDL application could result in a begrudging mindset on behalf of the faculty. In addition, retrofitting classes to be UDL-inclusive would require reexamination of classes and likely need a major amount of work to be restructured (de Bie et al., 2022).

In preparation for a cultural shift, de Bie et al. (2022) encouraged reflection in the mindset of the faculty members. As suggested, effective strategy and profitability could also be the mindset of faculty. Effective strategy could refer to reaching the largest number of students efficiently. Additionally, profitability reflects on a UDL-inclusive environment creating an

inclusive reputation and could possibly make for a larger number of underserved applicants to the institution.

While differing mindsets are valid, de Bie et al. (2022) identified possible difficulty in implementing UDL without first creating a unified base mindset. As earlier described, a societal frame of disability partners with the need for clarity. Hollingshead et al.'s (2022) research interviewed expert UDL faculty and identified a non-consensus in both the defining of UDL terminology and building UDL types of flexibility into the classroom setting. Maintaining a standard definition of UDL and UDL-inclusionary efforts could assist with clarifying this ambiguity. In their concluding remarks, the originators of UDL suggested ways to create an inclusive educational experience and deepen the ability to learn for all students (Hollingshead et al., 2022). Others identified different viewpoints of key stakeholders as a possible hindrance to acceptance and successful implementation of UDL and inclusive practices (Baker et al., 2012; de Bie et al., 2022). These studies suggest more than an industrial-like repetitive training is needed for lasting impact.

Bradshaw's (2020) dissertation research investigated knowledge, perception, and commonly implemented inclusive practices. Their findings indicated more psychological limitations for UDL implementation. Specifically, one theme identified faculty who focused on deficit-based accommodations like disability from a medical construct (Bradshaw, 2020). Other mindset concerns included student-identified barriers including some key themes relating to instructor participation including: "…(c) Instructors Denying Student Accommodations; … (e) Lack of Relationship and Engagement; Unsupportive," (Bradshaw, 2020, p. 85). This was also described from first-hand account by Isaacs (2020). If students were sensing and identifying seemingly uninterested faculty, how successful would implementing UDL through faculty be?

Blaser et al. (2015) messaged an online STEM community looking to identify students (or recent graduates) regarding if and how disability was addressed in their courses. Twenty students responded and the authors collected the responses qualitatively. The questions revolved around disability education in STEM disciplines including engineering, biology, and computer technology courses (Blaser et al., 2015). Responses were mixed with most feedback describing having minimal discussion in their courses (Blaser et al., 2015). From one of Blaser et al.'s (2015) participants: "they [instructors] are more like teaching examples without human context [of disability]" (p. 26.935.5). The significance of Blaser et al.'s (2015) study identified how UD and UDL could be applied for student retention, especially for diversity and equity of underrepresented students in STEM disciplines. While the study exemplified some educator psychological barriers, considering UDL as a tool for diversity and equity retention may also help provide psychological support, aligning with disability as a social concept.

Gaining the right mindset of faculty is key to successfully implementing UDL and inclusive practices. Thinking of inclusive practices from a charity or accessibility mindset detracts from the social framework model of disability that UDL is based upon. It is suggested that psychological barriers be primarily addressed for successful implementation of inclusionary practices.

Resource Support

Some of the UDL literature identifies needing resources to progress with large-scale adoption of inclusionary practice. Research has identified a variety of resource barriers including tools, time, financial, self-preserving forces, and educational resources. While some of these hurdles may not affect every institution, enough similarity warrants consideration.

Leading UDL implementation by disability support services could lead to unintended barriers. Fovet's (2021) experienced phenomenology addressed the department funding structure in Canadian higher education in this manner. In many instances, Canadian higher education funding for the disability support office directly correlated to the number of students who they were helping (Fovet, 2021). With this funding model, accessibility offices could conflict with implementation of UDL due to the need for student numbers as departmental self-preservation (Fovet, 2021). Afterall, if classes became more inclusive, would the need for the disability services office cease to exist? While a funding structure amongst higher education in the United States may not mirror Canadian higher education in this exact manner, the conflict of funding disability services offices and UDL implementation is a possibility and suggests a potential barrier.

In addition to department funding and conflicts, Lowenthal and Lomellini's (2022) research investigating accessibility training for educational technologists pointed to lack of clear roles and responsibilities for implementing accessibility and inclusion efforts. For example, the input, content, and design of online courses needed to be well defined (Lowenthal & Lomellini, 2022). Instructional designers, for example, have been educated and certified in designing for online learning (Lowenthal & Lomellini, 2022). If clear roles and responsibilities were not established, conflict could arise between faculty and instructional designers when working toward implementing UDL in an online setting (Lowenthal & Lomellini, 2022). In other words, who would oversee arranging the content in the online learning management system? Additionally, Lomellini et al. (2022) identified instructional designers as a potential barrier; although they have training in online design for education, they may not necessarily have proper training or commitment to UDL implementation. Therefore, clarifying the roles and

responsibilities of the individuals supporting the effort must be provided to avoid this potential barrier.

In consideration of funding, departmental conflict, lack of clear roles and responsibilities, and educational barriers, Lomellini et al. (2022) identified lack of leadership support as another hindrance to the application of UDL in higher education (Lomellini et al., 2022). As previously mentioned, administration consideration and support are needed for championing inclusive enterprises (Cuenca-Carlino et al., 2023).

Faculty themselves confirm limitations due to lacking resources. Namely, these included time, education, and assistive resources (Black et al., 2014; Black et al., 2015; Bradshaw, 2020; Cumming & Rose, 2022). Parette et al.'s (2010) study conducted a pilot survey to investigate faculty members' practices and needs in the UDL and UDI areas. Specifically, Parette et al.'s (2010) study identified faculty resource needs and limitations identified from faculty who piloted UDL principles in their courses. The results indicated faculty challenges including time, knowledge, tools, support, and assistive technologies (Parette et al., 2010). Faculty need resources for their own education to understand and synthesize before they could successfully implement an inclusive UDL framework in their courses. Indeed, Fovet et al. (2014) identified faculty stressors with the concern of implementing UDL framework and further identified a need for collective ownership of implementation with stakeholders.

Program directors also consider lacking resources as barriers. Scott et al. (2017) sought to learn from program directors of accredited special education personnel preparation programs the extent of UDL instruction and framework that is incorporated for preservice teachers. In this survey study, the researchers sought to answer three research foci: (a) to what extent is UDL instruction planning taught to preservice teachers, (b) to what extent are UDL instructional

activities and resources utilized in the program, and (c) how are the programs helping preservice teachers critically think about ways to use UDL to tie in current schooling with transitioning into society (Scott et al., 2017). This mixed method study also included open ended questions to collect additional information. Findings indicated (a) UDL incorporation for the preservice teachers was prevalent, although not all were in-depth, (b) UDL instructional activities were in many of the programs surveyed, and (c) UDL framework incorporation with school to real life transitioning was not prevalent (Scott et al., 2017). Considering these programs are of the education discipline, this was surprising. Unfortunately, lack of resources for implementation was a recurring theme for less framework incorporation with school to real life transitioning.

Implementing UDL requires resources. Such resources include funding, time, education, support, and tools. Although some of these overlap at other levels of an institution, what approach are faculty, departments, and institutions taking to provide needed resources to ensure inclusionary efforts are prioritized?

Implementation Experiences

As previously noted, applying the inclusive UDL framework to education requires psychological and resource support. Other implementation experiences evolved as an additional theme for faculty consideration. Investigated further, several studies have examined the effect of implementation as it pertains to the pre-service instructor learning application of the UDL framework.

Izzo et al. (2008) surveyed and subsequently interviewed faculty asking their experiences with instructional strategies in respect to accommodating SWD. To test the climate, they utilized these results as fodder for a second study. Izzo et al. (2008) further sought feedback from faculty who navigated an online curriculum of five different modules all containing related information

regarding effective teaching and learning; one module included UDL as a subject. In addition, the entire set of modules were designed to following UDL concepts (Izzo et al., 2008). The faculty then answered open-ended questions regarding the effectiveness and feasibility of applying the strategies to student usage (Izzo et al., 2008). Responses included positive perspectives on all five modules, including increased comfort for helping SWDs and positively recommending the modules to colleagues. The scale of this suggests highly positive responses to UDL from faculty who have learned it.

Schelly et al.'s (2011) study considered students as evaluators of instructor UDL training. After using focus groups and survey pilot testing, Schelly et al. (2011) pre-surveyed students regarding UDL framework checkpoints. Based on these results, UDL training was planned and utilized. Faculty then incorporated UDL principles. Schelly et al. (2011) then conducted a post survey. Results indicated positive significant student response (Schelly et al., 2011). While training procedures were described, this training was adapted to specifically fit the needs identified in the pre-survey and may not be applicable to larger faculty group training or have a lasting impact on instructors.

Evmenova (2018) conducted a mixed methods study involving an asynchronous course based on the study and incorporation of UDL. A variety of teachers and education professionals participated; all were enrolled in a graduate education course (Evmenova, 2018). The researcher sought to explore (a) how to enhance lessons with UDL, (b) identification of focused UDL strategies for diverse learners, and (c) what educators can recognize as UDL support as they learn within a UDL environment. Results were positive in participant intent to use UDL as well as having a better understanding of the premise of UDL from a learner's perspective. Overall themes included (a) UDL has value, (b) focus and intention in all aspects of instruction, (c)

importance of student autonomy, and (d) additional teacher professional development for all (Evmenova, 2018). This research suggests teachers need dedicated time and intentional focus for learning and practicing application of UDL.

Lee and Griffin (2021) explored online modules of UDL for graduate-level education students. For the study, Lee and Griffin (2021) had these participants submit a copy of their most inclusive lesson plan to date as a pretest. Participants then completed online modules regarding UDL framework and implementation. Finally, participants created and delivered another lesson with UDL as a posttest (Lee & Griffin, 2021). These lesson plans and videos of instruction were evaluated on an established rubric. Lee and Griffin (2021) identified a higher average of UDL components implemented in the posttest. Lee and Griffin's (2021) research implied required effort in professional development of instructors that requires intense training and testing prior to implementing UDL in a classroom.

Considering research suggests a positive effect from formal UDL training for instructors, it seems formal UDL training could be used at additional institutions for greater inclusive effect. Through a variety of methods of online instruction modules and application, research suggests faculty have been successful at implementation of UDL principles, once dedicated time is supplied, and in-depth instruction is provided.

Synthesis of the Literature Review

Universal Design for Learning has had a positive impact in higher education, both for students and faculty. The efficacy of the framework demonstrates inclusive learning practices serve all students. Research indicated consideration in implementing this framework needs administrative leadership support, time, resources, and dedication. While some of the studies have identified and described helpful institutional support, the research suggested this is an

institution-by-institution basis, without cross-pollinating with higher education institutions in general. Additionally, research implied formal UDL instruction for educators could have a positive impact on the application of UDL in the classroom.

Research has identified effectiveness of UDL with faculty engagement. It also suggested institutional support by administration and service departments. Most of all, the research indicated consideration of faculty psychological support, resource support, and implementation experiences. So, how are faculty learning inclusionary practices such as UDL framework components to apply in instruction practices and courses? In addition, what current support do faculty have for implementation of inclusionary UDL components within instructional practice?

Chapter Summary

This chapter presented the history, related research, effectiveness, support, and faculty considerations of UDL. Furthermore, it solidified evidence of UDL as an effective inclusionary practice in higher education. Chapter 3 describes this study's research methodology and research methods.

CHAPTER 3

RESEARCH METHODOLOGY AND METHODS

Introduction

Universal Design for Learning (UDL) was developed to provide guidelines for a more inclusive environment with multiple ways to learn because in society, every learner has different needs (Rose et al., 2006). While this method of instruction has been studied and utilized extensively from preschool through 12th grade, the UDL framework expanded to postsecondary education later than elementary and secondary levels (Zeff, 2007). In addition to rising online education opportunities, institutions needed to respond to the growing *diversity* in higher education which includes students with differing accessibility needs (Meyer & Rose, 2005).

Some higher education institutions philosophically frame disability as a societal concern rather than a medical concern (Lomellini & Lowenthal, 2022). In response to this, institutions have been making proactive efforts for an accessible and inclusive environment (Lomellini et al., 2022). Even so, UDL utilization is not necessarily mainstream due to reasons such as lack of resources (Cumming & Rose, 2022), lack of awareness (Dempsey et al., 2023), and psychological barriers (de Bie et al., 2022). The purpose of this qualitative phenomenology is to raise awareness of faculty understanding and their needs for utilization of the principles of Universal Design for Learning (UDL) in graduate education. This study intends to answer the following research questions:

1. How are faculty learning inclusionary practices such as UDL framework components to apply in instruction practices and courses?
2. What support do faculty have for implementation of inclusionary UDL components within instructional practice?

This chapter describes the research methodology for investigating faculty experiences and practices with inclusionary UDL framework components. Additionally, this chapter describes research context and setting, including participants and recruitment. The methods and data collection are also detailed within this chapter. With these considerations in mind, the researcher intends to investigate faculty experiences with resources and support for implementing UDL inclusionary practices in graduate education.

Research Methodology

Qualitative Methods

The basic characteristics of a qualitative method differ from quantitative and mixed methods approaches. Qualitative research involves a natural setting, the researcher as a key instrument, multiple sources of data, inductive and deductive data analysis, participants' experiences, an emergent design, reflexivity, and developing a holistic account (Creswell & Creswell, 2018). Qualitative methodology includes descriptive themes, patterns, and interpretation by the researcher as they occur in a natural setting.

Rolfe (2006) considered qualitative research as not its own type of research but rather as a method of data collection. Those who practice quantitative research may have bias due to numerical and statistical preference; quantitative research may also happen in a controlled environment (Rolfe, 2006). Qualitative methods allow the research to be conducted in a more native setting; a setting which the phenomenon is naturally and currently taking place. This setting may account for inconsistencies; it also allows for a deeper investigation as to what is currently happening in the field with less possibility of controlling the environment and influencing the phenomenon.

The researcher is a key instrument in qualitative research because the researcher is the one collecting and interpreting the data. Quantitative research tools, such as closed-ended surveys or default instruments, may struggle to replicate the depth of insights from qualitative research. This depth of insight is a qualitative hallmark allowing for discovering experiences from the participants. Another unique feature of qualitative research design starts with the researcher inductively identifying themes and emergent patterns within the data (Mertler, 2020). Following the inductive data analysis, the researcher then utilizes identified themes and patterns to deduce if the evidence is supportive of the themes identified or whether further information is needed (Mertler, 2020). This approach of data analysis allows the researcher, as a key instrument, to identify themes that may be combined across multiple sources of information instead of following a set protocol or design (Creswell & Creswell, 2018).

Participants' experiences and emergent design are additional hallmarks of qualitative research (Creswell & Creswell, 2018). Developing the holistic account is imperative for qualitative research. Participants' experiences should speak through the researchers (Mertler, 2020). This is not a place where the researcher expresses themselves but rather, the researcher explains the participants' experiences (Patton, 1990). Qualitative research begins in a holistic setting; it ends in describing a natural, holistic account with multiple facets, factors, and interactions (Creswell & Creswell, 2018). In coming full circle, qualitative research is intended to encompass the research question in its natural setting, take it apart to identify themes from the participants, put the experiences back together in its environment, and add identified practical explanations or patterns with themes and pragmatic experiences from the participants (Tesch, 1990). In addition to this completed circle, additional questions can stem from the findings of the current research (Mertler, 2020).

Action Research

Action research is cyclical in nature with the rotating phases of planning, acting, developing, and reflecting (Mertler, 2020). When considering research design, action research "explores, discovers, and works to find creative solutions to educational problems" (Mertler, 2020, p.19). The exploration of how faculty learn about inclusionary practices and what support they have for UDL components fell within the scope of this action research definition.

In addition, since the research is a collaboration of participants and researchers acting together, Avison et al. (1999) defined action research as "an interactive process involving researchers and practitioners acting together on a particular cycle of activities including problem diagnosis, action intervention, and reflective learning" (p. 94). It is important to note the *action* in the action research definition. Action research requires the collective contribution from the participants and the researchers to continue learning about a phenomenon in a natural setting.

Participatory Action Research

Action research can be broken into specific types; two main types are participatory action research and practical action research. "The purpose of participatory action research is to improve the quality of the lives of individuals who make up organizations, communities, and families" (Mertler, 2020, p.19). Khanlou and Peter (2005) stated "it is imperative that an acute sensitivity to the politics and culture of communities is demonstrated before a [participatory action research] project is initiated" (p. 2337). On the other hand, practical action research is focused on solving a particular and current issue in real-time. The nature of this research was learning about the phenomenon rather than solving a current practical issue; therefore, participatory action research was utilized.

Constant Comparative Research Design

The constant comparative method collected data from multiple sources. Bogdan and Biklen (2007) helped describe the steps involved; the method began by collecting data from the first source and identifying possible key issues or themes with the first set of data. The researcher then continued data collection from the second source; as the data was collected, the researcher considered the previous sources' key issue data (Bogden & Biklen, 2007). Throughout the collection process, the researcher actively worked with emerging themes. The researcher summarized and codified data along the way—identifying meaningful and correlative data. In other words, the process did not happen in a linear fashion, the researcher identified and analyzed while continuing to collect data.

Semi-Structured Interview Design

The semi-structured interview allows the interviewer to be focused and still have autonomy to explore new ideas that were uncovered during the interview (Adeoye-Olatunde & Olenik, 2021). This research design also permits the interviewer to get information from those who are directly involved and knowledgeable (Ahlin, 2019). Creswell and Creswell (2018) identified advantages of the semi-structured interview including historical information, control over the line of questioning, and getting information when direct observation is not an option. Some limitations included researcher and participant bias, unnatural field setting, and filtered information through the participants (Creswell & Creswell, 2018). However, the depth of the information and perceptions from the participants gave a higher level of insight than that of direct observation or documentation (Mertler, 2020). Considering the nature of the research questions, the advantages of gaining information through the semi-structured interview outweighed the limitations of the research design.

During data analysis, certain procedures were utilized to minimize the limitations and increase validity of the semi-structured interview. These procedures were from Creswell and Creswell (2018) and included triangulating data, using member checking, clarifying bias, presenting negative information running counter to themes presented, and peer debriefing. Further discussion on these procedures has been included in the data analysis portion of this chapter.

Research Context

Research Setting

The research principal investigator (PI) led and facilitated the research. For this project, the PI was a doctoral student at Bradley University. The research location for the interviews was at Science University, with two equally sized campuses, East Campus and West Campus. Science University is a professional based institution focused on providing graduate to professional level education. The East Campus is near a large metropolitan area near the east coast of the United States. The West Campus is near a large metropolitan area on the west coast of the United States. The PI was an employee at Science University.

Participants

Qualified participants were full time active teaching faculty, with the rank of instructor, associate professor, or professor. The full-time status was critical to know that teaching was the participants' main responsibility in comparison with part-time or adjunct faculty, where private practice or other pursuits could have affected focus on or commitment to teaching. In addition to status, participants needed at least the past five years of instruction experience. This criterion enabled elicitation of fresh, applicable experiences from participants.

Participant Recruitment

The PI sought potential participants from Science University's online distribution email lists. Invitation emails were sent through faculty distribution. After potential participants replied with interest, they were confirmed as eligible via official channels including human resources, the research department, affiliated dean's office, or faculty web page data.

Participant Selection

Eligible email respondents were chosen via a single stage convenience sampling. Convenience sampling is a type of purposeful sampling based on respondent availability (Creswell & Creswell, 2018; Hesse-Biber, 2017). The eligible respondents were contacted for interview scheduling. Upon confirmation and scheduling, respondent names were added to a table as participants (Appendix A), providing anonymity for the duration of the project. Patton (1990) describes the qualitative phenomenological approach based on "the assumption that there is an essence or essences to shared experience" (p. 70). Since Creswell and Creswell (2018) described qualitative research with a small number of participants and phenomenologies generally "3-10 participants" (p. 186), the researcher focused on five participants for this phenomenological study.

Once scheduling was arranged, a confirmation email (Appendix B) with confirmed date and time was sent to the participants, along with the informed consent document (Appendix C) as an attachment. Informed consent was obtained prior to beginning the interview in all participants' cases and was necessary for ethical and safety concerns (Mertler, 2020).

A week prior to the interview, participants were emailed a short introductory to UDL, a UDL introductory YouTube link (Rose, 2014), a copy of CAST's (2019) UDL inclusionary pillars and elements as a portable digital file (PDF), and a meeting reminder. The UDL elements have been summarized in Table 1. The full PDF document is included in Appendix D.

Table 1

UDL Guideline Adaptation

Scaffolded Element	Engagement Opportunities	Representation Opportunities	Action and Expression Opportunities
Access	Recruiting Interest	Perception Options	Physical Action
Build	Sustaining Effort and Interest	Language and Symbol Options	Expression and Communication
Internalize	Self-Regulation	Comprehension	Executive Functions
Goal	Purposeful and Motivated	Resourceful and Knowledgeable	Strategic and Goal-Directed

Note: The columns represent the pillars of upholding on the idea of Universal Design. The elements of each pillar are identified in the left-hand column, scaffolded from access to building to internalizing in the learning process. The goal is having purposeful and motivated, resourceful and knowledgeable, and strategic and goal-directed learning opportunities. Adapted from Universal Design for Learning Guidelines 2.2 by CAST, 2019 (http://udlguidelines.cast.org). In the public domain.

Participant Safety

Possible concerns for participant safety of this type of research include loss of anonymity of the participants (Ahlin, 2019; DiCicco-Bloom & Crabtree, 2006). The researcher was certified for social and behavioral research and conflicts of interest training from the Collaborative Institutional Training Initiative (CITI) program. This program provides regulated research training and compliance for ethical and participant safety considerations (Collaborative Institutional Training Initiative, n.d.). Ethical considerations were followed such as those described in Creswell and Creswell's (2018) publication including: (a)treating all participants the same, (b)avoiding collection of harmful information, (c)maintaining objectivity, and (d)respecting the anonymity of participants.

Bradley University's Committee on the Use of Human Subjects in Research (CUHSR) approved the use of the informed consent form (see Appendix C), outlining the details of the data

security and personal information risk. Participants were informed they could leave the study at any time and without consequence. For this project, participants were assigned a participant number before the data collection stage to maintain anonymity. See Appendix A for participant code table utilized.

Research Methods

Data Collection

Data collection included a constant comparative method with rigorous components including triangulation, member checking, and peer debriefing as described in Mertler's (2020) text. Data collection methods included video-recordings for the interviews that were transcribed for analysis. The transcription was automatically captured via Microsoft Teams software and was compared to recorded video during data analysis to identify inconsistencies with the automatic audio transcript capture. Prior to beginning recording, participants were again reminded they could leave the study at any time.

Strategies and Instruments

Utilizing a constructivist worldview, the researcher "seeks to establish the meaning of a phenomenon from the views of the participants" (Creswell & Creswell, 2018, p. 17). In addition, this phenomenological design approach intended to learn from multiple participants about one topic through experience communicated in semi-structured interviews. Within the interviews, the questions were open-ended and semi-structured in nature allowing for beginning context as interview questions were asked and allowed the researcher to explore new areas with participants during the process (Creswell & Creswell, 2018; Mertler, 2020).

Through semi-structured interviews, the researcher used qualitative community-based inquiry for exploring faculty knowledge and utilization of inclusionary components from

Universal Design for Learning (UDL). Ruslin et al. (2022) described the semi-structured interview as allowing "researchers to inquire in-depth information and evidence from interviews while seriously considering the focus of the study" (p. 22). In addition, semi-structured interviews are considered flexible and adaptable, since the themes emerge throughout the process (Ruslin et al., 2022). DiCicco-Bloom and Crabtree (2006) were keen to identify "the purpose of the qualitative research interview is to contribute to a body of knowledge that is conceptual and theoretical and is based on the meanings that life experiences hold for the interviewees" (p. 314).

As mentioned, prior to the interview participants were emailed a meeting confirmation along with CAST's (2019) PDF file for referring to UDL inclusionary pillars and elements. Participants were interviewed using a list of twelve semi-structured interview questions (see Appendix E). Additionally, participants had access to the electronic copy of the UDL reference in Appendix D during the interview. This reference was provided for participant review if needed prior to or during the interview. Interviews were semi-structured and conducted via video conference, similar to Lomellini et al.'s (2022) design, which utilized semi-structured interviews with instructional design experts regarding online course inclusion. Participant interviews were recorded using Microsoft Teams. Completed interview recordings were transcribed via Microsoft Teams transcription software.

Procedures

Prior to the interview, the researcher assigned the participant a number for reference and for anonymization of data. The researcher scheduled a mutually beneficial appointment time for both participant and researcher. After confirmed scheduling, the researcher sent an email including confirmation of time, date, and institutional review board approved informed consent document for participant review and signature. A second email was sent one week prior to the

interview with additional information regarding UDL. At the time of the interview, the researcher reaffirmed consent verbally and reminded the participant they could leave the study at any time. The researcher then began recording with Microsoft Teams for the entirety of the interview. Recording and transcript were downloaded onto the researcher's computer, then deleted from the server. The transcript was then edited to remove identifying information, prior to analysis. Finally, the researcher sent out a thank you email with a copy of the signed informed consent documentation.

Timeline

Recruitment emails were sent in June 2023. Eligibility of participants and names were selected and contacted in July 2023. Interviews began in August 2023, with rescheduling in the following month as needed. Transcripts and videos were uploaded and continuously reviewed as per constant comparative research design methodology.

Data Safety

Video recordings and transcripts were saved onto the researcher's desktop computer as well as a flash drive for backup. The computer was password protected; the flash drive was kept in a locked drawer when not in use. The principal investigator was the only person with access to this data. Transcripts were edited to remove any participant identification information prior to data analysis. Utilized portions of the transcripts were verified through member checking. Member checking is the process in which the principal investigator continually communicates with the participants to ensure what is being relayed matches the members' experiences (Creswell & Creswell, 2018).

Data Analysis

Strategies

Analysis of qualitative data involves in-depth coding of interview answers. Attitudinal, behavioral, and factual data were noted and collected to further identify participant meaning. For example, as McCoy and Winkle-Wagner (2015) described their interview process, identifying nonverbal cues as imperative for determining meaning. Candidates may say they were "really prepared;" if they do so with a straight face or with an eyeroll may denote contextual differences inferring whether the participant believes or does not believe that they were extremely prepared (McCoy & Winkle-Wagner, 2015).

Validation components including triangulation, member checking, and peer debriefing were utilized as described in Mertler's (2020) text. Triangulation of data utilizes multiple sources of information to support themes (Creswell & Creswell, 2018). This project utilized multiple participants' viewpoints with the constant comparative method for identifying potential convergent categories and themes. Member checking involves taking a completed data analysis and providing this to the participants to ensure their experiences have been expressed (Creswell & Creswell, 2018; Mertler, 2020). Member checking assisted with validity of possible themes. Peer debriefing utilized unassociated colleagues to read and give feedback to the researcher to ensure clarity in communication (Creswell & Creswell, 2018).

Procedures

Analyzed transcriptions and recorded video from Microsoft Teams were uploaded into Atlas.ti software. The Atlas.ti software was utilized to support digitized organization of qualitative data presented through transcripts. Although artificial intelligence (AI) lecture notetaking technology continues to be tested (Saini et al., 2023), this software neither automated data analysis nor automated procurement of meaningful notes from the transcripts.

Transcripts were marked with inductive code words, including related excerpts. Inductive coding for grounded theory data analysis started by the open mind of the researcher who is guided by the research questions (Cooper et al., 2015). Coding included identifying related responses to the semi-structured interview questions throughout the transcript as a part of the first cycle analysis (Saldaña, 2021). Original transcripts were then rendered through a second cycle of coding by comparison to first coding and creating a coding scheme definition table to organize by similarity into categories. Categories were further analyzed for possible themes, described in Chapter 4.

Data Safety

As with data collection, transcripts were edited prior to analysis to remove any personalized information. The Atlas.ti software was software utilized through the single researcher's computer; in other words, the transcript information was not saved on a third-party server. With member checking, emails, phone calls, and meetings were conducted to validate findings. As previously mentioned, member checking is the process in which the principal investigator checks back with participants before and during data analysis to ensure what is being written continues to reflect each member's experiences (Creswell & Creswell, 2018). Peer debriefing did not include personal participant information, as that was removed prior to data analysis.

Timeline

As is the nature of constant comparison analysis, data collection and data analysis timelines overlapped. Analysis began with collection in August and continued throughout and after the participant interviews were completed. Data analysis continued through April 2024.

Researcher Positionality

Insider biases include complications of multiple relationship roles between the researcher and the participants, selective reporting, and shared values in promoting inclusionary efforts at the institution (Chavez, 2015). The researcher worked as an employee of the research site institution. The researcher interacted with participants on an occasional but ongoing basis; some relate over many years. Additionally, the researcher had multiple direct ties to neurodiverse family members who are not regularly included in average daily societal functions. Therefore, the researcher has a variety of characteristics that may have affected bias in research collection, analysis, and discussion.

Chapter Summary

This chapter described the research methodology for investigating faculty experiences and practices with inclusionary UDL framework components. Chapter 4 will discuss the study's findings and overarching resulting themes.

CHAPTER 4

FINDINGS AND ANALYSIS

Introduction

The purpose of this qualitative phenomenology was to raise awareness of faculty understanding and needs for utilization of the inclusivity principles of UDL in graduate education. This study intended to answer the following research questions:

1. How are faculty learning inclusionary practices such as UDL framework components to apply in instruction practices and courses?
2. What support do faculty have for implementation of inclusionary UDL components within instructional practice?

Faculty experiences and utilization of inclusive UDL framework indicated individual and small pockets of effort with constraints controlling the ability for UDL to expand in the graduate higher education setting. Participants indicated some learning and utilization of UDL components, even if the entire framework was not addressed as a whole concept. However, participants also identified constraints to the expansion of the UDL framework across different graduate programs. This chapter reports the findings of the semi-structured interviews, including responses to how faculty were learning about UDL, how faculty were supported with implementing UDL-inclusionary practices, constraints to learning and implementing UDL, and analysis of themes.

Findings

Learning UDL

Regarding how faculty are learning about UDL, participants noted similar answers. As instructors in their programs, two participants noted not having heard of UDL. However, as the

interviews continued, these participants noted specific inclusionary practices they identified as fitting into the framework; participants were not initially realizing their specific practice examples were part of UDL. For example, P1 identified, "I have not had formal exposure to the full theory" but did indicate having seen some UDL components. P2 recognized, "I learned components of universal design … I didn't recognize that's what it was." Participants indicated several ways they learned UDL or UDL components including continuous learning, formal education, and mentorship. Table 2 below provides a summary of participant UDL introductory and learning experiences.

Table 2

Summary of Faculty Learning of UDL Practices

Participant	Continuous Learning	Formal Education	Conferences and Mentoring
P1	Special interest groups within the profession, journal articles	Professional program curriculum	A niche professional conference focused on educational research
P2	Special interest group within profession	Self-initiated in formal education science program	A niche professional conference focused on educational research
P3	Daily updates with education science topics	Chosen elective course in doctoral program	Mentoring via other educators
P4	Weekly journal club outside institution of employment	N/A	Junior faculty mentoring program
P5	Journal articles	Previous career	A niche conference focused on special needs technology

Continuous Learning

All participants indicated a self-initiated, continuous learning component. P2 reported being part of a special interest group focusing on the science of education within their

professional association. P3 participated in a daily video or article of faculty focusing on education topics. P4 expressed, “I participate in a weekly journal club from an outside institution.” P5 indicated, “I stay informed about learning styles and engagement strategies” while also noting “I stay up to date on best teaching practices by looking at posts from higher education journals.”

Formal Education

P4 stated, “In my Ph.D. studies, I took a course on planning, organizing, understanding, and creating different forms of assessment.” P4 also indicated having not heard of UDL prior to their PhD studies. P5 reported using UDL in a previous professional educator role while working with people with significant disabilities, and therefore, UDL was a known framework with which they had built their current courses and instruction. “I [use] different types of assessment because I want to level the playing field for students’ [strengths and weaknesses].”

Conferencing and Mentoring

A variety of participants identified some UDL learning through professional development; conferences or mentoring were of note for all participants. P2 noted, “It's a conference specific for [subject specialty redacted] educators to discuss trends and new approaches or research about education.” P5 noted, “Typically, I attend an accessibility conference that is a little outside my field.” P4 noted, “[when I first started teaching] I was part of a junior faculty mentoring program” and that “colleagues outside have been continuous support for me.” P3, who identified as not being trained as an educator, noted, “I was mentored by educators.”

Interviewed participants generally identified the learning of inclusionary practices of the UDL framework through continuous learning, formal education, and conferencing and

mentoring. Participants noted having some or all of this support guiding their learning of introductory principles and framework of UDL. Continuous learning and conferencing or mentoring were noted from all participants.

Support for UDL Implementation

Regarding faculty support for implementation of UDL, participants noted a variety of assistance received. Specifically to UDL, action-oriented leadership and funding for workshops were common categories mentioned by participants. All but one participant identified some level of support for UDL implementation.

Action-Oriented Leadership

Participants identified a few ways in which the institution actively supported the learning and implementation of UDL. Such support included: bringing in experts and speakers, providing workshops, and collaborating implementation amongst the department faculty members. Multiple participants cited leaders within their program or college who were proponents of continuing education for instructors and supported the scholarship of teaching and learning. P3 identified their "previous director was a trained instructor and a teacher." P4 identified their college dean was "active in [their] own scholarship and educational research. So, there was kind of a trickle-down effect, you know, systematically to and from the dean, chairs, and faculty."

Funding

Participants noted they were financially supported for attending conferences and workshops as individuals. For larger groups, P1 identified their program had "redesigned curriculum based on best educational methods and the research behind how to support adult learners." P3 stated, "We brought in some community folks with disabilities, who led small

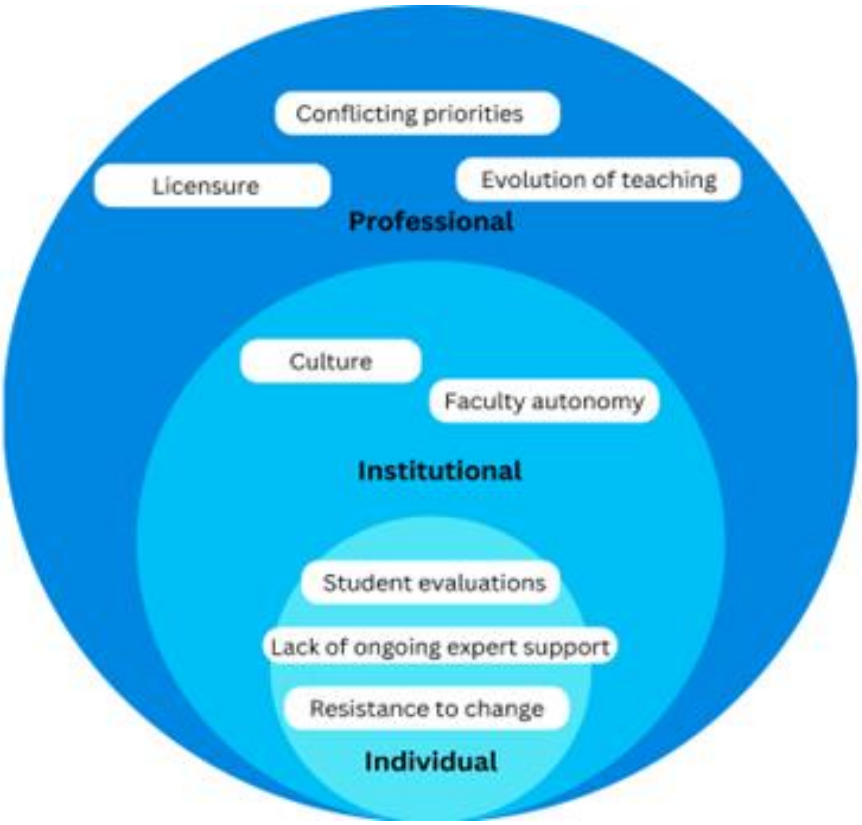
group discussions during the event. We're now hoping to hire a bunch of disabled folks [for practice case studies]". In addition to this, two participants mentioned a funded, institution-wide, hour-long seminar introducing the fundamental framework of UDL.

Implementation Constraints

It is interesting to note the number of participants concerned about constraints for learning and implementing the UDL framework. Common themes such as time and bias indicated participant limitations on utilization of UDL, which could be applied to different fields at different levels. Yet, some findings seemed to center around higher education specifically. Figure 1 below separates these constraints into individual, institutional, and professional levels.

Figure 1

Constraints for UDL Implementation



Individual Constraints

In addition to the general examples, participants noted specific constraints for postsecondary education. For example, two participants mentioned needing experts in both the licensed profession and the UDL framework on an ongoing basis. P1 indicated needing "ongoing support from someone who has expertise, some type of mentor-advisor to come and consult as necessary." Indeed, P2 indicated having someone uniquely versed in UDL and university culture, stating, "When you have a [subject specialty redacted] professions university that has primary practitioners and not primary educators, they don't know the questions to ask." P2 further indicated, "every university should have a learning science specialist that understands universal design and instructional practices."

Resistance to change was also mentioned as a constraint to learning and implementing UDL. P3 identified, "I have to force myself to stop fighting change and at least look into this. [COVID] forced us out of the box to find ways to help students be successful." "We've been a little too comfortable and set in our ways that we haven't been open to [new methods]," admitted P4. P4 further expressed, "We really do have to meet the students where they are and, for better or for worse, we have to *change* [emphasis added] to help them."

Student evaluations were another constraint for the individual faculty members. When asked whether or not student evaluations made an impact on faculty members trying to implement UDL, P4 indicated "I think there's certainly an impact, a barrier, for trying new things in general." Indeed, P4 was looking for support, suggesting institutional communications such as "We're not going to potentially penalize you if the students didn't like [your attempting UDL application in a course]."

Institutional Constraints

In addition to individual constraints, participants noted institutional constraints to the UDL framework application; one being faculty autonomy. P5 noted, “it’s a very different paradigm from an educational practice.” P4 identified the same constraint since initiating UDL was “mostly for our program because that’s all we have control over.” And P1 indicated, “we recommended and tried to implement [UDL] across the board within all our courses. We still relied on *individual faculty* [emphasis added] to carry it out.” P2 indicated, “It doesn’t really help to have a seminar when nobody is helping you beyond the seminar into true actionability.” Indeed, participants identified personal examples where their autonomy provided the ability to implement the UDL framework, but this same autonomy may also be a constraint for others or larger scale initiatives.

Participants also identified institutional constraints in the sense of culture. P5 identified, “I think there is a big focus in our college, where…if we can't show that [the students are] doing it the same way, what does that mean when students get to [on site medical specialty experiences]?” Regarding rank and tenure process, P4 indicated, “I wish there could be a better mechanism for faculty to provide some context [for lower student evaluation scores] in their narrative.” Indeed, P4 further indicated having a rank and tenure mentorship program for junior faculty might open interest in attempting to implement trending or inclusive teaching practices, such as the UDL framework.

Professional Constraints

Beyond the institution, participants indicated professional constraints preventing UDL learning and implementation. These include conflicting priorities, licensure examinations, and evolution of teaching. Participants shared these constraints across their differing professions.

The professional constraints described conflicting priorities as a barrier to implementation of UDL. P3 noted, “We're not teaching them to advocate for what they need going forward…I just get afraid sometimes that we're going to give [students] these [UDL] options and they’ll be successful, but the rest of the world isn't necessarily going to do that [for them].” P4 indicated:

> We also want to teach students critical thinking, and there's a pocket of faculty members [thinking they shouldn't have] to teach critical thinking. [Students] should already have [critical thinking skills] when they get [to a professional graduate level]. That would be great, but we know that's not consistently on a broad scale. (P4)

This could indicate the conflicting priorities between what students need to know prior to beginning a program and what students need to be able to learn and do during the program and afterwards in the profession.

In addition to the conflicting priorities constraint is licensure examinations. Many of these standardized examinations have similar elements: timed examinations, single format, and other limiting factors. P3 noted, “I worry that by not having accommodations in the program, students were going to struggle to get accommodations on the certification exam.” P4 continued, “I have a brilliant friend who cannot pass the certification exam because it takes him too long to translate, and he runs out of time.” Whether or not licensing examination parameters and the UDL framework can be reconciled is out of scope for this paper.

The evolution of teaching also constrains faculty learning and implementation of UDL. For example, P4 identified, “we're also seeing some of the unfortunate effects of things like Common Core [as it relates to test taking] coming through [to the graduate level]...what caught me was how it is implemented and enforced [at lower grade levels].” In addition, P4

indicated, “I think we've grossly underestimated how soon we would have to deal with [students missing fundamental skills] when we get students at this level.” P5 described:

> Helping [students] to value and see the benefit of what we're teaching them and to not make those decisions themselves because they don't really understand or have that long view of why we do what we do. That is a big shift [in education]. (P5)

Learning UDL, implementing UDL, and constraints in UDL were categories of the findings within this semi-structured phenomenological study. Participants identified examples in each of these categories; each situation may have had a different nuance. The findings of this action research project suggest further analysis.

Analysis

Three themes were identified within the findings. First, the participants have a desire to learn and incorporate UDL. Second, the framework of UDL is incongruent with current professional testing standards and licensure requirements. Third is that UDL initiatives are grassroots in nature. More analysis of each theme follows.

Theme 1: Desire to Learn

All faculty members indicated learning UDL through continuous learning and conferences/mentorship. Professional continuous learning was cited by two participants. Three participants read journal articles or received updates. All of this suggested internal motivation. Conferences and mentoring were also ubiquitous for participants. If participants were regularly attending professional conferences or learning from mentors, they are likely to experience a wide array of professional development, which also suggested motivated learning.

Four of the five participants specified learning UDL in a formal setting, whether self-initiated or not. Given UDL was part of a formal curriculum for most of the participants, it is

possible the participants were focused on providing UDL components prior to beginning their careers as educators. This could infer an investment in inclusive teaching and learning. With seeking out continuous training opportunities after their formal education, participants, by action, are demonstrating a desire to learn and/or incorporate inclusive practices like UDL.

Most participants desired to create more UDL framework components in their courses. With this, however, came the general identification of constraints mentioned in the findings. Faculty members indicated commitment to adjusting their instruction to provide an inclusive approach; participants described their frustration in constraints keeping them from moving forward. Participants indicated general ones like time and bias, as well as the identified levels of individual, institutional, and professional constraints.

In this phenomenological study, all participants identified using some UDL techniques whether they were aware these techniques were part of the UDL framework. Other research has indicated this as well. Dempsey et al. (2023) identified the overwhelming majority of faculty surveyed were utilizing at least one pillar of UDL without necessarily knowing the entire framework. In addition, Balta et al.'s (2021) in-depth research demonstrates high faculty energy in redesigning anatomy curriculum to be inclusive using UDL pillars.

Theme 2: Learning and Testing Incongruency

More than one participant identified the inconsistencies between graduate education and the professional licensure process. As listed in the findings, P4 indicated a friend's first-hand experience with timing inadequacies for the licensure examination. Specifically, the person needed to translate the questions for themselves prior to answering the examination questions. The person indicates they knew the answers; however, they were not provided enough flexibility for successful completion.

P3 indicated concern with the duality of assessing students' knowledge and skills of the profession with flexibility or assessing utilizing the same method and format to the licensure examination. Since courses were on a quarterly system, the participant indicated not having enough time for both flexing their teaching style and having students practice the examination format in which it was given. This flexibility in teaching seemingly negates the students' experiences they will have when taking the licensure exam, likely confusing the process for faculty and students and/or isolating students who learn and could be assessed differently.

Theme 3: Grassroots Initiatives

It is notable that no initiative mentioned was larger than one department within the institution. Indeed, participants indicated both individuals and departments were funded. P4 mentioned their department could not go further because doing so was out of the department's institutional authority. Courts et al. (2023) concurred that UDL "implementation has largely been achieved through grassroots approaches led by individual faculty and staff" (p. 6). The only higher-level funded support for a larger faculty audience was a one hour, institution-wide workshop. P2 indicated no specific follow up from the workshop.

Additionally, regarding action-oriented leadership, support was indicated at the department or program level. P4 indicated a previous institution where UDL curriculum was encouraged and was an included subject in junior faculty mentorship. These participants could only indicate their experiences. The findings did not indicate in-depth, action-oriented leadership support at higher levels institutionally or professionally.

Chapter Summary

The findings and analysis included in-depth investigation into how faculty are learning UDL-inclusionary practices, what support faculty have for implementing inclusionary UDL

practices and constraints for learning and implementing inclusionary UDL practices. Chapter 5 concludes the study's final report by discussing implications for practice, limitations, and future research possibilities.

CHAPTER 5

DISCUSSION AND CONCLUSION

Introduction

The research results included an in-depth investigation into inclusionary UDL practices including how participants are learning these practices, what support participants have for implementing these practices, and participant-identified constraints for learning and implementing inclusionary UDL practices. Participants identified learning UDL-inclusionary practices through continuous learning, formal education and conferencing or mentoring. Participants indicated support through action-oriented leadership and funding. Participants recognized constraints for practicing UDL on individual, institutional, and professional levels.

The three themes identified from these results include: faculty have a desire to learn and incorporate UDL, the benefits of UDL are incongruent with current professional testing standards and licensure requirements, and UDL initiatives are grassroots in nature. This chapter discusses the themes and answers the research questions. Then it considers implications for practice, limitations of this investigation, and suggestions for future research.

Discussion

Theme 1: Desire to Learn

As indicated in the analysis, there is evidence that participants had been motivated to learn UDL. The in-depth experience of five participants indicated a variety of continuing education efforts pointing to evidence of motivation. The array of research in UDL for higher education has been based on effectiveness, support, and experiences. Although qualitative,

quantitative, and mixed methods research has been conducted, the literature is not conclusive to leading and supporting UDL initiatives in graduate education.

Connections to Literature

Opposing Research.

The reason for inconclusive evidence could be the necessity of disabilities offices in higher education. As explored in the introduction, faculty may have worked with individuals based on their documented accessibility needs. As identified in Chapter 2, prior research has validated the idea that some faculty do not desire to learn and utilize UDL. Fovet and Mole (2013) demonstrated that faculty had concern regarding additional work with UDL implementation. Cumming and Rose's (2022) rapid literature review identified that faculty attitudes and approaches were indeed barriers to adopting UDL in higher education. Retrofitting well-established UDL courses was not a welcome notion.

Further in Chapter 2, de Bie et al. (2022) exposed the faculty mindset from the perspective of helping disabled students as being an exceptional or heroic action, not based on an inclusive, societal framework mindset. With individual student needs as a focus, faculty may feel a reactive approach on a just-in-time basis will suffice, especially with the legal hurdles of identifying what is reasonable (Griffin, 2001). Yet, as described in the introduction, the basis of UDL is the application of teaching and learning for a diverse set of learners and not meeting specific individual needs as an exception (College of Design, 1997). Therefore, helping the individual student needs at the time may help move the current classes along, but the overall mindset on seeing disability as a medical condition, as Goodley and Lawthom (2019) describe, would be unlikely to change this into a societal framework.

Concurring Research.

Those in graduate education preparing to become preK-12 educators were most exposed to the UDL framework (Roberts et al., 2011). In addition, a variety of studies identified a desire to increase the usage of UDL at the graduate education level (Gawronski et al., 2016; Lombardi & Lalor, 2017; West et al., 2016).

Dempsey et al. (2023) identified only 31% of faculty respondents had heard of UDL, yet 84% of their faculty respondents had utilized at least one UDL checkpoint. The findings of this study also identified two participants who indicated not knowing their inclusionary practices already utilized were part of the UDL framework. This demonstrates an interest in learning and utilization of UDL at the graduate level.

Theme 2: Learning and Testing Incongruency

Another theme identified was that the tenets of UDL were incongruent with current professional licensure testing requirements. As mentioned in Chapter 1, the pillars of UDL included multiple means of engagement, multiple means of representation, and multiple means of action and expression (CAST, 2024). Recollection of the first UDL pillar, multiple means of engagement surrounded the idea of providing an inviting environment to a diverse group for learning to take place (CAST, 2024). This may not apply to professional licensure testing, where *assessment* is more the focus than engagement. In addition, the second pillar is multiple means of representation, where media and customization of displaying information are supporting ideas of this pillar, and assessment is not the focus. These multiple representations may or may not be provided in standardized licensure testing.

The third pillar of UDL is focused on multiple means of action and expression (CAST, 2024). This directly aligns with assessment, as it is a way for determining whether or not the learner understands what has been taught. As previously discussed in Chapter 1, multiple means

of action and expression surround the idea of providing different opportunities for students to be assessed through different modes of expression. One tenet focused on varying and honoring the multiple "methods for response, navigation, and movement" (CAST, n.d.). A second tenet addressed "biases related to modes of expression and communication" (CAST, n.d.). A third tenet focused on challenging exclusionary practices. In professional licensure testing, *standardized* represents a uniform method of assessment, which historically does not lend itself in allowing for these tenets of flexibility. Participants of this study were from multiple professional backgrounds where their concern about licensure testing and internships were repeatedly mentioned.

Connections to the Literature

There is a difference between the UDL framework and making accommodations for students in testing. The principles of UDL would, by very definition, seek to decrease the need for accommodation and instead seek to include a diverse set of learners. The need for accommodations implies lack of UDL in standardized testing, since UDL is meant to meet the needs of diverse populations. Indeed, Nash et al. (2022) compared student licensing exam scores in relation to accommodations, concluding it was not known to what extent students receive accommodation between beginning graduate education through licensure examinations. The authors concluded the need for further research on types of accommodations for those taking the examination.

In the same vein, the extent of types of accommodations allowed to those taking licensure exams is not known (Meeks et al., 2021). Shraga-Roitman et al. (2023) concluded that students are ready for "flexible and diverse evaluation methods" (p. 378). In a specific example, Colker

(2021) suggested the standardized law school bar examination "needs to de-emphasize speed" (p. 75).

Theme 3: Grassroots Initiatives

The third theme identified was: at the graduate education level, UDL initiatives were indicatively grassroots in nature. While participants indicated support for action-oriented leadership and funding, they also identified constraints at higher levels of influence including institutional and professional. By their own autonomy, participants described a variety of scenarios applying UDL components at the individual level.

Connections to the Literature

Aligning with this theme, Embry et al. (2005) concluded the need for more support from campus leaders as well as the calling for influence at top levels to effect institutional change. Fovet (2021) also suggested it is necessary to look at the institution wholistically to have successful UDL implementation. Graduate education has significant issues with inclusion of different learners (Samuel, 2019; Woolson, 2019). Fovet (2021) identified, "there is currently very little interest in UDL in graduate education" (p. 169), indicating if there have been large-sized efforts, they have not since been adopted.

As evidence of negating this theme, Cuenca-Carlino et al. (2023) described a project that is institutional in nature. They describe the learning and creation process of creating an atmosphere of teaching excellence at the institutional level. It is important to note that, while the project includes UDL components, it is *larger* than only incorporating UDL components. Impact of this initiative has yet to be measured.

Research Purpose, Questions, and Answers

The purpose of this qualitative phenomenology was to raise awareness of faculty understanding and needs for utilization of the inclusivity principles of Universal Design for Learning (UDL) in graduate education. This study intended to answer the following research questions:

1. How are faculty learning inclusionary practices such as UDL framework components to apply in instruction practices and courses?
2. What support do faculty have for implementation of inclusionary UDL components within instructional practice?

Included below are summarized responses to these questions.

Research Question 1: How are faculty learning inclusionary practices such as UDL framework components to apply in instruction practices and courses?

Continuing Education Opportunities

Faculty experiences and utilization of inclusive UDL framework indicate individual and small pockets of effort with constraints controlling the ability for UDL to expand and flourish in the graduate higher education setting. Participants indicated opportunities to learning and utilization of UDL components, even if the entire framework was not addressed as a whole concept.

Regarding this first research question, faculty are learning inclusionary practices mostly through continuing education. Much of this continuing education is driven by the individuals themselves. Some participants noted ongoing discussion of UDL framework while others did not. There does not seem to be a concern with UDL framework learning opportunities.

Research Question 2: What support do faculty have for implementation of inclusionary UDL components within instructional practice?

Leadership and Funding

Individual and departmental support seem abundant for the participants interviewed and those open to learning UDL. Regarding faculty support, participants indicated action-oriented leadership and funding have been utilized resources. However, participants also identified higher level initiatives and support seemed to be impeded by constraints of larger scope. Ultimately, this research suggests support for implementation of inclusionary UDL components needs to come from professions or institutions to go beyond grassroots measures.

Implications for Practice

Based on this research, a variety of implications have been considered. These included adopting UDL on a larger scale, flexible licensure examination design, and holistically recognizing and addressing student needs. Since participants indicated learning about UDL in a variety of methods, how could identified themes and constraints impact future practice?

Adopting UDL on a Larger Scale

In looking at disability through a social model, Black et al. (2015) concluded all students can benefit from UDL principles, supporting these UDL inclusion initiatives and methods. Higher education institutions or professions may consider comprehensive methods in applying UDL as an intentionally inclusive social construct. These may help remove UDL utilization constraints and provide an inclusive and equitable environment for future licensed professionals. As Venkatesh (2015) noted, teacher preparation, social justice, and UDL may be isolated in fields of research but not in practice. Creating equity and inclusion in education can support social justice and a more equitable environment.

Designing Flexible Licensure Exams

With standardized professional licensure, what is the degree of equity and inclusion in professional students' examinations? Nieminen's (2023) research identifies "how test-driven assessment cultures set profound barriers for disabled students' inclusion" (p. 630). Policies for organizations and professional requirements may need restructuring in order to redefine by inclusionary measures. These policies could provide a gold standard for other institutions and professions to follow.

Recognize and Address Needs Holistically

Collier and Blanchard's (2023) Graduate Student Success Survey (GSSS) "demonstrated that graduate students' experiences often varied based on factors such as citizenship, race and ethnicity, or gender" (p. 403). In other words, the educational landscape for learners is not immune to a person's past experiences. Additionally, "students demonstrated that overcoming social, political, and economic disparities that could have limited their opportunities were mitigated through support of others" (Ramos & Sifuentes, 2021, p. 104). Instead of considering students as a *part* of the learning landscape, considering the students as the *heart* of the learning landscape provides a holistic opportunity to utilize support of others in overcoming challenges.

Limitations

While this phenomenological action research project was to convey participant thoughts and experiences, some limitations are noted. Participants were interviewed across different professions. This was intended to seek out a broad range of responses to explore across graduate education at one institution. Different and more specific themes may have been identified had all institutional participants been of the same profession or participant origins spanned across multiple institutions.

Research improvements include identifying participants among a single curriculum at the institution, utilizing a cross-section of participants in a single curriculum, and interviewing participants across multiple institutions. Participants in one single curriculum could help identify specific constraints in a subject or profession. Utilizing a cross-section of participants could provide benefits such as having a well-rounded perspective within a curriculum. Participants across multiple institutions could identify whether this project's results are institutionally specific.

Suggestions for Future Research

This analysis and discussion suggest further investigation. These future research themes include how UDL impacts graduate faculty in one focused profession, investigating the removal of UDL constraints, and the junction of UDL utilization in professional testing standards.

One Focused Profession

Topical, in-depth investigation may be able to provide more insight in different areas regarding UDL in graduate education. Investigation in a specific profession could provide additional meaningful insight and possibly more actionable findings. In addition, UDL utilization could be followed through the lifetime of the professional students' education, interviewing a cross section of the profession's courses.

Removal of UDL Constraints

This action research project identified UDL constraints at the individual, institutional, and professional levels. Researching institutional constraints could help with issues or changes needed at that organizational level. Research focused on UDL in institutional culture and faculty autonomy may provide further insight. Investigating UDL barriers such as conflicting priorities and licensure within a profession may provide insight into areas for growth and change. Further

research is needed to identify how to capture the faculty desire for implementing UDL. Removing constraints at these higher levels may also address the theme that UDL initiatives are grassroots in nature.

UDL Benefits and Professional Testing Standards

Future research areas include the intersection of UDL benefits and licensure examination practices. As identified in this study, licensure examination practices were out of scope. Yet, participant experiences suggest this is an area for further research due to the discrepancies of student experiences between how they learn in professional school and how they are required to take licensure examinations. Indeed, Dalton and Brand (2012) identified for young children, observation and performance samples were more appropriate for early childhood learning. Investigating UDL-friendly assessment at higher levels of education may provide further insight.

Conclusion

This chapter concludes with the purpose of raising awareness of faculty understanding and needs for utilization of the inclusivity principles of Universal Design for Learning (UDL) in graduate education. Faculty are learning UDL-inclusionary practices through formal and continuing education, conferences, and mentors. The participants expressed their desire for implementing UDL in practice; yet also identified constraints from being able to do so at a larger level. Identifying constraints in UDL-inclusionary practices promote next steps to rebalancing education to a diverse, equitable, and inclusionary experience. Research and efforts to rebalance these educational experiences can create a sense of belonging for those called to become licensed professionals.

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Appendix A

Participant Code Key Table

Participant Number	**Participant Name**
P1	
P2	
P3	
P4	
P5	
P6	

Appendix B

Informed Consent Email

Dear Faculty Member,

Thank you for your expressed interest in participating in the research titled:

Faculty support for inclusionary practices in graduate education

As a reminder, the research participation would involve an interview via video conference, lasting up to 60 minutes. Participation is voluntary and you can withdraw at any time. Attached is the **Information and Consent Form**. If you intend to participate, this form needs to be signed and returned to me prior to the start of the interview. We are scheduled to meet:

Online via [Teams]
at
[time, including time zone] [link]

Please mark your calendar. Participants completing the interview will be entered into a drawing for an Anderson's Bookshop gift card!

Attached is the **Information and Consent Form** that needs to be signed and returned by [date].

If you have any questions in the meantime, please contact me, Rebecca Caton at rcaton@mail.bradley.edu.

Thank you for your help!

Appendix C

Bradley University Information and Consent Form

Study Title: ***Faculty support for inclusionary practices in graduate education***

Invitation to be part of a research study:
You are invited to participate in a research study. In order to participate you must be a full-time teaching faculty member at Midwestern University who has actively contributed to an accessible learning environment within the past five years. Taking part in this research project is voluntary.

Key information regarding this study:
The purpose of this study is to answer the following questions:

- How are faculty learning inclusionary practices such as UDL framework components to online elements of courses?
- What support do faculty have for learning and providing implementation of UDL design components within instructional practice?

If you choose to participate, you will be asked to answer questions in an interview format via video conference. The interview will be scheduled at the convenience of the participant and researcher. This interview will be video recorded. This will take approximately 60 minutes. Risks or discomforts from this research include nothing outside ordinary life encounters. The study will not provide direct benefits to the participant. Taking part in this research project is voluntary. You are not required to participate, and you are welcome to end your participation at any time.

Please take the time to read this entire form, feel free and ask questions before deciding to participate in this research project.

What is the purpose of the Study?
The purpose of the study is to understand the extent of faculty contributions to student accessibility through the Universal Design of Learning (UDL) in graduate education.

What will happen if you take part in this study?
If you agree to take part in this study, you will be asked schedule an hour of time to meet with the researcher via video conference software. You will be asked to answer a series of questions regarding your contributions to an accessible environment. (For example, how do you offer multiple ways of displaying information for accessibility?) This session will be recorded via video recording. We expect this interview to take one 60-minute session. After transcription of the recording, the recording will be permanently destroyed.

What are the risks of participating in the study?
We do not believe that there are any risks associated with this study.

What are the benefits of participating in the study?
You probably will not benefit from this study.

Are there any incentives for participating in the study?
At the conclusion of the study your name will be entered into a drawing for an Anderson's Bookshop gift card. The drawing will happen after all participants complete their interviews.

How will your information be protected?
We plan to publish the results of this study. To protect your privacy, we will not include any information that can directly identify you. We will protect the confidentiality of the interview recording, removing personal identification information in the transcripts of the recording.

After the study, what will happen to the data collected?
The information will be destroyed within three months after completion of the study.

What are the costs?
There are no costs for participation in this study.

Your participation in the study is voluntary
Taking part in this study is voluntary. You may choose not to take part or may leave the study at any time. You do not need to answer any question you do not want to answer. If you withdraw before the study is completed your interview recording and your transcripts will be destroyed.

Who should I call with questions or problems study?
If you have any questions about this study, please contact the researcher in charge of this study:

Student Principal Investigator:
Rebecca A. Caton, MLIS
rcaton@mail.bradley.edu

Co-Principal Investigator:
T. Scott Estes, Ed.D.
tsestes@fsmail.bradley.edu

Who should I contact with questions about my rights as a research participant?

If you have questions about your rights as a research participant, or wish to obtain information, ask questions, or discuss any concerns about this study with someone other than the researcher(s), please contact the following:

Committee on the Use of Human Subjects in Research (CUHSR)
Bradley University
1501 W Bradley Avenue
Peoria, IL 61625
(309) 677-3877

Your informed consent

You are voluntarily making a decision to participate in this study. Your signature means that you have read and understood the information presented and have decided to participate. Your signature also means that the information on this consent form has been fully explained to you and all your questions have been answered to your satisfaction. If you think of any additional questions during the study, you should contact the researcher(s).

I agree to participate in this study Date

_____ _____

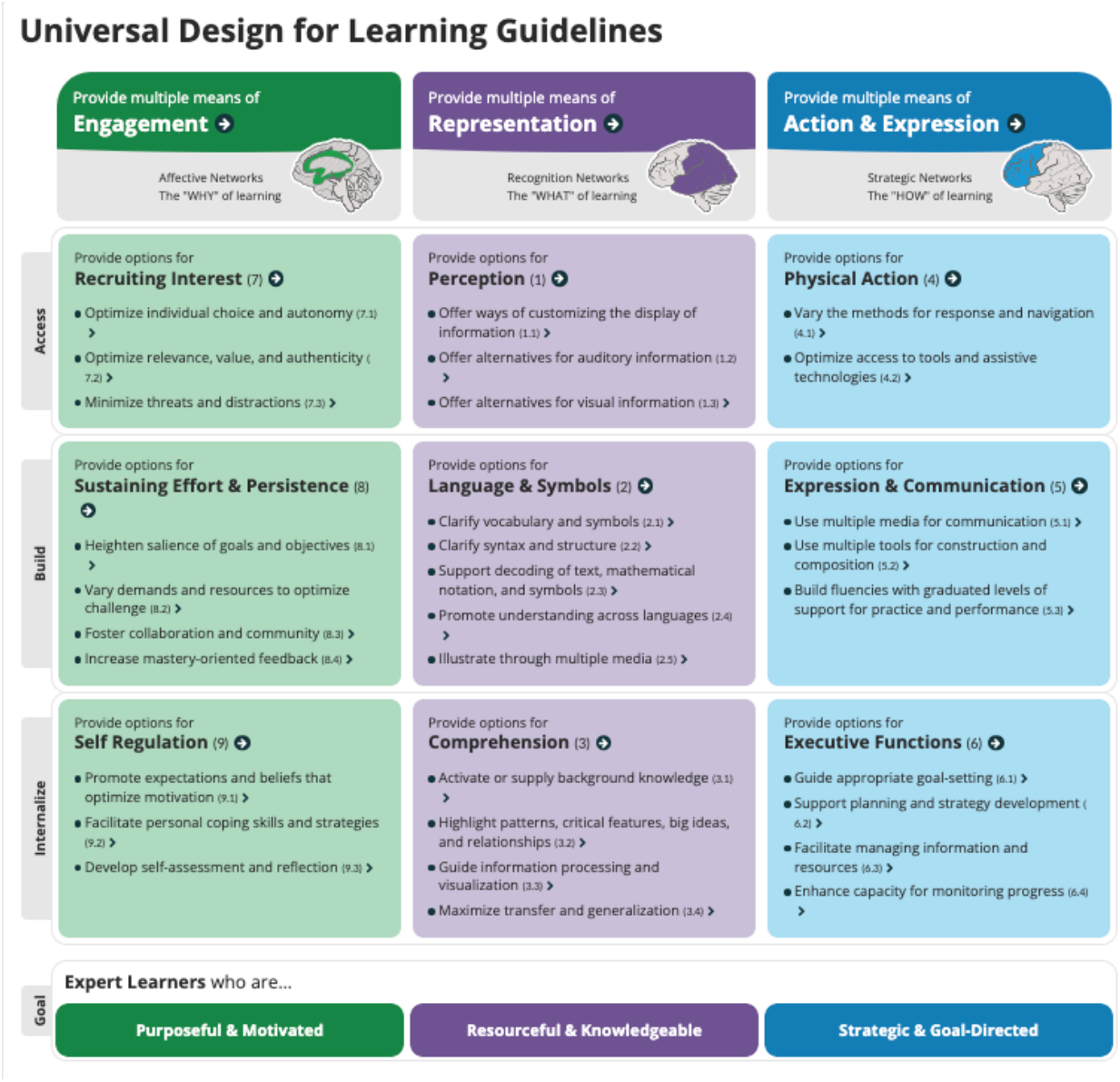
Signature of Participant

_____

Printed Name

Appendix D

UDL Pillars Document



Adapted from Universal Design for Learning Guidelines 2.2 by CAST, 2019 (http://udlguidelines.cast.org). In the public domain.

Appendix E

Semi-Structured Interview Questions

1. Tell me about your experience as a faculty member. (length of service, current--% teaching, % research, % service, different employers, etc.)
2. How do you keep current with instructional and pedagogy trends? How have you been supported?
3. How does learning about trends change your methods of instruction or assessment?
4. Have you heard of the Universal Design for Learning (UDL) in a formal manner?
    a. If so, please describe how and where.
    b. If not, have you been asked to adjust your courses to include any of the checkpoints like those described in this chart? (UDL chart with checkpoints)
5. From the UDL document, please note one aspect is the action and expressive pillar. Have you been contributing to enhancing student' capacity for monitoring their own progress? If so, can you describe how? If not, how would you imagine including this in your teaching and learning environment?
    a. Find ways for enhancing students' capacity for monitoring progress?
    b. Facilitate managing of information and resources?
6. From the UDL, one aspect of the engagement pillar includes options for self-regulation. Have you utilized ways that develop students' self-regulation abilities? One example would be students' abilities to develop self-assessment and reflection. If you have done so, how? If you have not done so, how would you imagine starting?
7. From the UDL, one aspect of the representation pillar includes options for comprehension. How have you maximized the transfer and generalization of the content?

If you have experience, please explain more, specifically. If not, how would you imagine starting?

8. If your program or college initiated implementation of UDL as a system, what kinds of support would you request? What might your peers request?
9. What has been your experience working with building inclusionary practices into courses or online content? If none, how would you imagine starting?
10. What are the biggest changes in education you have experienced? How have they affected your planning and teaching?
11. For new faculty members starting out, what kind(s) of advice would you share in regards to building courses?
12. What else would you like to share?