# ACCESSIBLE AND INCLUSIVE ONLINE COURSE DESIGN IN HIGHER EDUCATION

by

Amy Lomellini

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of the dissertation submitted by

Amy Lomellini

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The following individuals read and discussed the dissertation submitted by student Amy Lomellini, and they evaluated her presentation and response to questions during the final oral examination. They found that the student passed the final oral examination.

| | |
|---|---|
| Patrick Lowenthal, Ph.D. | Chair, Supervisory Committee |
| Chareen Snelson, Ed.D. | Member, Supervisory Committee |
| Jesús Trespalacios, Ph.D. | Member, Supervisory Committee |

The final reading approval of the dissertation was granted by Patrick Lowenthal, Ph.D., Chair of the Supervisory Committee. The dissertation was approved by the Graduate College.

## DEDICATION

I dedicate this dissertation to my family who have always supported me in achieving my dreams. This work will hopefully inspire my son, Leo, to chase his own dreams and know that anything is possible.

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ABSTRACT

The growth of online learning has expanded the reach of higher education to more diverse students than ever before; however, students often face barriers to equitable access to online instructional materials, course activities, and assessments. The challenge of meeting the needs of diverse learners was both highlighted and exacerbated during the COVID-19 pandemic and the rapid shift to remote teaching and learning at many institutions. Disabled students were one group that was particularly affected. Research has explored faculty and students' (with and without disabilities) perceptions of online learning; however, less is known about instructional designers' and their team leaders' roles and perceptions of inclusive online course design. We posit that instructional designers are well-positioned to lead the charge in designing accessible and inclusive online courses that will better serve disabled students. Thus, this article-based dissertation presents three studies focused on accessible and inclusive online learning. Chapter one will introduce the research space and elaborate on the issues of accessible and inclusive online course design in higher education and the role that instructional designers and their team leaders play. Chapter two will present a literature review on accessible and inclusive online course design in higher education. The themes and gaps that emerged from the literature review led to the proposal of two qualitative studies. Chapter three is a qualitative exploration of online learning leaders' (i.e., those who lead teams of instructional designers) perceptions of accessible and inclusive online learning. Leaders provided insight into the institutional and systemic barriers impacting instructional

designers' ability to collaborate in the creation of accessible and inclusive online learning experiences. Chapter four is a qualitative study focusing on instructional designers' experiences, perceptions, and knowledge and skills related to accessible and inclusive online course design. These studies, when taken together, are intended to fill the gap in the literature about instructional design teams' current and potential role in ensuring that diverse learners can effectively access, participate, and feel a sense of belonging in online higher education. Chapter five provides a synthesis of the findings from the three studies, explores the scholarly significance, and presents areas for future research.

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# CHAPTER ONE: INTRODUCTION

Online learning in higher education has become nearly ubiquitous as enrollments continue to grow year after year (Garrett et al., 2021). Millions of students are taking online courses and almost all higher education institutions offer some type of online options for students (Tobin & Behling, 2018). This increase in online enrollments represents a wide range of students, including more disabled students than ever before (Hartsoe & Barclay, 2017; NCES, 2016, 2019); however, questions remain about whether disabled students' needs are being met (Cai & Richdale, 2016; Kent, 2016). The COVID-19 pandemic and the resulting shift to remote learning for nearly all institutions in the spring of 2020 further exposed a gap in equitable access for diverse learners, and disabled students in particular (Anderson, 2020).

Online learning, in many ways, has democratized education, enabling people to learn from nearly anywhere. However, just as technology can simultaneously provide access to education for some students, it can deny access to others (Burgstahler, 2022; Gladhart, 2009; Kent, 2016). Disabled students, who often report a preference for online learning (Cai & Richdale, 2016), are opting to take online courses for a multitude of reasons (Safer et al., 2020). For instance, neurodiverse students may benefit from the increased time for reviewing materials, reflecting on concepts, and composing responses offered by online learning (Kent, 2016). Likewise, Deaf students may be better able to participate and communicate in an online asynchronous format because of a reduced need to hear lectures or discussions (Kent, 2016).

However, the use of technology and the overall online course design can significantly impact learners' ability to be independent and successful when not designed intentionally with accessibility in mind (Burgstahler, 2022; Nieminen. & Pesonen, 2020). The COVID-19 pandemic only further exacerbated the equitable divide when courses were rapidly shifted to remote learning without sufficient planning and inclusive design strategies (Burgstahler, 2022). For instance, while disorganized online navigation or materials not released on a predictable schedule can be a nuisance for any learner, those barriers can cause insurmountable confusion for neurodiverse students or students with anxiety. Likewise, uncaptioned video content can prevent Deaf students or students with auditory issues from accessing course content, and text-heavy discussions can be a barrier for students with dyslexia or visual impairments (Gladhart, 2009; Kent, 2016; Nieminen. & Pesonen, 2020).

Most institutions adopt the medical model of disability and in turn require students to self-disclose their disability and seek assistance from a Disabilities Services Office (Cory, 2011). The medical model of disability views an individual's perceived deficits due to a medical condition as a problem to be 'fixed' (WHO, 2011; Andrews et al., 2022). In higher education, the medical model of disability results in the assumption that disabled students' medical conditions are the reason that they face challenges or experience barriers (Burgstahler, 2022; Dolmage, 2017; Ginsberg & Schulte, 2012). Once a disabled student proves their medical condition, they must negotiate with the institution's Disabilities Services Office and individual faculty members to obtain accommodations (Cory, 2011). Research shows that students who leverage the support of disability services tend to have greater academic success (Adams & Proctor, 2010; Safer

et al., 2020); however, institutions sometimes struggle to provide effective accommodations due to budgetary and other constraints (Cawthon & Cole, 2010; Magnus & Tøssebro, 2014).

Most students choose not to disclose their disabilities for fear of being misunderstood, stigmatized, or treated differently than their peers (Burgstahler, 2022; Izzo et al., 2008; McAndrew et al., 2012; Roberts et al., 2011; Schelly et al., 2011). Students with less visible, but often more common, disabilities (e.g., neurodiverse students and those with attention deficit hyperactivity disorder (ADHD)) may also feel pressure to justify their disability and the need for accommodations (Adams & Proctor, 2010). They may experience doubt and suspicion from faculty, administrators, and peers resulting in a struggle with their disabled identity (Adams & Proctor, 2010). Some students may not identify as disabled, may be undiagnosed, or may not be able to obtain the necessary disability documentation (Harris et al., 2019). Students also report a lack of understanding and awareness of disability and their needs, further complicating the accommodations process (Sarrett, 2017). Research demonstrates that disabled students need to understand their disabilities and how it impacts learning to be able to advocate for themselves in higher education (Adams & Proctor, 2010). In fact, disabled students' degree of perceived self-advocacy skills has been found to be a predictor of students' adaptation to college (Adams & Proctor, 2010). Taken together, these findings make the medical model of disability and the resulting reactive accommodations practices less effective for students, faculty, and institutions alike (Tobin & Behling, 2018).

Society's view of disability has evolved over time (Andrews et al., 2022; Dolmage, 2017). More people are shifting away from the medical model and toward a

social model where disabilities are experienced as mismatched interactions between people and environmental, cultural, and social factors (Microsoft, 2016; WHO, 2011). In higher education, a social model focuses on inadequate learning environments (i.e., online course designs) and insufficient support structures for students instead of on the student's medical conditions as the cause of barriers to disabled students' success (Ginsberg & Schulte, 2012). Even more recently, the diversity or sociopolitical model of disability has emerged as a means of celebrating disability and embracing disability identity as a strength (Andrews et al., 2022). This could lead faculty and course designers to begin to draw on the experiences of disabled students to help intentionally create more inclusive courses that better serve all students from the start.

While institutions continue to explore different ways to develop online courses and programs that support all students, faculty remain at the center of this process at most institutions. In many ways, this makes sense since faculty are hired as content experts (Singleton et al., 2019). However, most faculty lack formal training or education in general pedagogy, let alone in online course design, and are even less likely to be skilled at leveraging accessible and inclusive design strategies (Linder et al., 2015; Tobin & Behling, 2018; Seok et al., 2018). As a result, institutions continue to struggle with finding the best ways to provide all students with accessible and inclusive online learning experiences (Cawthon & Cole, 2010; Linder et al., 2015; Magnus & Tøssebro, 2014).

## Statement of the Problem

The responsibility for accessible and inclusive online course design should not rest solely with faculty or disability support services, but rather accessible course design should be a shared endeavor intertwined with the course design process from the start

(Gladhart, 2009; Linder et al., 2015). Research suggests that instructional design teams could help lead the charge to design accessible and inclusive learning for all students (Lomellini & Lowenthal, 2022; Tobin & Behling, 2018; Xie et al., 2021a).

However, there are micro, meso, and macro levels of institutional focus that can create challenges and opportunities for institutions to embrace accessible and inclusive online course design (Seale et al., 2020). Seale, Burgstahler, and Havel (2020) defined the micro level as the practice of making teaching and learning accessible. The meso level involves the delivery of services that promote technologies that contribute to disabled students' academic and vocational success. Macro refers to the institutional level in which services (meso) and practices (micro) occur and both internal and external factors that influence these services and practices. This article-based dissertation addressed each level proposed by Seale et al. (2020) to answer the research question: What are the perceptions of the current state of higher education institutions' ability to provide accessible and inclusive online learning? To set the foundation, the macro level was explored through a literature review of accessible and inclusive online learning in higher education. The literature review described external factors including models of disability, legal contexts, barriers to online learning, frameworks for accessible and inclusive online learning, and internal factors such as the roles and responsibilities of faculty and instructional design teams.

At the meso level, I conducted a qualitative study of online learning leaders' (e.g., those who lead teams of instructional designers) perceptions of the challenges and opportunities for providing accessible and inclusive online learning initiatives. Research has demonstrated that institutional culture rooted in the medical model of disability and a

lack of clear policies and responsibilities can hinder the implementation of effective inclusive course design strategies (Burgstahler, 2022; Fichten et al., 2009; Linder et al., 2015; Singleton et al., 2019). Online learning leaders are aware that digital accessibility should be a priority (Garrett et al., 2021), yet questions remain about how the delivery of inclusive online course design services can be better supported by leadership, the institution, and the field in general.

For online learning leaders to implement effective accessible and inclusive online course design initiatives, they will need knowledgeable and skilled instructional designers to collaborate with faculty and share the responsibility on the micro level (Gladhart, 2009; Linder et al., 2015; Lomellini & Lowenthal, 2022). However, many instructional designers currently lack agency to enact change because faculty are typically responsible for the course design. Additionally, instructional designers have varying levels of knowledge, skills, and experience to design accessible and inclusive instruction on their own or collaboratively with faculty (Lowenthal & Lomellini, in press; Singleton et al., 2019). This is likely because graduate programs in instructional design and educational technology are not adequately training instructional designers in effective strategies for accessible online course design despite the increasing market demand for such skills (Halupa, 2019; Park & Luo, 2017).

Ultimately, there is limited research into online learning leaders' perceptions of institutional barriers and instructional designers' perceptions of the challenges and opportunities for designing accessible online learning (Lowenthal & Lomellini, in press). Given this problem, this article dissertation addressed the gap in research by performing a literature review, a qualitative study exploring online learning leaders' perceived barriers,

and a final qualitative study investigating instructional designers' knowledge, skills, and perceptions in designing accessible and inclusive online learning.

## Purpose of the Article-Based Dissertation

This article-based dissertation consists of three studies on accessible and inclusive course design in online higher education. In the following section, and in Table 1, I provide an overview of the three studies. Each study is then described in more detail in chapters 2, 3, and 4 of this dissertation.

Previous research into accessibility in higher education has focused on perceptions of students, faculty, and disability services providers (Black et al., 2014; Dallas et al., 2014; Roberts et al., 2011; Schelly et al., 2011). The idea of only addressing accessibility issues once they arise instead of proactively from the initial design phase is directly opposed to the data illustrating that students tend not to self-disclose their disabilities (Gladhart, 2009; Roberts et al., 2011; Singleton et al., 2019). To date, there have been few studies addressing instructional designers' perceptions of designing accessible and inclusive online higher education (Singleton et al., 2019; Xie et al., 2021a). Additionally, confusion remains over who is responsible for creating accessible content and activities (Linder et al., 2015). These three studies addressed the gap in the literature by focusing on online learning leaders' and instructional designers' perceptions of the barriers and their roles in designing accessible and inclusive online learning experiences.

**Table 1.1 Overview of Three Studies**

| | **Study 1** | **Study 2** | **Study 3** |
|---|---|---|---|
| Purpose | To synthesize literature relevant to inclusive and accessible online course design | To investigate leaders' (i.e., those leading teams of instructional designers) perceptions on providing an increasingly diverse student body with accessible and inclusive online learning experiences and understand leaders' perceptions of how institutions can successfully design and deliver accessible and inclusive online courses. | To explore instructional designer's perceptions of inclusive online course design including their challenges, successes, and ways they obtained related knowledge and skills |
| Level of Institutional Focus (Seale et al., 2020) | Macro | Meso | Micro |
| Type | Literature Review | Qualitative study | Qualitative study |
| Sample | N/A | 9 online learning leaders | 9 instructional designers |

Study 1 - Literature Review

Considering an increase in online learning and evolving societal views of disability, recent years have seen a push for accessible and inclusive online course design strategies. Instructional designers are uniquely positioned to leverage inclusive frameworks, such as Universal Design for Learning (UDL), to create more equitable online learning environments for all students; however, research in accessible and inclusive design in postsecondary education is nascent and challenged by varying definitions, applications, and assessments of effectiveness. There have been several literature reviews examining the effectiveness of UDL implementations (Al-Azawei et

al., 2017; Seok et al., 2018) and how researchers operationalize Universal Design (UD; Fornauf & Erickson, 2020; Rao et al., 2014). This literature review extended the work of these researchers by not only examining the current literature about accessible and inclusive course design in higher education but also providing a unique emphasis on the online learning environment and the role - or potential role - of instructional design teams in designing inclusive online learning experiences.

To conduct this review, I searched Google Scholar and ERIC databases for combinations of *UDL, course design or instructional design, higher education or postsecondary, online or e-learning, faculty or instructor or professor, students with disabilities.* Inclusion criteria included literature that was peer-reviewed, published between 2002 - 2022, and focused on accessible online learning in higher education. To expand the search, I also searched references of articles to find additional relevant studies, including literature from previous work on the topic, and collected references from colleagues and experts in the field (Randolph, 2009). Lastly, I included non-empirical gray literature due to the nascent state of research in accessible and inclusive online higher education (Rao et al., 2014).

We are currently finalizing the manuscript and preparing for publication. The full study in its current state is presented in Chapter 2.

Study 2 - Higher Education Leaders' Perspectives of Accessible and Inclusive Online Learning

This qualitative study investigated online learning leaders' (i.e., those who lead teams of instructional designers) perspectives of providing an increasingly diverse student body with accessible and inclusive online learning experiences. This study sought

to understand online learning leaders' perceptions of how institutions can design and deliver accessible and inclusive online courses. The research questions include the following:

RQ1: What are leaders' perceptions of the current state of institutions' ability to provide accessible and inclusive online learning?

RQ2: How are institutions providing accessible and inclusive online learning experiences?

I used a qualitative methodology for this study to provide insight into these individuals' lived experiences and perspectives. Due to the wide variation in available resources to design accessible and inclusive online courses, I employed a maximum variation sampling strategy to elicit diverse perspectives (Creswell & Poth, 2018). The sample of the study included nine online learning leaders identified via institutional websites and social media and recruited via email from a variety of different sized institutions. Participants were interviewed virtually to mitigate distance and the effects of the ongoing COVID-19 pandemic. The recorded data was transcribed and analyzed in NVivo. Data analysis included an iterative coding cycle following the model of Miles, Huberman, and Saldaña (2020). To improve the trustworthiness of the study, I employed member checking to verify the accuracy and intent of the transcript, rich descriptive data reporting that is transparent and accounts for the researchers' role and positionality, and collaboration with other researchers to mitigate potential researcher bias.

The study was accepted for publication in *Distance Education* in September 2022. The final version of the manuscript as it was submitted to the journal is presented in Chapter 3.

Study 3 - Instructional Designers' Perceptions of Accessible and Inclusive Online Design

The third study is a qualitative exploration of instructional designers' perceptions of inclusive and accessible online course design. I examined instructional designers' perceptions, knowledge, and responsibilities in accessible and inclusive online course design. This research questions for this study were:

RQ1: What are instructional designers' perceptions of designing accessible and inclusive online courses?

RQ2: What are instructional designers' perceptions of how institutions are providing accessible and inclusive online learning experiences?

I selected a basic qualitative design (Merriam & Tisdell, 2016) to better understand the complexities involved in accessible course design in higher education. Participants were identified via institutional websites and social media profiles (e.g., LinkedIn). Nine instructional designers responded to the recruitment email and were interviewed. All the instructional designers actively assist in the creation of online courses in higher education and have some experience with accessible and inclusive design strategies. Semi-structured interviews were conducted via Zoom. The recordings were transcribed and imported to NVivo for data analysis. Like the previous study, I employed an iterative coding cycle following the model of Miles, Huberman, and Saldaña (2020). This method allowed the themes to emerge from the data. I presented participants with the transcribed recordings to ensure validity and trustworthiness. The report included sufficient evidence and contrasting viewpoints to further improve the quality of the written manuscript. Additionally, I collected job descriptions from five of the participants to corroborate participants' descriptions of their responsibilities related to

accessible and inclusive online course design. I created an Excel spreadsheet to further analyze the interview data and the job descriptions and to visualize patterns in the data.

This study is currently under review. The final version of the manuscript as it was submitted is included in Chapter 4.

## Overview of Format and Structure of the Dissertation

Each of the studies explored accessible and inclusive online course design. The literature review provided a solid foundation of knowledge that informed the other two studies. The perceptions of leaders and instructional designers contribute to the research by providing a well-rounded view of the state of accessible and inclusive online course design.

## Research Question and Conceptual Framework

This dissertation describes the perceptions of online learning leaders and instructional designers in supporting and designing accessible and inclusive online learning at their institutions and in the field. The overall research question is: What are the perceptions of the current state of higher education institutions' ability to provide accessible and inclusive online learning? To explore this question, study one is a literature review. Based on the results of the study, studies two and three were designed around four areas of concern: participants' backgrounds (training/education), perceptions of knowledge and skills, course design barriers, strategies, and responsibilities, and the emphasis on accessibility and inclusivity at the institution and in the field (including the impact of the COVID-19 pandemic). Figure 1 illustrates these four areas of concern in exploring the current state of accessible and inclusive online learning in higher education. The outside box represents that the study was conducted through the lens of the social

model of disability. Through this lens, addressing barriers in the course design could help support disabled students.

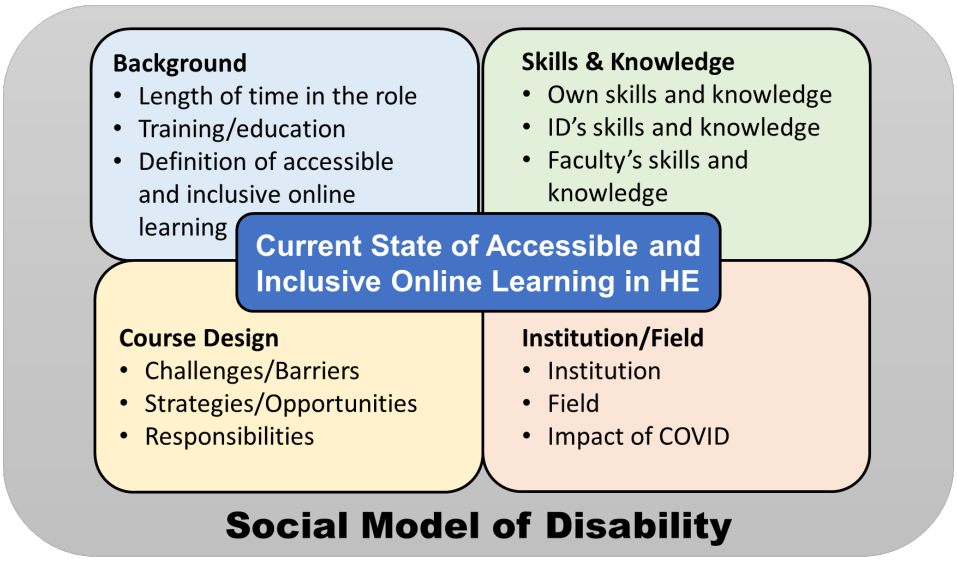


**Figure 1.1 Conceptual framework**

Participants were interviewed to learn about the length of time they have been in their roles, their related training and education, and how they define accessible and inclusive online learning. They were asked how they perceive their own skills and knowledge related to accessible and inclusive online learning as well as how they perceive the skills and knowledge of instructional designers and faculty. During interviews, the participants described barriers and strategies related to online course design and who is responsible for accessibility and inclusivity at their institution. Finally, participants described their perceptions of the emphasis on accessible and inclusive online course design within their institution and the field in general. The impact of the COVID-19 pandemic will also be discussed.

## Definition of Key Terms

**Accessibility:** Accessibility includes designing content and experiences to be perceivable, operable, understandable, and robust in a manner that allows disabled people to access and participate fully with the same level of independence and at the same time as non-disabled people.

**Accessibility Checkers:** Accessibility checkers refer to tools typically integrated into learning management systems, browsers, and operating systems designed to identify potential accessibility barriers (e.g., Ally, UDOIT, and Microsoft's accessibility checker).

**Inclusive Design:** Inclusive design describes a methodology of designing with an understanding that everyone deserves to access, participate, and feel a sense of belonging in the experience.

**Quality Assurance Frameworks:** Quality assurance frameworks refer to the standards, rubrics, checklists, and other frameworks designed to improve the quality of online course design (e.g., Quality Matters Rubric, and Open SUNY Course Quality Review Scorecard).

**Usability:** Usability describes how easy the content, tool, or design is to learn and use efficiently by prioritizing user feedback to understand barriers and usage patterns.

## Chapter Summary

This chapter served as an introduction to the research space and identified the gap in the literature about instructional design teams' perceptions and roles in accessible and inclusive online learning. The chapter also provided an outline of the studies, the overarching research question, and the conceptual framework for the three studies. Each study will be described in greater detail in the coming chapters.

# CHAPTER TWO: STUDY 1 - ACCESSIBLE AND INCLUSIVE COURSE DESIGN IN ONLINE HIGHER EDUCATION: A REVIEW OF THE LITERATURE

Institutions of higher education have a more diverse student body today than ever before. In particular, disabled students are increasingly choosing to attend higher education (NCES, 2019; Safer et al., 2020). In fact, the number of undergraduate students reporting a disability grew by 8% from 2007 to 2016 (NCES, 2016). The most commonly reported disabilities in higher education include mental illness/depression (40%) and attention deficit disorder (26.4%); however, others include visual, hearing, speech, mobility, and learning disabilities (Campbell & Westcott, 2019). Many students also experience multiple disabilities simultaneously. Research suggests that the real number of disabled students in higher education is actually larger because most students do not disclose their disabilities (Izzo et al., 2008; Roberts et al., 2011; Schelly et al., 2011).

Online learning has the potential to meet the needs of disabled students in unique ways. First, disabled students can benefit from the flexibility and convenience of learning on their own schedule in their chosen location (Linder et al., 2015). Other students (e.g., with dyslexia and attention-related disabilities) can benefit from having access to organized online materials, activities, and assessments as opposed to “piles of paper” they might receive in in-person face-to-face courses (Nieminen & Pesonen, 2020, p. 10). Online learning can also reduce the need for accommodating separate exam locations as well as help others eliminate visual and auditory distractions often found in lecture halls (Nieminen & Pesonen, 2020). Finally, others who might struggle with social interactions

(e.g., autistic students) might benefit from online discussions and recorded lectures that minimize or change interactions with their peers (Satterfield et al., 2015).

However, questions remain about how well online learning is meeting the needs of disabled students and in what ways institutions are prepared for and actively providing students with accessible and inclusive online learning opportunities (Cai & Richdale, 2016). Given this, we set out to review the literature on accessible and inclusive online learning. In the following paper, I present the results of our inquiry and implications for research and practice.

## Background

When researching accessible and inclusive online learning, one must first recognize that the terminology used when discussing disability, accessibility, and inclusion is contested. Often the terms "accessibility" and "inclusive design" are used interchangeably when they have different meanings (Microsoft, 2016; W3C Web Accessibility Initiative, 2022). Accessibility is often described in terms of technical requirements–e.g., backend code, user interaction, and visual design (W3C, 2022)--that comply with legal mandates and guidelines (W3C, 2022). Legal mandates (e.g., Section 508 of the Rehabilitation Act of 1973) rely on industry accessibility standards such as the World Wide Web Consortium's (W3C) Web Content Accessibility Guidelines (WCAG) (Bonitto, 2021). Accessibility is considered a *quality* or *attribute* that makes experiences open to all (Microsoft, 2016). In terms of course design, accessibility features could include providing alternative text for images (WCAG 2.0 guideline 1.1), enabling accurate captions for multimedia (WCAG 2.0 guideline 1.2.2), developing consistent course navigation (WCAG 2.0 guideline 3.2.3), using plain language (WCAG 2.0

guideline 3.1), and ensuring compatibility with a variety of devices, including assistive technologies (WCAG 2.0 guideline 4.1).

WCAG's technical language is intended for web developers and can be too complicated for faculty and even instructional designers (Lowenthal et al., 2021). Inclusive design is a *methodology* to design "a diversity of ways for everyone to participate in an experience with a sense of belonging" (Microsoft, 2016, p. 11). The process involves recognizing exclusion, learning from diversity, and solving for one marginalized group and extending the strategies to many users (Bonitto, 2021; Microsoft, 2016). Finally, usability, or prioritizing feedback from real users, refers to the ease of user interaction and the barriers presented by systems, tools, designs, and products (Nielsen, 1993). Aspects of usability include learnability, efficiency, memorability, errors, and satisfaction (Nielsen, 1993). Quality assurance frameworks like Quality Matters (2018) leverage *usability* and *accessibility* to emphasize the importance of ensuring that all students can not only access course content and activities but also use them effectively.

## Models of Disability

Disability, and specifically how people think about disability in higher education, has changed over time (WHO, 2011). Disability used to be understood in medical terms as an individual's lack of ability to do something due to a health concern (WHO, 2011). This medical model of disability, which presents disability as a problem with an individual and a difference from a standardized norm, is still the dominant model of disability in the United States (Bogart & Dunn, 2019). Historically, this led to the institutionalization, segregation, and 'othering' of people with disabilities (Bogart &

Dunn, 2019). In higher education, the medical model assumes that disabled students are different from their peers and that a student's diagnosis (e.g., a learning disability) is the reason for their challenges (Ginsberg & Schulte, 2012).

Several laws were passed to prevent discrimination based on disability (Dolmage, 2017). For example, Section 504 of the Rehabilitation Act of 1973 prohibits institutions receiving federal financial assistance from discriminating against people with disabilities (Leuchovius, 2004). Section 508 of the Rehabilitation Act as amended in 1998 also extends the civil rights to information and communication technology (ICT), which was later aligned with the Web Content Accessibility Guidelines (WCAG) 2.0. Laws such as these have advanced equity and quality of life for disabled people. However, in other ways, they perpetuate the medical model of disability and a compliance mindset (Dolmage, 2017; Shpigelman et al., 2021). Vague language in these laws provide latitude for institutions to retrofit courses and spaces only after a student identifies a disability and a course barrier (Dolmage, 2017; Shpigleman et al., 2021). As a result, institutions often require students to disclose their disabilities to identify a reasonable accommodation for the student's perceived deficits (Kumar & Wideman, 2014; Nieminen & Pesonen, 2020).

More recently, there has been a shift to a social model of disability, which posits that people are disabled by society instead of their body or health condition (WHO, 2011). In this view, disabled students are not disabled by their diagnosis, but by learning activities and course environments (Ginsberg & Schulte, 2012). The social model of disability views disabled students' needs on a continuum aligned with the needs of all learners (Ginsberg & Schulte, 2012).

The social model of disability has been criticized by some who think it erases the personal impact disabilities have on individuals (Dolmage, 2017; WHO, 2011). While some view the social model of disability as the opposite of the medical model, the models can be complementary (WHO, 2011). Both personal factors (i.e., medical) and contextual factors (i.e., social) create a dynamic interaction that we know as disability (WHO, 2011). The significance of this evolution is understanding that accessibility barriers can be caused by both personal and contextual factors. This view maintains the importance of the personal impact of disability while also emphasizing that barriers in the environment can be minimized with intentional design.

## Disability Service Offices

Disability Service Offices were established to fulfill legal requirements and promote equity for disabled students (Harris et al., 2019; Shpigelman et al., 2021). They typically provide a range of services and accommodations including extra time and rooms for taking exams, notetakers, alternative exam formats, study skills, assistive technology, interpretive services, and general resources and support (De Los Santos et al., 2019; Safer et al., 2020). Following a medical model of disability, though, disabled students typically must share medical documentation of a disability and their needs to receive services (Cory, 2011; Singleton et al., 2019).

Generally, the knowledge, skills, and accommodations provided by disability service offices facilitate students' successful completion of academic endeavors. Disabled students report that they appreciate the support and empowerment to advocate for what they deserve in higher education (Shpigelman et al., 2021). Research shows that disabled students who leverage university support services are more likely to succeed

academically (Safer et al., 2020). In addition, the earlier a student discloses their disability, the higher their graduation rates are compared to those who disclosed it later (Hudson, 2013).

Accommodations

The need for accommodations grew out of legislation in the 1990s (e.g., ADA and IDEA). Ketterlin-Geller and Johnstone (2006) define accommodations as "changes in instruction or assessment practices that reduce the impact of an individual's disability on his or her interaction with the material" (p. 164). Institutions, though, sometimes struggle granting accommodations (Cawthon & Cole, 2010; Magnus & Tøssebro, 2014). Accommodations are often limited by budgets, personnel, and other resources. Further, disabled students typically work with Disabilities Service Offices to create an accommodations plan, but this plan may provide inadequate or incomplete accommodations (Black et al., 2015; De Los Santos et al., 2019). For example, hard of hearing students may require a device to amplify sound; however, a medical professional may not know how background noise in a lecture hall could impact a student's ability to concentrate (Black et al., 2015).

Research also illustrates problems disabled students face obtaining accommodations (Harris et al., 2019). First, some students may not identify as disabled and may be reluctant to seek services. For instance, one student with attention deficit disorder stated, "I don't see myself as a person with a disability, but technically I am" (Friedensen et al., 2021, p. 85). Other students lacking official diagnoses may be required to obtain documentation through testing, evaluation, and medical appointments that can be cost-prohibitive and difficult to obtain (Harris et al., 2019), especially since COVID-

19. Students may also struggle obtaining and following up on accessibility services for perhaps the first time in their life (Bartz, 2020; Harris et al., 2019). Additionally, disabled students must inform every professor every semester of their needs (De Los Santos et al., 2019; Friedensen et al., 2021). Students often feel uncomfortable having these conversations with instructors whom they just met (Black et al., 2015; Hong, 2015; Smith et al., 2021). In fact, West et al. (2016) reported how high school students were surprised that they had to self-advocate and potentially educate instructors on their disabilities and needs. Complicating matters further, students commonly report a lack of faculty understanding and awareness of the needs of disabled students (Cook et al., 2009; Harris et al., 2019; Sarrett, 2017; Shpigelman et al., 2021).

Barriers like these are likely why students choose not to disclose their disabilities (Black et al., 2015; Gladhart, 2009; Shpigelman et al., 2021). However, students have also described wanting to avoid pity, embarrassment, stigma, and disclosing personal information (Safer et al., 2020; Shpigelman et al., 2021). Disabled students, like their peers, are typically developing their independence and building their identities during college. When they think others perceive their disability in a negative light, it can inhibit them from embracing positive aspects of disability identity and lead to masking, or constructing a "publicly performed identity" to obtain accommodations (Shpigelman et al., 2021, p. 9).

## Method

The purpose of this literature review was to explore the focus of research on accessible and inclusive online learning and course design in higher education. We set out to identify major findings and themes that would inform practice and future research.

There have been a few literature reviews conducted in the past focused on research on Universal Design for Learning (See Table 1.) This literature review differs from these reviews by taking a broader focus accessibility and inclusive design in online higher education.

**Table 2.1. Previous Literature Reviews on UDL**

| Authors | Focus of review | # of Sources Reviewed |
|---|---|---|
| Fornauf & Erickson (2020) | How faculty and researchers operationalize UDL | 38 |
| Seok et al. (2018) | The effectiveness of UD, UDL, or UDI implementation in higher education for students with and without disabilities. | 17 |
| Al-Azawei et al. (2016) | The impact of UDL on students and teachers, students' academic performances, and educational contexts. | 12 |
| Rao et al. (2014) | How researchers were applying and evaluating UDL, UDI, and UID in pre-k to higher education | 13 |
| Roberts et al. (2011) | The use and effectiveness of UD, UDI, UID, and UDL in higher education | 8 |

As mentioned earlier, researchers use different terms when talking about accessible and inclusive online learning (Rao, 2021; Rao et al., 2014). This in turn makes it difficult to identify one unified body of literature. To identify literature for this review, I first searched the Education Resources Information Center (ERIC) and Google Scholar using the keywords "accessibility" and "inclusive design." This resulted in too many unrelated studies. After trying other keywords, I used the following keywords "Universal Design for Learning," "UDL," "course design," "instructional design," "higher

education," or "postsecondary," "online," "e-learning," "faculty," "instructor," "professor," "students with disabilities." The strings "Universal design" OR "UDL" + "course design" or "instructional design" as well "inclusive" + "higher education" + "online" were the most successful in identifying relevant studies.

Identified articles were cataloged in an Excel spreadsheet with basic information including the search term used, the authors, year, title, population (faculty, IDs, disability support, students, or other), journal, exclusion criteria, and abstract. I used a preliminary screening process to remove duplicates and determine if the articles met inclusion criteria, including being peer-reviewed, published between 2002 - 2022, focused on accessible and inclusive online learning in higher education, and written in English. Articles focused on online learning, course design, and instructional designers were of special interest for this literature review. In addition, I also employed other common search strategies (see Randolph, 2009) such as searching the references of identified articles to find other relevant studies, identifying known literature from previous work on accessible and inclusive online learning, and collecting additional references with the help of colleagues and experts. Finally, due to the nascent state of research in this area, empirical articles are scarce (Rao et al., 2014). Given this, I also reviewed non-empirical practice briefs as well as gray literature to provide a broader body of literature to review. Once articles were identified as meeting the inclusion criteria, I used an Excel spreadsheet to compile additional data on each piece of literature (e.g., purpose of study, research questions, context, sample, methodology, data collection, data analysis, main findings, limitations, and additional notes). Ultimately, 91 sources were included in this

literature review. Figure 2.1 illustrates the number of the number of sources identified by each strategy.

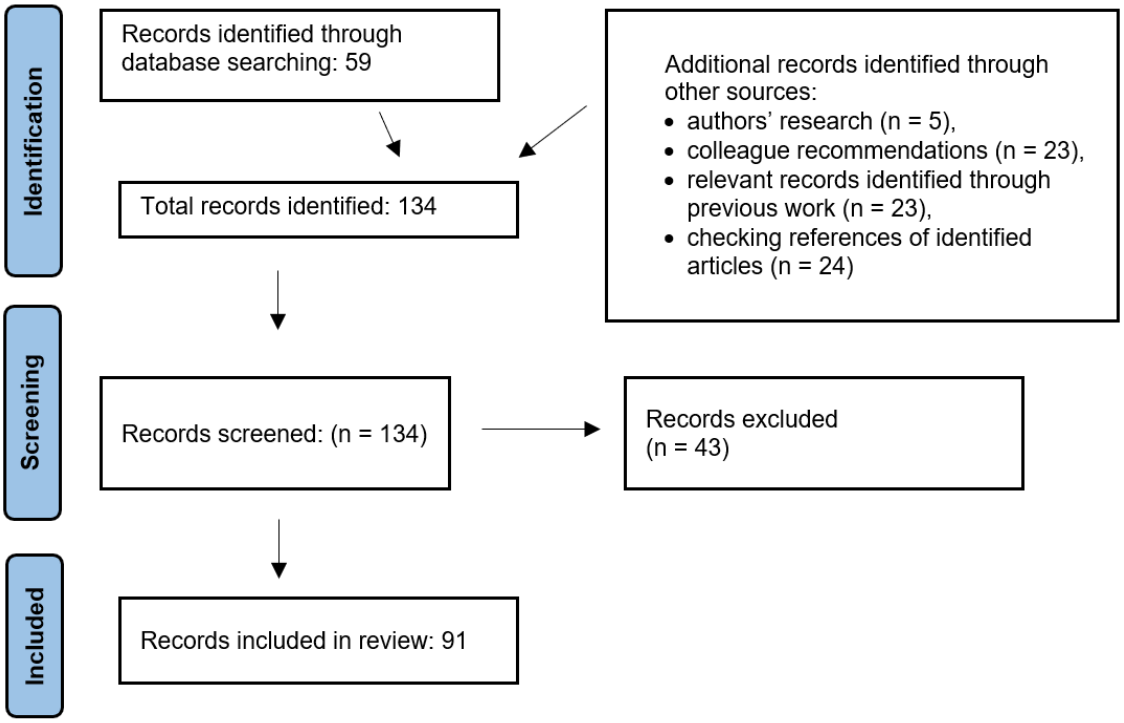


**Figure 2.1. The identification methods of the sources included in this literature review**

Data were analyzed in Excel by first creating codes based on the focus of the article, the framework used, whether the context was online learning or not, and the reported results. From there, I could sort and visualize the data in different ways to view trends and themes. Three distinct themes emerged from the data: 1) the barriers presented by learning online, 2) varying frameworks for accessible and inclusive online learning, and 3) the responsibility of faculty and instructional designers in creating accessible and inclusive online learning. Summaries of these themes are described in detail in the following sections.

## Results

### Barriers Presented by Learning Online

Despite the growth of online learning and the growing emphasis on accessibility, inclusion, and usability, research suggests that some students struggle to learn online more than others (Coombs, 2010). For instance, some students lack the self-directedness and/or communication and technical skills required to be successful online (Conley et al., 2018; Kent, 2016; Lowenthal et al., 2021). While disabled students face many of these same challenges as their peers transitioning and adapting to higher education and specifically online learning, they may also face additional barriers to learning online (Bartz, 2020; Gladhart, 2009; Shpigelman et al., 2021). While these barriers were already prevalent before the pandemic (see Linder et al., 2015), the pandemic exposed them and other accessibility challenges for disabled students on a larger scale.

#### Lack of Self-Directedness and Communication

There is no such thing as an ideal online learner. However, when enrollments in online courses started to grow during the 2000s, online educators increasingly investigated the qualities of successful online learners (Dray et al., 2011; Martin et al., 2020). Two qualities still talked about today are the importance of being self-directed or the self-management of learning (Doe et al., 2017; Martin et al., 2020) as well as being able to successfully communicate online or what some think of as having sufficient digital literacy skills to communicate effectively online (Hung et al., 2010; Martin et al., 2020). These are two areas where students with certain disabilities might struggle more than others.

First, being self-directed and able to manage one's own time and learning can be difficult for any student but especially for students used to having teachers and paraprofessionals guide and support them through K12 education. Further, many disabled students also experience difficulties with executive functioning skills, or the ability to manage varying resources to set appropriate goals and create effective strategies to work towards the goals (Meyer et al., 2014). Disorganized online learning materials and confusing course navigation may create additional barriers for students who already find executive functioning skills difficult to develop (Bartz, 2020; Cai & Richdale, 2016; also see Lister et al. 2021). Changes to structures or routines (e.g., discussions or assignments due on different days or at different times) can be especially difficult for autistic students (Cai & Richdale, 2016).

Instructors often do not know when online students are struggling partly because body language and facial expressions are absent. The onus is on the students to communicate their difficulties. However, research suggests that disabled students might not have the same communication, and specifically, digital literacy skills needed to successfully communicate and interact with instructors and peers online (Conley et al., 2018). For instance, some autistic students with social-communication difficulties may not feel comfortable asking for assistance or participating in online courses that require social interactions (e.g., group work, discussions, or peer reviews; Cai & Richdale, 2016). Likewise, Deaf and hard-of-hearing students report difficulties communicating with peers and faculty, especially in synchronous courses where they might not have an interpreter (Kent, 2016).

Inaccessible Content

Perhaps the biggest barrier to learning online is inaccessible content (Coombs, 2010). Inaccessible content can include multimedia that lacks accurate captions and transcripts, learning management systems or documents that are not designed for usability and compatibility with assistive technologies (e.g., screen readers), visual representations that lack alternative formats, content with poor color contrast, and systems or materials that prevent personalization. Issues like these can significantly halt a disabled student's progress (Bartz, 2020; Fichten et al., 2009). For instance, if a recorded lecture lacks accurate captions or transcripts or a synchronous session relies on subpar computer-generated captions a Deaf or hard-of-hearing student may be missing key information (Anderson, 2020). Even when multimedia contains accurate captions, some students with vision issues may still miss important information presented on the screen but not orally described (Covadonga & Tabuenca, 2020). Another potential barrier with online multimedia and images is poor color contrast. The use of certain color combinations can pose difficulties for students with low vision or color blindness. For instance, if a bar graph distinguishes between elements solely by color and does not provide an adequate description, students may be unable to interpret the data effectively.

Students should be able to customize their learning materials to suit their accessibility needs and preferences. For multimedia, students need the ability to control the volume, speed, as well as the option to pause/stop the video, and subtitle/captioning controls to effectively comprehend the content (Covadonga & Tabuenca, 2020). Likewise, learning management systems (LMSs) or documents (e.g., scanned PDFs presenting text as an image) often restrict students' ability to adjust text size, colors, and

font which in turn may prevent students using assistive technology from accessing and using the information effectively (Covadonga & Tabuenca, 2020). In the pivot to remote learning in 2020, students reported an increase in inaccessible documents, including scanned PDFs that present text as an image (Anderson, 2020). When online courses contain a large amount of text, some disabled students may need to schedule study breaks to process the information while others might prefer printed materials to avoid looking at the computer screen for extended periods of time (Kent, 2016; Nieminen & Pesonen, 2020).

Online courses also need to be designed to allow students to navigate without a mouse or with voice commands. Some students with mobility difficulties prefer to use speech-to-text software to assist in writing papers or class discussions. When online courses require significant writing, it can cause students fatigue and pain (Kent, 2016)

Studies have shown that disabled students struggle to obtain timely access to instructional materials and assistive technology (Linder et al., 2015). When disabled students report issues with online learning, they commonly remain unsolved or solved with a non-learning solution, such as a family member reading inaccessible materials aloud (Fichten et al., 2009). Relying on others inhibits students from becoming independent learners.

Singular Means of Demonstrating Knowledge

Preferences vary from person to person and are greatly affected by different disabilities and situations. For instance, in one study autistic students demonstrated a preference for assessments that require less interpersonal interaction (e.g., recorded presentations without a live classroom audience) (Satterfield et al., 2015), whereas in

another study some autistic students struggled to articulate their thoughts in writing while others struggled with spoken assessments (Cai & Richdale, 2016). But in both studies, students cited how flexibility helped reduce their anxiety (Cai & Richdale, 2016; also see Satterfield et al., 2015).

Disabled students are often attracted to online learning because they can learn at their own pace and take extra time when needed (Kent, 2016). However, timed exams as well as synchronous sessions can challenge students who face varying and oftentimes unpredictable symptoms that disrupt learning. For instance, a student with an acquired brain injury reported difficulty with maintaining focus and concentration at times (Kent, 2016). If these symptoms arise during a timed exam or scheduled online class meeting time, students may be unable to complete the exam or participate in the class.

Timing Issues

Disabled students often report slower academic processes that prevent them from keeping up with their peers (Bartz, 2020; Kent, 2016). For example, in one study, a student with a visual and learning disability reported the need to arrive on campus early and spend extra time reading to process information; then another student with a visual disability reported the need to rely on staff to conduct research, limiting their ability to be independent learners (Black et al., 2015). Students with mobility issues, learning difficulties, or speech issues might find it difficult to actively participate in synchronous group chats because they need more time to respond (Burgstahler et al., 2004; Coombs, 2010). Likewise, autistic students who experience social-communication difficulties may find it difficult to participate in group work (Cai & Richdale, 2016). When an accommodation cannot be met, disabled students are sometimes instructed to take the

class at another time, further delaying their progress towards graduation (Bartz, 2020; Friedensen et al., 2021).

### Additional Barriers Regardless of Modality

There are some other barriers that disabled students might face regardless of modality–though they might manifest and impact them in different ways depending on the course modality.

Disabled students contend with additional personal responsibilities, ambivalent or negative attitudes, and physical barriers that can converge to impact their rates of persistence, retention, and graduation (Tobin & Behling, 2018). In particular, disabled students often face what Bartz (2020) terms "barriers in the heads of other people" (p. 11), where people question why a disabled student would even pursue higher education at all (Bartz, 2020). In one study, students were even told that they would not succeed in pursuing career opportunities in a field given their disability (Friedensen et al., 2021). Thus, disabled students may face discrimination from peers, professors, and other administrators (Ginsberg & Schulte, 2012; Shpigelman et al., 2021). This discrimination and misunderstanding of disabilities can challenge students who are trying to develop a positive self-identity that includes being disabled (Sarrett, 2017). These experiences can leave students questioning whether they belong in higher education (Friedensen et al., 2021).

## Frameworks for Accessible and Inclusive Online Learning

Despite decades of interest, higher education has only recently begun to focus on accessibility and inclusion (Seale, 2006, 2020). In the following pages, there is an overview of frameworks for accessible and inclusive online learning based on the

literature, focusing mostly on the most popular framework, Universal Design for Learning (UDL).

## Universal Design for Learning

A concept called *Universal Design* (UD) began in the 1950s as an architectural framework for removing barriers for people with disabilities (Roberts et al., 2011). In the 1970s, coinciding with civil rights legislation, UD evolved into a way to make physical spaces usable for the greatest number of people possible (CAST, 2022a; Kumar & Wideman, 2014). For instance, curb cuts benefit not only wheelchair users, but also those with strollers, luggage, shopping carts, bicycles, and more (Kumar & Wideman, 2014). People began to question how similar approaches could be taken in education.

Three prominent adaptations of UD emerged in education: Universal Instructional Design (UID), Universal Design for Instruction (UDI), and Universal Design for Learning (UDL) (Roberts et al., 2011; Wynants & Dennis, 2017). Researchers sometimes use the terms interchangeably (Wynants & Dennis, 2017) while others clearly define differences among them (Singleton et al., 2019). UID focuses on building common accommodations for disabled students (e.g., extended time for exams, lecture notes, etc.) from the start (Singleton et al., 2019). UDI, as developed by McGuire, Scott, and Shaw (2003), translated the seven UD principles for architecture (i.e., equitable use, flexibility in use, simple and intuitive, perceptible information, tolerance for error, low physical effort, and size and space for approach and use) into the educational realm and added two additional principles focused on student engagement (i.e., community of learners and instructional climate). UDI, though, has been criticized for focusing solely on instruction instead of the broader learning process (Dolmage, 2017). UDL, on the other hand, is

sometimes seen as an all-encompassing framework that leverages UID, UDI, and accessibility while offering greater flexibility (Singleton et al., 2019).

The UDL framework was developed by the Center for Applied Special Technology (CAST, 2022b). UDL is predicated on intentional, proactive design that considers learner variability while reducing barriers in course design (Evmenova, 2021; Rao, 2021). Traditionally, educational experiences have been designed for an idealized "normal" student (Dolmage, 2017). UDL challenges that view and posits that learner variability, including students' abilities and strengths, support needs, backgrounds and experiences, preferences and interests, is both omnipresent and predictable (Rao & Meo, 2016). When learner variability is understood as typical, it can be intentionally addressed through flexible course design and intentional scaffolds (Rao & Meo, 2016). Meyer et al. (2014) highlighted that abilities and situations are constantly shifting and that they "exist not within the individual but in the intersection between the individual and their environment, in a vast, complex, ever-changing dynamic balance" (p. 81).

The UDL framework, building on advances in brain research and technology, was conceptualized as consisting "of three overarching operative principles, each formed to minimize barriers and maximize learning through flexibility" (Rose & Meyer, 2002, p. 74). Originally these three principles were:

- Principle 1: To support recognition of learning, provide multiple, flexible methods of presentation.
- Principle 2: To support strategic learning, provide multiple, flexible methods of expression and apprenticeship.

- Principle 3: To support affective learning, provide multiple, flexible options for engagement. (p. 75)

Over the years these principles have been revised. Table 2.2 lists the current principles.

**Table 2.2 UDL Principles (CAST, 2018)**

| **Principles** | **Description** |
|---|---|
| Multiple Means of Engagement | This includes ways to engage, challenge, and motivate learners. |
| Multiple Means of Representation | This includes ways to present content in a variety of ways. |
| Multiple Means of Action and Expression | This means encouraging students to create strategic plans and allowing students to demonstrate their knowledge using different tools and assessments. |

CAST (2018) identified guidelines and checkpoints to assist practitioners in implementing the principles of UDL (see Table 2.3). In fact, according to their website, they are currently updating the guidelines. The guidelines and checkpoints help educators understand how they can use UDL.

**Table 2.3 Overview of UDL Principles and Corresponding Guidelines and Checkpoints (CAST, 2018)**

| Principle | Guidelines | Checkpoints |
|---|---|---|
| **ENGAGEMENT** | **Recruiting Interest**<br>Spark excitement and curiosity for learning | • Optimize individual choice and autonomy<br>• Optimize relevance, value, and authenticity<br>• Minimize threats and distractions |
| | **Sustaining Effort & Persistence**<br>Tackle challenges with focus and determination. | • Heighten salience of goals and objectives<br>• Vary demands and resources to optimize challenge<br>• Foster collaboration and community<br>• Increase mastery-oriented feedback |
| | **Self Regulation**<br>Harness the power of emotions and motivation in learning | • Promote expectations and beliefs that optimize motivation<br>• Facilitate personal coping skills and strategies<br>• Develop self-assessment and reflection |
| **REPRESENTATION** | **Perception**<br>Interact with flexible content that doesn't depend on a single sense like sight, hearing, movement, or touch. | • Offer ways of customizing the display of information<br>• Offer alternatives for auditory information<br>• Offer alternatives for visual information |
| | **Language and Symbols**<br>Communicate through languages that create a shared understanding. | • Clarify vocabulary and symbols<br>• Clarify syntax and structure<br>• Support decoding of text, mathematical notation, and symbols<br>• Promote understanding across languages Illustrate through multiple media |
| | **Comprehension**<br>Construct meaning and generate new understandings | • Activate or supply background knowledge<br>• Highlight patterns, critical features, big ideas, and relationships<br>• Guide information processing and visualization<br>• Maximize transfer and generalization |
| **ACTION & EXPRESSION** | **Physical Action**<br>Interact with accessible | • Vary the methods for response and navigation |

| Principle | Guidelines | Checkpoints |
|---|---|---|
| | materials and tools. | ● Optimize access to tools and assistive technologies |
| | **Expression & Communication**<br>Compose and share ideas using tools that help attain learning goals. | ● Use multiple media for communication<br>● Use multiple tools for construction and composition<br>● Build fluencies with graduated levels of support for practice and performance |
| | **Executive Function**<br>Develop and act on plans to make the most out of learning. | ● Guide appropriate goal-setting<br>● Support planning and strategy development<br>● Facilitate managing information and resources<br>● Enhance capacity for monitoring progress |

Multiple Means of Engagement

The principle of engagement includes providing options for recruiting interest, sustaining effort and persistence, self-regulation. An example of intentional course design to meet this principle could be providing options for students to choose topics for their major assignments, which aligns with the UDL guideline of recruiting interest (#7) (Evmenova, 2021). In a study by Oyarzun et al. (2021), one faculty member described an assignment in which students picked three literature characters from a predetermined list, then chose two or three questions to answer, and showcased their knowledge in formats including videos, presentations, or playlists of songs to demonstrate mastery and achievement of the objectives. In that same study, another faculty described breaking up a large assignment into more manageable chunks to provide opportunities for revision and feedback (UDL checkpoint 8.4) (Oyarzun et al., 2021). As an example of fostering

collaboration and community (UDL checkpoint 8.3), a faculty described assigning rotating group leaders to lead group discussion boards.

Multiple Means of Representation in Practice

Students vary in their background knowledge, experience with languages, skills, and abilities to learn with different media. This variability stems from many factors including upbringing, culture, socioeconomic status, disability, and even day-to-day moods or emotions and influences how students interact (Meyer et al., 2014). UDL contends that when we recognize that the problem resides between the student and the learning environment, we can see how providing digital options such as text-to-speech, an interactive glossary, and/or videos or images that represent content in different ways could potentially reduce those barriers.

Learners' permanent, temporary, and situational differences affect how they perceive and comprehend information (CAST, 2018; Microsoft, 2016). For instance, blind students, those who have a temporary eye infection or injury, and those who are driving could all benefit from having text-based information in an audio format. Evemenova (2021) conducted a study where she provided a lecture in different formats including video, PowerPoint, audio, and a transcript of the narration. Using data analytics she found that student students regularly utilized and appreciated having multiple formats (Evmenova, 2021). Providing these types of alternative formats benefit disabled students (e.g., those with hearing or learning disabilities) as well as students with varying circumstantial needs (e.g., those on a train who could not stream or listen to a video) (Evmenova, 2021; Rogers & Gronseth, 2021).

Multiple Means of Action and Expression in Practice

Executive functioning skills including setting and adjusting goal-setting strategies tend to develop over time (Meyer et al., 2014). Learners often start with trial-and-error strategies and may not know what constitutes a realistic goal, what success or failure looks like, or have the organizational skills to achieve their goal. Designers can mitigate these barriers by creating models, guides, examples, and other supports to assist students in setting and achieving their goals. Research has demonstrated that these types of examples increase students' confidence and self-efficacy (Meyer et al., 2014).

Meyer, Rose, and Gordon (2014) highlighted how some options for action and expression were originally designed for marginalized students who struggled with traditional means of assessment; however, the options and approaches are often beneficial for all learners by encouraging greater creativity, engagement, and quality work. Options outside of traditional writing and multiple-choice testing may include drawing, video presentations, images, graphical representations, and others as appropriate for the learning goal.

CAST's UDL on Campus (n.d.) stressed the importance of ensuring that assessments measure relevant constructs and minimize construct-irrelevant factors such as motor function (typing skills), memory, and executive functioning skills (organization, planning, and focus). For instance, to minimize construct-irrelevant factors such as typing, one could allow all students to demonstrate their knowledge of a topic in an essay, presentation, video, or graphic format. Students with a disability that makes writing or typing difficult may not need to request a scribe or speech-to-text software. Students with speech difficulties may choose to write a paper instead of recording a

presentation. Likewise, students without disabilities would be granted the same choices, reducing Disabled students' feelings of otherness and the perception of inequitable accommodations. Regardless of how students choose to demonstrate their knowledge, the same learning objectives could be met.

In summary, UDL strategies intend to empower students to be expert learners who are motivated, engaged, and self-directed (CAST, 2022a). Providing scaffolds and supportive structures in the course design can help all students build their study skills and learn to focus their efforts more effectively on course activities, which can be particularly difficult for some disabled students (Gronseth, 2018). For example, rubrics can provide clear guidance about expectations, thus helping students with executive functioning issues, anxiety issues, but also helping all students comprehend the expectations (Gronseth, 2018).

### Research on Universal Design for Learning

Despite the overall interest and literature on UDL (including multiple books), surprisingly and comparatively not a lot of empirical research has been conducted on UDL. Over the years, some research has focused on students' perceptions of courses designed with UDL (Black et al., 2015; Kumar & Wideman, 2014; Levicky-Townley et al., 2021; Oyarzun et al., 2021). Black et al. (2015) interviewed twelve disabled students and three students without disabilities in a technology-enhanced face-to-face course designed with UDL principles. The results indicated that students perceived an increased sense of control over their learning that led to reduced stress and improved flexibility. The content provided in multiple forms led to a reduction in the need of formalized

accommodations. Additionally, the students appreciated the high level of social presence created by the welcoming community learning environment.

Nieminen and Pesonen (2020) described the experiences of disabled students in a large enrollment 7-week undergraduate mathematics course in Finland that could be completed online. The course was designed using UDL and Universal Design for Assessment (UDA) in mind. The disabled students noted benefitting from the clear organization of the content, the self-assessments built in to monitor their learning and progress, detailed rubrics, and the plain language used throughout the course. The results also highlighted the heterogeneity of disabled students' experiences. For instance, the online components of the course supported organization and other executive functioning skills of one participant while it caused difficulty for the other two participants - one who preferred print materials and one who was overwhelmed by the complexity of digital submissions. All three students noted that they studied alone despite the design of social interaction.

Another line of research has focused on faculty knowledge of UDL and perceptions of the challenges and opportunities of adopting UDL (Gladhart, 2009; Hartsoe & Barclay, 2017; Izzo et al., 2008; Oyarzun et al., 2021). For instance, Gladhart (2009) found that most online faculty had disabled students in their courses but only 13.8% of participants were aware of and had implemented UDL in their online courses. More recently, Oyarzun et al. (2021) found that barriers to the implementation of UDL principles in online learning included competing priorities, technological barriers, lack of leadership support, and a lack of time. They found that faculty were motivated to incorporate UDL when they believed it would improve student engagement and when

they understood how UDL principles align with best practices for teaching and learning. They also found that faculty valued professional development about UDL and specifically the application to online environments.

Other lines of inquiry have focused on the impact of UDL-related faculty development training (Davies et al., 2013; Levicky-Townley et al., 2021). For instance, Levicky-Townley et al. (2021) found that incorporating UDL into online learning activities helped to support students' attention, reduce distraction, increased relevance of the content, and played a role in shifting students' beliefs about the content topic. This line of research is addressed more later on in this paper.

Other studies describe the development of a course designed with UDL in mind. For instance, Evmenova (2021) emphasized the systematic and iterative proactive design process used to create an online graduate course about UDL for in-service teachers. Evmenova (2021) used a mixed-methods study to explore in-service teachers' interactions with UDL components, their recognition of UDL components in the course, and their perceptions of the importance of designing with UDL in mind. Results demonstrated that participants used and were appreciative of the multiple means of engagement, representations, and action/expression. Rao (2021) described how to apply the UDL Design Cycle (Rao & Meo, 2016) to online learning experiences, including the importance of reporting how UDL was used in the design and any impact it may have had on student outcomes. Research of this kind intends to translate the broad UDL principles into a more systematic instructional design process.

Finally, to a lesser extent, some researchers have focused on instructional designers' perceptions of UDL (Singleton et al., 2019; Xie et al., 2021b). This research,

which will be discussed later in greater detail, suggests that instructional designers have varying levels of commitment to and knowledge about UDL and are limited by a lack of agency and ownership over online courses (Singleton et al., 2019). Recent research has found that advocating for accessible online course design may cause tension in the relationship between faculty and instructional designers due to faculty's misconceptions about disability and a resistance to change teaching methods (Xie et al., 2021a). Research suggests that COVID-19 has shifted instructional designers' roles from meeting legal and standard minimums to more advocacy for intentional, proactive multimodal design strategies including UDL.

### Critiques of Universal Design for Learning

As with any framework, UDL is not without its critiques. UDL is sometimes criticized for overselling the positive outcomes without empirical evidence of its effectiveness (Boysen, 2021). Research on UDL, as mentioned above, is limited. This is in part due to varying definitions and implementations of UDL (Fornauf & Erickson, 2020). Common critiques focus on workload and the lack of time and resources available (Lowenthal & Lomellini, 2022; Oyarzun et al., 2021; Singleton et al., 2019). For instance, some see UDL as calling for instructors to tailor content to individuals almost as a form of personalized learning (Boysen, 2021). Others see UDL as requiring instructors and designers to provide all content in multiple formats (Boysen, 2021). Some also believe that more experimental design research is needed to demonstrate that UDL actually increases student learning outcomes (Boysen, 2021; Roberts et al., 2011). Boysen (2021) in particular argues that research should demonstrate how UDL increases learning more effectively than other standard teaching practices (e.g., active learning).

## UDL and Other Emerging Equitable Course Design Frameworks

UDL is not the only framework focused on equitable, accessible, and inclusive online learning. In fact, UDL does not focus specifically on online learning. Rather UDL provides a framework to think about making all education, in any format, accessible for all. Further, UDL has significant overlap with general good teaching practices (Rogers & Gronseth, 2021; Schelly et al., 2011; Wynants & Dennis, 2017). For instance, UDL checkpoint 8.3 of "fostering collaboration and community" has been found to overlap with the Community of Inquiry framework (Rogers & Gronseth, 2021). UDL has also been linked to active learning teaching strategies because both focus on promoting student-centered interactive course designs (Rogers & Gronseth, 2021).

Over the last few years researchers and educators —often focused on the broader areas of diversity, equity, and inclusion (DEI) and/or quality online learning—have leveraged UDL to create or to be combined with other frameworks. For instance, Gamrat (2022) recently wrote about "Inclusive ADDIE" as a type of DEI pedagogy." However, as online learning has grown, dozens of frameworks or standards have been created to help online educators create quality online learning (Baldwin et al., 2018; Baldwin & Trespalacios, 2017; Lowenthal & Davidson-Shivers, 2019). Most of these are not focused solely on accessibility, however, the recent one's focus to some degree on accessibility (Baldwin & Ching, 2021; Lowenthal et al., 2021).

Increasingly, UDL is recognized as a framework for designing quality online learning (Evmenova, 2021). For example, Baldwin and Ching (2019) found that 25 out of the 33 criteria in the Canvas Course Evaluation Checklist (CCEC) referenced UDL guidelines. The Illinois Online Networks' Quality Online Course Initiative (QOCI)

encouraged designing a multitude of ways for learners to demonstrate knowledge, a key UDL principle (Baldwin et al., 2018). Lowenthal et al. (2021) analyzed thirteen quality rubrics and found that the Open SUNY Course Quality Review Rubric (OSCQR) was the most comprehensive rubric in terms of accessibility. OSCQR was also the only quality assurance rubric to incorporate accessibility throughout the framework instead of in one dedicated section (Lowenthal et al., 2021). This mirrors Singleton et al.'s (2019) recommendation to incorporate accessibility-related content into all aspects of faculty development initiatives instead of tacking it on at the end of the course design process. Several rubrics including OSCQR and the Quality Matters (QM) Rubric use terminology such as *usability* and *diverse learners* to move away from the stigma associated with accessibility and accommodations (Lowenthal et al., 2021; Tobin & Behling, 2018). While the use of quality rubrics grounded in UDL principles might help spread awareness, researchers caution course designers from viewing accessibility or UDL as a means of compliance or with a check-box mentality that reduces the complexity of the design process (Lowenthal et al., 2021).

Numerous quality online course design attributes cited in the research align with UDL. For example, the UDL checkpoint of providing appropriate goal-setting opportunities aligns with faculty, students, and instructional designers' mention of the importance of regularly scheduled deadlines and clear instructions for meeting objectives (Black et al., 2014; Lenert & Janes, 2017). Lenert and Janes (2017) also identified other quality attributes including encouraging collaborative peer projects, which parallels the UDL checkpoint of encouraging collaboration and a sense of community (CAST, 2022a). All of the quality rubrics evaluated by Baldwin et al. (2018) shared common criteria

including intuitive navigation, an important feature noted by students in online learning (Black et al., 2014). Additionally, disabled students reported increased satisfaction with college courses that presented materials in multiple formats, another core UDL principle (Roberts et al., 2011). Overall, research showed that attributes of high-quality courses as cited by students with and without disabilities paralleled the principles of Universal Design for Instruction (Roberts et al., 2011).

## Responsibility for Creating Accessible and Inclusive Online Courses

As online learning grows and faculty encounter a more increasingly diverse student body, faculty are slowly becoming more knowledgeable about the importance of accessible and inclusive online courses. However, a recurring question in the literature is who is responsible for creating accessible and inclusive online courses (Linder et al., 2015).

### Faculty

Faculty are typically hired for their subject matter expertise. Many, if not most, have never taken formal coursework on how to teach (Linder et al., 2015; Izzo et al., 2008). Even faculty with some formal or informal pedagogical training might have little experience designing online courses and often have limited experience designing accessible and inclusive online courses (Linder et al., 2015; Izzo et al., 2008).

Research shows that faculty who align with the social model of disability were more likely to engage with disabled students to find collaborative ways to meet their needs, regardless of disability or medical documentation (Ginsberg & Schulte, 2012; Nieminen & Pesonen, 2020). Faculty who aligned with the medical model of disability tended to support offering accommodations only to students with appropriate

documentation and felt that too many accommodations could be unfair to other students (Ginsberg & Schulte, 2012; Harris et al., 2019).

### Faculty knowledge and attitudes

Faculty report varying knowledge and perceptions of accommodations and inclusive design strategies in higher education (Oyarzun et al., 2021). Faculty tend to have limited knowledge regarding related laws, institutional services, and effective pedagogies and course design for disabled students (Singleton et al., 2019; West et al., 2016). However, research also shows that more exposure and awareness of training could improve faculty's confidence and willingness to create inclusive learning spaces (West et al., 2016).

One common strategy to assess faculty attitudes is to administer the Inclusive Teaching Strategies Inventory (ITSI) (Hartsoe & Barclay, 2017; Lombardi et al., 2011; West et al., 2016). The ITSI includes 31 items that measure six constructs including (1) Multiple Means of Presentation, (2) Inclusive Lecture Strategies, (3) Accommodations, (4) Campus Resources, (5) Inclusive Assessment, and (6) Accessible Course Materials (Lombardi et al., 2011). The ITSI is intended to evaluate both attitudes and actions related to UD strategies. Research using this instrument has shown that women and faculty teaching in an Education Department typically report more confidence and knowledge related to UD (Dallas et al., 2014; Izzo et al., 2008). Researchers posit that education faculty may have more UD-related training due to the legal requirements in K12 teaching. These faculty are also trained in quality pedagogy and may have had more interactions with disabled students in the K12 environments (Izzo et al., 2008). Additionally, research indicated that while faculty have positive attitudes toward

inclusive instructional practices, they do not always implement such practices in their teaching (Lombardi et al., 2011). Research leveraging the ITSI also revealed that some faculty view accommodations including providing presentations, notes, extended time, and alternative exam formats are viewed by faculty to compromise the course's rigor and standards (Lombardi et al., 2011).

Research suggests that faculty development efforts need to address the underlying view that faculty hold of disabled students before addressing UD (Ginsberg & Schulte, 2012). Aligning their course design with the social model of disability and social constructivism could provide a solid foundation for the empathy and flexibility that is needed to improve quality, accessibility, and learning outcomes for all learners, including those with disabilities (Ginsberg & Schulte, 2012; Rogers & Gronseth, 2021).

### Faculty training and implementation

Research has found that accessibility training for faculty varies significantly across institution types (Garrett et al., 2021). Garrett et al. (2021) posited that these differences are likely due to four-year institutions having more assistance from instructional designers and third parties to reduce the need for faculty accessibility training (Garrett et al., 2021). However, the extent of instructional designers' knowledge and skills in accessibility and inclusive design remains to be examined thoroughly in the literature.

Research shows that while most faculty support accessible and inclusive design and teaching strategies, intentions do not always translate into action (Dallas et al., 2014; Lombardi et al., 2011; Rao & Tanners, 2011; Schelly et al., 2011; Shpigelman et al., 2021; Singleton et al., 2019). One theory is that there is confusion over what exactly a

UDL or inclusive teaching/design strategy entails (Gladhart, 2009; Izzo et al., 2008; Singleton et al., 2019).

However, familiarity and implementation of inclusive design strategies have been growing in recent years (Linder et al., 2015). In one study, Linder et al. (2015) found that some form of UDL training was occurring at 13 of the 20 campuses interviewed. Training may vary from just-in-time resources to individual consultations with DSO staff or instructional designers, to one-time workshops, to courses about inclusive design strategies (Linder et al., 2015). The result is that most online faculty involved in course design are familiar with at least one UDL guideline (Westine et al., 2019).

In another study, Westine et al. (2019) found that faculty were most familiar with guidelines related to comprehension, expression, and communication and least familiar with strategies for physical action, language, and support. They also found a moderate to high interest in learning more about UDL, especially strategies related to sustaining effort and persistence, comprehension, and expression and communication (Westine et al., 2019). This aligns with other research that has shown that faculty are interested in inclusive design but require training to effectively implement UD-related strategies (Izzo et al., 2008). Westine et al. (2019) also found that most faculty familiar with UDL reported a high to moderate level of implementation as well.

Research shows that even a few hours of training on accessible and inclusive design strategies can result in faculty implementing some strategies in their courses (Dallas et al., 2014; Schelly et al., 2011; Wynants & Dennis, 2017). For instance, Wynants and Dennis (2017) created an online disability awareness program in collaboration with faculty, the faculty development center, and the DSO to help faculty

understand the needs of disabled students and how to integrate the principles of UDI into their courses. Pre and post-training surveys revealed less discomfort interacting with disabled students, an increase in knowledge of disabled students, and UDI principles, and an increase in confidence and willingness to apply UDI principles. This aligns with earlier research demonstrating faculty's self-assessed increase in UDL knowledge after training (Izzo et al., 2008). In addition, the faculty learned to recognize the usefulness of UDI and how the integration of inclusive design strategies can benefit all learners. In fact, the majority (seven out of 10) of the faculty interviewed made their courses more accessible. The results align with the idea that faculty are eager to address issues of accessibility and inclusivity but may feel overwhelmed due to a lack of knowledge (Linder et al., 2015; Singleton et al., 2019).

In another study, faculty received UDL training tailored to both the faculty and students' perceived gaps in UDL knowledge and skills. After the training, students reported significant changes in presenting content in multiple formats and summarizing key concepts before and after instruction (Schelly et al., 2011). When faculty summarize information, it provides multiple means of representation and can engage students in the learning, both important aspects of UDL (Schelly et al., 2011). It is important to note that the UDL framework in this study was centered around the needs of disabled students while equating UDL with good teaching practices in general (Schelly et al., 2011).

In a follow-up study, Davies et al. (2013) improved on the research design of Schelly et al. (2011) to measure the effectiveness of UDL training by including a control group The results demonstrated that UDL training for faculty significantly impacted students' perceptions of instruction. Students perceived that faculty who were trained in

UDL presented materials in multiple formats, aligned key concepts to the course objectives, provided outlines, summarized materials, used videos, and used organized and accessible materials. The results also highlighted the impact of positive student-faculty interactions on student engagement and achievement. The researchers emphasized that UDL strategies are largely dependent on effective communication.

Data like this reiterates the need for support and resources to assist faculty in meeting the needs of diverse learners. Research shows that a collaborative course design effort between faculty and instructional designers leads to more student engagement (Chao et al., 2010; Chen & Carliner, 2021; Lenert & Janes, 2017; Richardson et al., 2019; Xu & Morris, 2007). Thus, if instructional designers are more knowledgeable with UDL principles, they could be well-positioned to support faculty and diverse learners (Lomellini & Lowenthal, 2022; Ritzhaupt & Kumar, 2015).

## Instructional Designers

While inclusive design initiatives - and related research - often originate from DSOs, instructional designers are also well-positioned to advocate for equitable course design strategies (Tobin & Behling, 2018).

### Evolving Instructional Designer Competencies

The field of instructional design in many ways grew out of the need for military training during World War II (Larson & Lockee, 2014). Since World War II, the role of instructional designers has evolved significantly (Klein & Kelly, 2018). What started as a field with a narrow focus on media and designing instruction has blossomed into a multifaceted role that leverages technology during systematic design processes to improve learning (Klein & Kelly, 2018).

Over the years researchers have focused on creating and/or identifying instructional designer competencies to be able to highlight what instructional designers need to know and be able to do (Klein & Kelly, 2018). For example, the International Board of Standards for Training, Performance, and Instruction (IBSTPI) outlined 22 competencies for instructional designers that fall into the domains of professional foundations, planning and analysis, design and development, evaluation and implementation, and management (IBSTPI, 2012). One competency under the Professional Foundations domain encourages practitioners to respond to ethical, legal, and political design implications (IBSTPI, 2012), which may be extrapolated to include inclusive design.

The Association for Talent Development (ATD) began research in 1978 on the competencies of training and development professionals (North et al., 2021). ATD's Talent Development Capability Model contains 23 capabilities in three categories of building personal capability, developing professional capability, and impacting organizational capability (ATD, 2022). ATD's model emphasizes the importance of integrating diversity and inclusion principles (ATD, 2022a) while leveraging cognitive sciences and strategies for increasing motivation (ATD, 2022b), which are foundational to UDL.

Despite mentions of inclusive design strategies in professional organizations' models of ID competencies and capabilities, we contend that research often overlooks the instructional designers' roles and responsibilities when it comes to accessible and inclusive course design. For instance, a mixed-methods study on IDs' competencies from an employers' perspective identified the most frequently listed competencies. Of the

identified ID competencies, none focused on accessibility or inclusive design (Klein & Kelly, 2018). Likewise, other scholarly work defining the roles and competencies of IDs has not focused on or identified accessibility skills and knowledge of inclusive design strategies (Kumar & Ritzhaupt, 2017; Ritzhaupt et al., 2021).

Only a few studies mention accessibility-related competencies for instructional designers. An analysis of job postings and survey data from educational technologists focusing explicitly on multimedia competencies briefly noted knowledge of accessibility software (e.g., JAWS); however, it was one of the lowest-rated competencies (Ritzhaupt et al., 2010). Ritzhaupt et al. (2010) also found that accessibility knowledge (e.g. Section 508) was mentioned in only 6.83% of job postings. Likewise, another analysis of 400 job announcements found extremely limited mentions of accessibility software and accessibility knowledge in general (Kang & Ritzhaupt, 2015). Park and Luo (2017) proposed a more recent refined ID competency model specifically tailored to the context of online higher education. Their model, based on research at one institution, mentioned analyzing diverse learners' needs and assessing and remediating courses for accessibility as performance statements under the planning and analysis domain (Park & Luo, 2017). These findings illustrate a gap in the literature and an opportunity for instructional designers to lead change in higher education by advocating for and implementing accessible and inclusive online design strategies. More research needs to be conducted given the increasing momentum of diversity, equity, and inclusion efforts in today's society.

While there is limited information about IDs accessibility and inclusive design-related competencies, researchers agree that effective collaboration, superb

communication, and the ability to facilitate innovations in teaching and learning are core competencies (Kang & Ritzhaupt, 2015; Klein & Kelly, 2018; North et al., 2021; Ritzhaupt et al., 2021). In addition, scholars suggest that implementing, managing, and leading change is critical to IDs' roles in higher education (Ritzhaupt et al., 2021). In that vein, we posit that instructional designers are well-positioned to respond to the call to meet the needs of faculty and diverse learners through inclusive design strategies; however, research shows that IDs have varying levels of knowledge and experience designing for diverse learners. This presents an opportunity for instructional designer preparatory programs to develop curricula to address the gap in IDs' knowledge and skills related to accessible and inclusive design.

### IDs' perspectives and implementation of inclusive design

Research into IDs' perspectives and implementation of inclusive design strategies in the online course development process is limited. Much of the research includes practice briefs and case studies (Dinmore, 2019; Evmenova, 2021; Rao, 2021), experiences of faculty course designers (Oyarzun et al., 2021; Rao & Tanners, 2011), and position papers (Gronseth, 2018).

Only one qualitative case study identified specifically focused on instructional designers' perspectives about the integration of UDL and faculty perceptions of UDL (Singleton et al., 2019). The data revealed that instructional designers work hard to create a trusting relationship with faculty. The IDs noted that faculty were overwhelmed by their ever-increasing responsibilities, lack of experience teaching online, and lack of technical skills. These were seen as barriers impacting faculty adoption of UDL.

In addition, research suggests that faculty can be resistant to changing their approach to the accommodation process (Singleton et al., 2019). As a result, some IDs feel that advocating for UDL strategies could jeopardize their relationship with faculty. In Singleton et al. (2019), IDs describe how terms like *UDL* and *accessibility* tend to scare away faculty. The IDs in this study also expressed an institutional resistance to online course development. They purported that faculty believe students should learn the way the faculty were taught (i.e. face-to-face lectures). IDs themselves were found to have varying levels of commitment to UDL implementation and knowledge of UDL principles. IDs mentioned an inability to enforce inclusive design practices and a lack of administrative enforcement. This is consistent with the call for more institutional support for inclusive design strategies (Burgstahler, 2006; Gladhart, 2009; Linder et al., 2015; Tobin & Behling, 2018).

Researchers also suggest reframing UDL in terms of improving student success, learning outcomes, and teaching evaluations as opposed to disability-focused language. This is consistent with suggested approaches by other researchers (Tobin & Behling, 2018). While additional research needs to be conducted, there is limited data that online courses are not fully utilizing the available accessibility features of learning management systems (Elias, 2010).

## Conclusion

The dramatic rise in online learning presents a challenge - but also an opportunity - to reexamine online course design to ensure that it meets the needs of all learners, including disabled students (Kent, 2016; Fichten et al., 2009; Roberts et al., 2011; Satterfield et al., 2015). However, fully supporting disabled students in their pursuit of

online higher education will require a shift from a medical mindset to a social model of disability (Dolmage, 2017; Ginsberg & Schulte, 2012; Tobin & Behling, 2018). This shift will require a collaborative effort from all parties involved, including students, faculty, instructional design teams, and institutions.

This shift would acknowledge the dynamic nature of disability across interactions, celebrate diversity, and embrace difference as the norm (Ginsberg & Schulte, 2012). To move in this direction, institutions need to anticipate learner variability and proactively create accessible and inclusive online courses (Meyer et al., 2014).

Research suggests that buy-in from leadership, faculty, and instructional designers is essential to facilitate such a cultural shift (Burgstahler, 2006; Gladhart, 2009; Linder et al., 2015). For many institutions, there is no designated point person for online accessibility, but rather responsibilities are split among different offices (Linder et al., 2015). This confusion adds to the frustration expressed by students, faculty, and instructional designers about where to turn for support and assistance (Izzo et al., 2008). Research indicates a need for institutional policies and procedures to help ensure support and clear guidance (Gladhart, 2009; Izzo et al., 2008; Linder et al., 2015; Tobin & Behling, 2018). More recently during COVID-19 and the rapid shift to remote learning, technology enhancements became a priority, leaving digital accessibility often overlooked (Anderson, 2020; Garrett et al., 2021). Researchers and practitioners call for adequate training and ongoing support for faculty and course designers in inclusive design strategies (Tobin & Behling, 2018). Resources and training have been proven to help increase faculty and instructional designers' awareness and skills (Dallas et al., 2014; Izzo et al., 2008; Lombardi et al., 2011; Schelly et al., 2011; Wynants & Dennis,

2017). However, the delegation of responsibility remains a persistent barrier (Linder et al., 2015). Preliminary research demonstrates that instructional designers have the technical skills and emerging knowledge to collaborate with faculty to create inclusive learning experiences (Lowenthal & Lomellini, 2022).

Despite the rise in the prevalence of instructional designers in institutions of higher education (Larson & Lockee, 2014), there is a gap in the literature about accessible and inclusive online course design from the instructional design team's perspective (Singleton et al., 2019). Instructional designers are in a unique position to lead the charge of incorporating accessible and inclusive design strategies in online higher education and garnering faculty and administrative buy-in. Further research needs to be conducted to explore how or if instructional designers are prepared for this challenge.

Unfortunately, varied terminologies, purposes, research methods, and applications of inclusive design strategies in the literature create barriers to the successful implementation and research of inclusive design strategies (Hartsoe & Barclay, 2017; Rao et al., 2014). For instance, terms such as Universal Design for Learning (UDL), Universal Instructional Design (UID), and Universal Design of Instruction (UDI) are often used interchangeably (Rao et al., 2014). The confusion over terminology presents a problem for researchers trying to replicate studies or use research to implement UD-based strategies. Research often lacks key details, such as the disability status of participants, or lacks disabled participants altogether (Nieminen & Pesonen, 2020). In addition, a significant portion of the available research is focused on a disability services point of

view and faculty's experiences making accommodations for individual students (Gladhart, 2009; Tobin & Behling, 2018).

There are several opportunities for future research but the following are a few that immediately stand out:

- Develop consistent descriptions of UDL in practice (see Fornauf & Erickson, 2020)
- Investigate perspectives of disabled scholars and students (Dolmage, 2017)
- Clarify roles and responsibilities of IDs and leaders (Linder et al., 2015; Singleton et al., 2019)
- IDs perspectives on using UDL in online learning (Rogers & Gronseth, 2021)

# CHAPTER THREE: STUDY 2 - HIGHER EDUCATION LEADERS' PERSPECTIVES OF ACCESSIBLE AND INCLUSIVE ONLINE LEARNING



Enrollments in online higher education courses and programs have continued to grow over the last 2 decades. This has resulted in an increasingly diverse student body taking online courses. In particular, a growing number of disabled students are choosing to learn online these days (De Los Santos, 2019). The flexibility of learning online can help disabled students mitigate the effects of symptoms, medications, and physical barriers on campus (e.g., poor acoustics in lecture halls for students with hearing disabilities or long distances between buildings for students with mobility issues) (Bartz, 2020; Kent, 2016). However, online learning also has the potential to present barriers to student learning outcomes (Kent, 2016; Nieminen & Pesonen, 2020). For instance, inaccessible digital materials (e.g., documents that are not designed for compatibility with assistive technologies) and the unorganized presentation of content can halt academic progress for students who rely on assistive technology or who have learning, attention, or focus disabilities (Bartz, 2020; Fichten et al., 2009). The COVID-19 pandemic, and the rush to move courses online, further exposed barriers like these (Anderson, 2020;

Burgstahler, 2022). On the other hand, courses intentionally designed for accessibility help disabled students meet their academic goals (S. Burgstahler, 2015).

Confronted with the reality that online learning might not be meeting the needs of disabled students, institutions of higher education and online learning leaders—that is, those in charge of managing online learning on campuses—in particular, have recently increased their attention on providing accessible and inclusive online courses (Fenneberg, 2022; Lewicki-Townley et al., 2021; Oyarzun et al., 2021). However, questions remain about what institutions of higher education and online learning leaders are actually doing to provide accessible and inclusive online learning and whether it is enough (Garrett et al., 2021; Linder et al., 2015). Given this and the importance of helping all students succeed in learning online, we set out to explore online learning leaders' perspectives on accessible and inclusive online learning in higher education. In the following paper, I present the results of our inquiry and its implications for research and practice.

## Background

Traditionally, institutions of higher education have thought of disability in medical terms. A medical model of disability conceptualizes disability as a person's lack of ability to do something due to a health concern (World Health Organization, 2011). Thinking of disability in this way led institutions to adopt the practice of requiring students to disclose their disability before any accommodations of support could be identified (Dolmage, 2017). Accommodations often include extra time on tests, separate testing locations, alternative formats of instructional materials, and/or the use of assistive technology (Ketterlin-Geller & Johnstone, 2006). This approach, though, can be confusing and stigmatizing to disabled students who may face doubt, suspicion, and a

lack of understanding from faculty and their peers (Cook et al., 2009; Harris et al., 2019; Sarrett, 2017), as well as time-consuming and costly (Harris et al., 2019). For reasons like these, many students prefer not to disclose their disability at all, leaving institutions of higher education struggling to understand and meet their needs (Izzo et al., 2008; McAndrew et al., 2012; Roberts et al., 2011; Schelly et al., 2011).

More recently, society and institutions of higher education specifically have begun to conceptualize disability and diversity differently. Among other ideas, institutions are now seeing value in approaching accessibility proactively rather than retroactively (Lomellini & Lowenthal, 2022; Seale, 2020). However, there is still considerable debate about the best ways to do this and whose job it is to ensure online courses in particular are designed with accessibility in mind (Linder et al., 2015; Singleton et al., 2019). Faced with this, online learning leaders have begun looking for scalable institutional investments, including faculty development initiatives and instructional design support, to support campus-wide cultural shifts toward proactive accessible and inclusive course design strategies (Burgstahler, 2022; Westine et al., 2019). Cultural shifts never happen easily. Research suggests that a collaborative approach among students, faculty, instructional designers, disability services providers, administrators, and leaders is needed to improve accessibility at institutional levels (S. Burgstahler, 2015; Gladhart, 2009; Oyarzun et al., 2021). Resources and training can help increase faculty and instructional designers' awareness and skills while policies and procedures can identify clear responsibilities and support structures (Gladhart, 2009; Izzo et al., 2008; Linder et al., 2015; Xie & Rice, 2021).

Online learning has the potential to improve access to higher education for all learners, including disabled students (Black et al., 2015; Burgstahler, 2022; Satterfield et al., 2015). However, reducing barriers for disabled students in online learning involves buy-in from leadership and an institutional paradigm shift to support proactive accessible and inclusive course design initiatives (Burgstahler, 2022; Seale, 2020). Previous studies about accessible and inclusive online learning have examined the perceptions of faculty (Westine et al., 2019), students (Bartz, 2020), and to a lesser degree, instructional designers (Singleton et al., 2019; Xie, A, Rice et al., 2021a), but few studies have addressed online learning leaders' perceptions (Garrett et al., 2021). Leaders are uniquely situated between instructional designers doing the hands-on work with faculty and administrators setting institutional priorities and planning. Thus, this study sought to address the gap in the literature by exploring how online learning leaders perceive the challenges and opportunities related to accessible and inclusive online learning at their institutions.

## Method

While many online learning leaders acknowledge that online accessibility needs to be a priority (Linder et al., 2015; Garrett et al., 2021), research has shown that a lack of clear policies, responsibilities, professional development, and stakeholder buy-in can hinder effective accessibility and inclusion efforts (Burgstahler, 2022; Linder et al., 2015; Singleton et al., 2019). What remains unclear is how online learning leaders are addressing these issues and how they perceive the barriers and strategies related to inclusive online course design at their institutions.

Given the aforementioned problems and the lack of literature on this topic, the purpose of this qualitative study was to understand online learning leaders' perceptions of providing an increasingly diverse student body accessible and inclusive online learning experiences. This study sought to answer the following research questions:

1. What are leaders' perceptions of the current state of institutions' ability to provide accessible and inclusive online learning?
2. How are institutions providing accessible and inclusive online learning experiences?

## Research design

We used a qualitative research design with semi-structured interviews to answer the research questions (see Appendix A). Qualitative research is helpful to understand complex stories of individuals' lived experiences (Creswell & Poth, 2018). Additionally, qualitative research can help challenge traditional assumptions (Creswell & Poth, 2018). In this case, digital accessibility issues are often assumed to be the concern of disability services and faculty (Tobin & Behling, 2018). This study investigated this assumption by exploring the role of online learning departments in accessible and inclusive online learning.

## Positionality

It is important to note that I identify as a disabled person, researcher, student, instructional designer, and more recently, associate director of online learning at an institution of higher education. This study was conducted using the theoretical lens of disability inquiry studies, which empowers disabled people rather than focusing on biological constraints (Creswell & Poth, 2018). In particular, the study was informed by

the diversity model of disability, which celebrates disability pride and the social model of disability, in which accessibility is viewed as a shared social responsibility instead of an individual's problem. Through this lens, meeting the needs of disabled students can shift toward a proactive, collaborative venture to address barriers in online learning instead of attempting to "fix" students' bodies. To counteract potential bias in this study, I used strategies such as providing participants with the transcript to check that their intentions were accurately conveyed, remaining neutral during interviews, collaborating with other researchers, and reporting all views, including dissenting opinions.

We use disability-first language (i.e., "disabled students'students") to celebrate disability pride (Andrews et al., 2022), to align with the disability community's movement of reclaiming historically dehumanizing terms as a means of empowerment (Vivanti, 2020), and to reflect the cultural preferences certain group's (i.e., "Deaf students' students" and "autistic students'students") cultural preferences (Dunn & Andrews, 2015; Sarrett, 2017). We recognize that language is continuously evolving and that preferences vary in the diverse disability community.

Sample and context

Nearly every college or university offers some courses and programs online (Garrett et al., 2021). However, the resources and support available to create online courses and programs vary by institution in the United States of America (Garrett et al., 2021). On one end of the continuum are institutions like the University of Central Florida and Arizona State University that have dozens of staff dedicated to offering courses and programs online; on the other end of the continuum are small liberal arts colleges that might not employ any instructional designers. Given the lack of literature and the

exploratory nature of this study, we employed a maximum variation sampling strategy to gather data and perspectives from a diverse sample (Creswell & Poth, 2018). We were interested in identifying common themes despite variation (Patton, 2002).

To maximize sample variation, I used LinkedIn and institutional websites to search for the titles "Director of Online Learning" and "Director of Instructional Design." I recorded institution size according to the Carnegie classification of institutions of higher education: small (full-time equivalent enrollment of 1,000–2,999), medium (full-time equivalent of 3,000–9,999), and large (full-time equivalent of at least 10,000) (American Council on Education, 2022). After obtaining Institutional Review Board approval, I sent recruitment emails to leaders. Ultimately, nine participants, representing three large institutions, four medium-sized institutions, and two small institutions of higher education responded and were interviewed. Participants had an average of 4 years of experience in their current role (range: 2–9.5 years) and an average of nearly 18 years of experience in additional roles in education including management, instructional design, and teaching (range: 10–30 years). Three participants held doctoral degrees (Doctor of Philosophy or Doctor of Education), five held master's degrees, and one participant's degree is unknown.

Data collection

The semi-structured interviews were conducted via Zoom. Research has shown that participants in virtual interviews report positive feedback because visual cues from researchers remain similar to face-to-face interviews (Mirick & Wladkowski, 2019). I followed a semi-structured protocol to ensure consistency throughout the different interviews. This protocol was originally tested and refined during a pilot study with an

online learning leader. The interviews included questions such as “What barriers do institutions face with providing accessible and inclusive online learning experiences?” and “What strategies is your institution, or other institutions, using to provide accessible and inclusive online courses?” (See Appendix A for the full protocol.) I also maintained a journal to take notes during and after the interviews to reflect on the themes that arose.

Data analysis

The interviews were transcribed, edited for accuracy, and imported into NVivo for coding and qualitative analysis. To analyze the interview data, I read the transcripts several times to become familiar with the data presented. Then, I used NVivo to organize the data and coding process. While it can be difficult to decide what constitutes a piece of data to analyze when coding, ultimately we allowed the data to tell the story (Chenail, 2012). We focused on the themes and natural chunks that emerged from the data as opposed to a line-by-line analysis (Elliot, 2018). I used Miles et al. (2020) iterative, cyclical qualitative data analysis model to analyze the data. During the first cycle of coding, chunks of data were summarized. Then, during the second cycle of coding, the summaries were grouped together to create themes or pattern codes to demonstrate relationships and meaning. I frequently consulted with the other researchers to discuss themes.

Reliability, validity, and trustworthiness

The interviews were semi-structured and followed a consistent protocol to increase reliability (Fowler & Cosenza, 2009). Transcripts were presented to participants to verify accuracy and help maintain credibility and increase trustworthiness (Creswell & Poth, 2018). This strategy helped to ensure that participants felt the transcript was an accurate representation of their thoughts on the topic. The use of leaders from various institutions helped provide alternative perspectives (Creswell & Poth, 2018). I also reflected on her my role and positionality throughout the interviews and data analysis to further ensure transparency and trustworthiness. We collaborated to discuss the emergent

themes and reflect on the research process to minimize potential bias and increase credibility. We included the interview protocol in this report to increase transparency.

## Results

It became clear from interviewing online learning leaders that from their perspective, institutions are making progress toward providing students with more accessible and inclusive online courses, however institutions still remain hindered by varying conceptualizations of terminology, lack of clear responsibilities, and a lack of support from senior leadership. At the same time, online learning leaders felt positioned as advocates to fight for the necessary buy-in, resources, and tools to support accessibility and inclusion initiatives. The central theme that emerged from the data was a sense of urgency to capitalize on growing awareness, but frustration with current barriers preventing a cultural shift to fully supporting accessible and inclusive online learning. We identified five themes (see Table 3.1), which we discuss in greater detail as they relate to the research questions in the rest of this section.

**Table 3.1. Themes and descriptions of higher education leaders' perspectives of accessible and inclusive online learning**

| Theme | Description |
|---|---|
| 1. Varying conceptualizations of accessible and inclusive online learning | Participants understand accessible online learning as the technical requirements that meet standards and laws but see inclusive online learning as a newer idea of creating a learning environment that is accessible but also welcoming to all learners. |
| 2. Insufficient but growing emphasis on accessibility and inclusivity | Participants felt that institutions do not currently place enough emphasis on providing accessible and inclusive online learning, but it is becoming more of a priority. They generally felt that the field is doing better in this area, but there is still room to grow. |
| 3. Instructional designers possess the knowledge and skills, but lack the agency to enact change | While participants generally viewed instructional designers as being the most knowledgeable and skilled, they felt hindered by a lack of agency because faculty were ultimately responsible for online course content. |
| 4. Online learning leaders are advocating for buy-in and support | Participants positioned themselves as advocates who need to obtain buy-in and prioritize accessibility and inclusivity. When speaking with senior administrators, participants emphasized retention, recruitment, and litigation. With faculty, participants focused on student experience and relied on top-down support. |

| Theme | Description |
|---|---|
| 5. Instructional designers use faculty development, quality standards, and accessibility checkers to support faculty | Given IDs' consultative role, participants focused efforts on faculty training, quality assurance standards, and accessibility checker tools to support faculty in designing accessible and inclusive online courses. |

What are leaders' perceptions of the current state of institutions' ability to provide accessible and inclusive online learning?

Theme 1: Varying conceptualizations of accessible and inclusive online learning

We began the interviews by asking participants about their definition of "accessible and inclusive online." Generally speaking, participants viewed accessible and inclusive online learning as designing learning experiences and instructional materials for the widest possible audience to meet educational objectives regardless of disability, preference, need, or background.

When discussing accessible and inclusive online learning, participants frequently mentioned universal design for learning (UDL). In fact, they discussed the need for institutions to take a proactive approach to course design (e.g., using UDL) to meet the needs of students who do not disclose their disabilities or needs but also highlighted the importance of reducing barriers for all learners. For instance, one person stated:

> *"[If] everything is built with universal design in mind, then you're not going to have to do too much if someone like needs a special accommodation, or they may not even need a special accommodation."*

Online learning leaders, though, differentiated between accessibility and inclusivity. They viewed accessibility as the "nuts and bolts" or technical requirements (e.g., captions,

transcripts, alt text) related to course design. Meeting accessibility requirements was also viewed as "overwhelming," "daunting," and "very challenging." Accessibility was described as an older, more established, and defined topic, but less "sexy" and more challenging to get faculty engaged. Inclusivity, on the other hand, was described as "intriguing," "interesting," and a more broad but less clearly defined way of meeting the needs of all students. The differentiation between the terms is illustrated with the following quotes:

> *"[They are] two separate but kind of related things. So, I see an accessible course as one where students with learning disabilities would be able to fully participate in the course. And I see that as a subset of inclusive courses. So, an inclusive course is one that's fully accessible, but also welcoming to students from all different types of backgrounds."*

We asked participants if they believed that accessibility and inclusivity were included in diversity, equity, and inclusion (DEI). Some felt that the underlying principles were aligned, but accessibility and inclusivity may not be receiving enough emphasis due to the broader focus of DEI.

> *"I believe it has been something that has really been a focus for a long time, and so I think as DEI has kind of become more prominent in higher ED institutions and education in general, I think it was an easy success for a lot of departments to say, "oh yeah we're being inclusive because we're providing captioning on videos" or whatever that like that's an easy kind of a thing. But um, but I see those initiatives pushing things to a lot more broader audience."*

Overall, participants talked about how accessibility and inclusivity strategies are essentially ways to meet the needs of "all" learners. Participants described accessibility as being specifically for disabled students but helpful for all students. Inclusivity was perceived as a broader term, including ethnically and racially diverse students, nontraditional students, first-generation students, but often less focused on disabled students.

Theme 2: Insufficient but growing emphasis on accessibility and inclusivity

We were interested in better understanding what online learning leaders thought about institutions, both their own and others, ability to provide accessible and inclusive online learning. Three key themes emerged from the data. The overall sentiment from participants was that while interest and support are growing, whether that be due to recent lawsuits and/or the COVID pandemic, institutions are not currently placing enough emphasis on providing accessible and inclusive online courses. One participant expressed:

> *"I think that's getting better and I think the spotlight has been shone on this issue with this move to remote learning. Because I think it's become very clear that for many students, some of these accessibility features are critical for them to continue learning."*

Participants expressed a desire to improve accessible and inclusive online learning strategies at their institutions but described how administrative barriers prevent widespread adoption. One participant noted, "I think we need to do more, but don't have administrative support or not the right tools to actually do it more broadly." They went on to say, "So I think there's an emphasis in the instructional design field. It's just getting it down to faculty and administration."

Participants felt that the accessible and inclusive online learning is more of a priority within the field of instructional design. They even talked about inclusivity being an increasingly listed desired knowledge and skill area in instructional design job postings, unlike 5 years ago:

> *"I've noticed that more and more job postings specify inclusivity as like knowledge and skill ability area that somebody should have when they applied for the job. That didn't exist years ago. That definitely was not on there. I don't even know if it was 5 years ago, but it's becoming more and more common to see that listed on job postings."*

Despite perceptions of progress, participants expressed that there is more work to be done in the instructional design field as well. One participant noted that only six out of 20 recent people interviewing for online learning–related jobs "sounded like they knew something about [accessibility and inclusivity]." One leader pushed for more from the field by emphasizing the opportunity to support all students in their desire to learn by setting the expectation in the field that "every person might need to do this a little bit differently and that's okay because…there's no straight path to the answer."

Overall, participants felt that the growing emphasis presented an opportunity to capitalize on the momentum by investing in the instructional designers' knowledge and skills in this area, while advocating for increased buy-in and support from senior leadership.

### Theme 3: Instructional designers possess the knowledge and skills, but they lack the agency to enact change

When we asked participants to describe the knowledge and skills of the faculty and instructional designers at their institution, participants noted the challenge that while faculty are responsible for the content, their knowledge and skills in providing accessible and inclusive online learning were relatively low. They described how there were some "rock stars" who understood the importance and could do the work, but that there were other faculty in which accessibility and inclusivity were not "on their radar" and would need a lot of "hand holding" to do the work. Participants described the challenge to help faculty see beyond their own experiences when they would say things like, "I don't have any students like that," "My students have never needed this before," and "No student has ever asked me for this." Participants described the difficulty in convincing faculty to

learn about and implement effective accessible and inclusive practices in their online courses because faculty were often faced with competing priorities and a lack of time and resources.

Instructional designers were viewed as having the most knowledge and skills with creating accessible and inclusive online learning on campuses, but their lack of agency created a barrier to the implementation of accessible and inclusive design strategies. Participants were confident in their instructional designers' ability to design accessible and inclusive online courses. However, many talked about how their instructional designers could use more training on the "newer" concept of inclusive course design. Many participants described how they had at least one accessibility "guru" on their team. The following quotes illustrate this theme:

> *"My instructional designer is way above and beyond my skills and knowledge in accessibility, specifically. She's our guru and she can look at something and tell me what's wrong with it and what needs to be fixed and I have to dig a little bit."*

> *"I think the team is very strong right now in terms of foundational [accessibility] principles, but then we're always looking for ways to improve and learn new ways of integrating some of these ideas into our work."*

All participants expressed that instructional designers were critical in supporting the success and implementation of accessible and inclusive course design strategies regardless of official responsibility or titles. In fact, one participant described investing in one team member to become the institutional guru in this area despite accessibility not being an official part of their role:

> *"And so, we've actually kind of invested heavily in one of our staff to get a lot of training and be the main accessibility person, even though she does not have that in her title."*

Participants described how the instructional designers were doing the day-to-day work because of their knowledge and skills in this area despite not having the official

responsibility or authority over the course content. Ultimately, most participants perceived accessibility and inclusivity in online courses as the faculty's responsibility. Some participants described institutional policies and procedures (e.g., official digital accessibility policies and/or requirements in faculty's contracts) that designate faculty as responsible, while other participants described an unofficial perception that faculty should be responsible because they control the course content. Overall, most participants felt that the instructional designers at their institutions were simply there to support the faculty. One participant stated:

> *"We're not the content experts … we can't go in and make their document how they want it, but we can help them make it accessible to their students. So, at the end of the day, it's the faculty's course, the faculty is responsible for that, but we want to make the job as easy as possible."*

Another participant, though, expressed that accessibility and inclusivity should be everyone's responsibility, while yet another one felt that without a policy it was nobody's responsibility. Others felt the provost was ultimately responsible for providing accessible and inclusive online learning, but that an institution's instructional designers and Office of Disability Services were responsible for making it happen, as illustrated in the following quote:

> *"It probably ultimately falls on our VP of Academics. That's probably where the buck would stop when it came to an audit. It's probably between me and the Disability Services Director on like the day-to-day things."*

Amid the confusion about who is actually responsible, instructional designers were generally perceived as the go-to experts for accessibility and inclusivity on campus; however, participants felt that instructional designers' lack of agency prevented them from enacting effective strategies. One participant noted:

> *"For the most part, learning designers and faculty developers are in a service role and have limited purview to do more than advise and consult."*

Participants believed increasing the utilization of instructional design teams across the institution would better serve students. One participant described:

> *"Our group should be partnered with the Provost and they should be constantly turning to us and saying … 'Hey, all these faculty need you." And 'hey all you faculty, you need them. And we're not going to be okay if you don't use them.'"*

Participants felt instructional design teams were doing the work because they possess the required knowledge and skill; however, instructional designers lack the official responsibility or agency to enact the desired institutional culture shift to more accessible and inclusive online courses.

Overall, online learning leaders described accessibility as challenging and felt that it may get lost in broader inclusivity initiatives. Participants perceived the current state of accessibility and inclusivity in online higher education as an area that is gaining attention but hindered by a lack of clear responsibilities.

How are institutions providing accessible and inclusive online learning experiences?

After we had a better understanding of participants' perceptions, we wanted to know more about how their institutions were actually providing accessible and inclusive online learning.

Theme 4: Online learning leaders are advocating for buy-in and support

Online learning leaders expressed that part of their role is to communicate the importance of creating accessible and inclusive online courses to their teams, faculty, and leadership at their institution. Participants described strategies to convince stakeholders to make accessibility and inclusivity a priority and to provide ongoing support to accomplish this work. One participant stated:

> *"I'm probably the only person at the university who is tuned in to it. So, I need to be knowledgeable enough to then communicate out what we need to do as an institution."*

Participants expressed that the broad range of requirements, standards, and best practices related to accessibility and inclusivity combined with diverse student needs often paralyzed institutions and faculty and left them not knowing where to begin. To combat this, participants described strategies to convince administrators and faculty to prioritize this work.

*Administrative buy-in.* Participants described how administrators often would take an all-or-nothing approach. For instance, making all documents accessible was deemed impossible, so some administrators thought that they should not even attempt it. A participant described needing to be the "voice of reason" to get administrative buy-in and help them understand how to take smaller steps. Others noted that institutions generally want to do the right thing, but they are unclear how and instead wait until the problem presents itself.

Participants talked about how they leverage the mission, retention, recruitment, and litigation when talking with senior leadership in efforts to get administrative buy-in to prioritize accessible and inclusive online courses. The following quote illustrates this theme:

> *"The mission of my unit is to increase access to educational experiences and if you want to [recruit] more and different types of people, [accessibility and inclusivity have] to be a part of what you think about and what you do."*

Participants leveraged senior leadership to motivate faculty to accomplish the work. They talked about how with high-level support, they are better able to plan, prioritize, and meet their goals related to accessible and inclusive online courses. For instance, one school's

provost disseminated a statement about the importance and expectations of accessible online courses at the request of the online learning leader:

> *"We asked the interim Provost, could you just send a letter out laying down the law and like 'this is what's expected?' And you know, we gave him the language [to send out]. But he really added to it. So, I mean it came down like 'This is like what needs to happen.'"*

Another provost required faculty to caption their own videos and take mandatory accessibility training:

> *"We had an amazing provost … she backed us up. She actually put it in their contracts … they had to sign a piece of paper saying they would take the [accessibility training] class."*

On the other hand, one participant cautioned the top-down approach and favored "creating a parade that people would like to join versus saying you have to do this."

*Faculty buy-in.* Participants believed that faculty generally want to support students, but often feel overwhelmed by the scope and technical abilities required to design accessible and inclusive online learning. To obtain faculty buy-in, participants described the "delicate balance to be a change agent…[and how] getting folks to change depends on the person you're working with." Conversations with faculty focused less on legal aspects of accessibility and more on the student experience. "It's not just the law, it's the right thing to do" was a common talking point for participants in this study.

Overall, online learning leaders felt compelled to advocate for buy-in at all levels and believed it was within their role to advance accessibility and inclusivity at the institution.

### Theme 5: Instructional designers use faculty development, quality standards, and accessibility checkers to support faculty

Given that faculty were generally perceived by participants as responsible for online course content (either officially or unofficially), participants described how instructional design teams provide faculty development, leverage quality course design standards, and utilize accessibility checkers to facilitate the implementation of accessible and inclusive online course design strategies.

*Faculty development offerings.* Participants described offering drop-in hours, courses, webinars, workshops, "lunch and learns," tutorials, and even presenting at faculty meetings about accessibility and inclusivity; however, it was difficult to ascertain the effectiveness of these strategies. One participant stated:

> *"[The training offered] wasn't well attended, so I'm not sure how effective they were. I probably would be a little blurb on a compliance audit that says, 'this is what we tried to work towards compliance,' but beyond that, I don't think they were very effective."*

*Course design quality assurance frameworks.* Participants also mentioned how they leverage quality course design standards (e.g., Quality Matters Rubric; Online Course Quality Review Rubric) to discuss and increase accessibility, consistency, and quality of online courses. However, they described that they often had mixed success with this approach because without support from deans, chairs, and the provost, some faculty simply resist quality assurance frameworks. One leader stated, "there's little to no appetite for [quality assurance programs]...unless a college or department chair or head says, 'I need all the courses in my program to be certified.'" Participants even cautioned the reliance on standards because they may not actually meet individual students' needs. One leader described standards as the minimum bar. In their view, "there's the right thing

to do, what's required by law, and then there's going the extra mile to find out if those things are actually meeting [students'] needs."

*Accessibility checker tools.* Participants talked a lot about accessibility tools such as Blackboard Ally and the Universal Design Online Content Inspection Tool. Both tools scan content and files in a learning management system for accessibility issues, flag potential barriers, and provide feedback to help content creators improve the course's accessibility. Participants talked about how using these tools can initiate conversations with faculty by highlighting accessibility issues and helping them learn how to remediate the problems. The following is an example of a participant's perspectives on tools like these:

> *"Definitely Ally has been a good strategy …To me what it does, it brings it to the forefront right? Instead of you just putting a document up and getting no indication whatsoever what's going on, that little gauge helps people see that something's going on in the background."*

Some noted that Blackboard Ally was useful to intrigue faculty when it was first adopted but interest dwindled. On participant noted:

> *"I felt like Ally served a big purpose in the first few semesters that we had it and then it did its job in terms of like getting people to where they needed to be. So, for every faculty member who is going to be swayed by that red mark, was swayed by it and now it's kind of like it's helpful for new faculty."*

Others questioned the validity of the accessibility scores provided by these tools. They described how they had found through their own testing that some low-scoring content was not as inaccessible as the tool made it seem. What started as a strategy to help faculty learn to remediate their content, shifted into a way for instructional designers to provide faculty with ongoing assistance. One participant stated:

> *"I think it's been helpful for our instructional design staff even more so than the faculty. Because our instructional design staff is very much focused on making*

> *sure those course sites initially are fully accessible, and this is just another tool to help them double-check what they're doing and how things are working."*

Online learning leaders perceive their role as advocates to obtain buy-in from senior administrators and faculty alike. Given the consultative role of instructional designers and their lack of agency to enact change, participants developed initiatives such as providing diverse faculty development offerings, leveraging quality assurance standards, and using accessibility checkers to support an institutional shift toward further awareness and prioritization of accessible and inclusive online learning.

## Discussion

This study investigated leaders' perceptions of the current state of institutions' ability to provide accessible and inclusive online learning and the strategies they used to do the work in this area. The results of this study align with previous studies that demonstrated that accessibility and inclusivity are becoming increasingly more of a priority for institutions of higher education (Garrett et al., 2021; Lomellini & Lowenthal, 2022; Rao, 2021). Yet, as evidenced by this study and others, there are still barriers to overcome.

### Developing shared understandings of accessible and inclusive online learning

One key finding from our study is the need to develop a shared understanding of accessible and inclusive online learning. Leaders in this study described accessibility and inclusivity as interconnected but separate entities, which aligns with well-established definitions (Microsoft, 2016; W3C Web Accessibility Initiative, 2022). Accessibility is often defined as the technical application of standards and legal requirements aimed at supporting disabled users (W3C Web Accessibility Initiative, 2022). However, while

intended to meet disabled people's needs, accessibility principles are often beneficial for all learners (Henry et al., 2014; Microsoft, 2016).

Inclusivity is a methodology to design ways for everyone to access, participate, and have a sense of belonging in the experience (Bonitto, 2021; Microsoft, 2016). Participants in this study often cited UDL as a guiding framework for opening conversations with faculty and providing related training. While UDL can be a helpful conversation starter for proactive design (Meyer et al., 2014), research has also shown that the broad scope and competing definitions of UDL can cause ambiguity of implementation and evaluation in research studies and in practice (Fornauf & Erickson, 2020). More research needs to be conducted to clarify concrete UDL strategies and understand the effectiveness in terms of recruitment, student experience, and retention (Fornauf & Erickson, 2020; Roberts et al., 2011).

There is also a growing interest in DEI due to the diversification of students with access to higher education, recent political events, and the inequities highlighted during the COVID pandemic (Burgstahler, 2022; Fenneberg, 2022). Institutions are increasingly developing programs and hiring administrators to help accomplish this important work. Participants in this study perceived inclusion in broader terms and felt that accessibility may get lost in DEI initiatives. It is important to consider accessible and inclusive design alongside other strategies that challenge inequity (Xie & Rice, 2021). Thus, questions remain on how accessibility and disability fit into DEI work (Fenneberg, 2022).

Barriers institutions currently face

As seen in this study and in other research, many of the barriers hindering institutions' ability to provide accessible and inclusive online learning stem from external

demands on faculty (e.g., their available time to dedicate to course design), a lack of support from senior administration, and the challenge of shifting institutional cultures toward a social model of disability (De Los Santos et al., 2019; Singleton et al., 2019).

Faculty often have limited time, competing priorities, and narrow perspectives when it comes to accessibility and inclusivity (Oyarzun et al., 2021; Xie & Rice, 2021). Some accessibility requirements, such as captioning videos, can be time-consuming and overwhelming (Morris et al., 2016). Participants in this study discussed struggles with requiring and/or supporting faculty to caption their multimedia content when faculty believe they do not have students who require captions or believe that since they never needed captions during their own education, that it was less important. These findings align with previous research demonstrating that some faculty may rely on teaching methods learned from their own educational experiences and struggle to think of diverse learners' needs (Singleton et al., 2019). Research suggests that when faculty embrace the social model of disability that puts a shared onus of accessibility on the curriculum and content creators instead of the individuals, they are more likely to engage with inclusive course design strategies (Ginsberg & Schulte, 2012; Meyer et al., 2014). Training to help faculty see past their own learning experiences can help institutions obtain the necessary faculty buy-in to do this work and seek out assistance from other departments.

The delegation of responsibility remains a persistent barrier to the implementation of accessibility strategies and policies (Linder et al., 2015). While faculty are often ultimately responsible for course content, the results of this study align with previous research in that faculty are content matter experts who may need additional support and training to design accessible and inclusive online learning (Lowenthal & Lomellini, 2022;

Singleton et al., 2019; West et al., 2016; Xie & Rice, 2021). There is often no designated point person for online accessibility. Instead, responsibilities are split among faculty, instructional designers, and additional offices supporting faculty who operate on different timetables with different priorities (Linder et al., 2015; Mancilla & Frey, 2020). Participants in this study described institutional silos and the paralysis institutions face without a responsible party. Instructional design teams are in a unique position to lead the charge by leveraging their knowledge and skills in this area, their relationships with faculty, and faculty development initiatives (Xie & Rice, 2021). Participants in this study reported that instructional design teams are doing the work, whether they are officially responsible or not. However, instructional designers also have varying levels of knowledge and commitment to inclusive design strategies (Lowenthal & Lomellini, 2022; Singleton et al., 2019; Xie & Rice, 2021). Participants in this study emphasized the need to invest in their team's knowledge in this area to continue to be able to meet the needs of diverse online learners.

Additionally, resources including time, money, and staff to assist in this area are generally scarce (Oyarzun et al., 2021). This makes planning and prioritizing accessibility and inclusivity all the more important to create the most effective pathways to removing barriers to student success (Rao, 2021; Tobin & Behling, 2018). It can often be difficult to change longstanding processes and ways of thinking in higher education, including a reliance on a reactive model of accommodations that help individual disabled students but fail to address the underlying barrier (Burgstahler, 2022). Online learning leaders are challenged to help institutions and faculty see the value in proactive models of accessible and inclusive online course design (Seale, 2020).

Strategies to get buy-in and to provide ongoing support

Online learning leaders need to find strategic means to encourage buy-in and provide ongoing support to better serve diverse students in online environments. Based on our results and other studies, leaders and institutions need to advocate for a proactive approach and find ways to recruit buy-in from senior leadership and faculty to continue to advance accessible and inclusive course design initiatives (Seale et al., 2020). However, senior leaders often need to be convinced to make providing accessible and inclusive online course design a priority worth investing in. When speaking with administrators, research suggests appealing to recruitment, retention, and satisfaction (Linder et al., 2015; Tobin & Behling, 2018). Interestingly, participants in this study also leveraged legal requirements and recent litigation in conversations with administrators. The literature tends to suggest shifting the focus away from legal terms and toward more student-centered approaches (Izzo et al., 2008; Tobin & Behling, 2018; Xie & Rice, 2021).

Research suggests reframing accessibility by focusing conversations with faculty on how accessible and inclusive design can help improve learning experiences for all students (Singleton et al., 2019; Xie & Rice, 2021). Aligning with previous research (Izzo et al., 2008), participants in this study found appealing to faculty's desire to improve the student learning experience to be the most effective, especially when senior leadership supported accessible and inclusive course design initiatives (Oyarzun et al., 2021). Strategies from the literature include identifying specific areas for improvement and setting measurable goals in collaboration with instructional designers and other support staff to respect faculty's limited time and experience in this area (Seale et al., 2020;

Singleton et al., 2019; Tobin & Behling, 2018). Mirroring previous research (Linder et al., 2015), participants in this study emphasized the importance of making the work doable by suggesting faculty take small, proactive steps towards more inclusive course design.

Research suggests that faculty want training in this area and training can result in increased implementation of accessible and inclusive design strategies in their courses (Dallas et al., 2014; Izzo et al., 2008; Lombardi et al., 2011; Schelly et al., 2011; Wynants & Dennis, 2017). Yet, prior to the COVID-19 pandemic in the spring of 2020, only 17% of institutions had faculty development related to making content accessible (Garrett et al., 2021). Instructional design units have the opportunity to fill this gap with focused, effective faculty development initiatives (Xie et al., 2021a). However, the knowledge and skills of instructional designers can also vary (Lowenthal & Lomellini, 2022; Singleton et al., 2019). Participants in this study relied heavily on one "accessibility guru" in many cases to lead the team and faculty in furthering initiatives in this area. This aligns with previous research demonstrating that instructional designers may be informally taking on this responsibility regardless of their level of training (Linder et al., 2015).

Participants in this study and previous research also emphasized leveraging course design quality assurance programs that include accessibility and inclusivity standards (e.g., Quality Matters) for additional training in this area (Lowenthal et al., 2021). Participants in this study mentioned using accessibility checker tools such as Ally or the Universal Design Online Content Inspection Tool as a means of providing data and starting and guiding conversations with faculty. More research needs to be conducted to

determine the effectiveness of such tools on the implementation of accessible course design strategies.

Opportunities for future growth

As institutions become more aware of the importance of accessibility and inclusivity, there is an opportunity to integrate best practices from the start and maintain them in the process of designing online courses (Xie et al., 2021b). Educating administrators and training faculty in this area can help ensure that future content is developed to meet the needs of diverse learners, including those with disabilities (Tobin & Behling, 2018). Once administrators have a better understanding of the importance, there is an opportunity for them to clarify responsibility to streamline effective implementation of the strategies already mentioned (Linder et al., 2015).

Additionally, the lack of utilization of instructional design teams and their consultative role can also hinder institutions' ability to provide online learning that meets the needs of diverse learners (Garrett et al., 2021). Some participants in this study also struggled with whether centralizing instructional design units would provide more control or authority to implement best practices. Regardless, increasing utilization of instructional designers has led to increased engagement and accessibility (Garrett et al., 2021).

## Conclusion

This study was limited by self-selection bias, small sample size, and a variety of institutional barriers that may impact strategies to support accessible and inclusive online course design. Another possible limitation could be participants' concerns about social norms and wanting to be seen as doing the "right" thing in terms of addressing the needs

of diverse learners. To counter these concerns, the researcher attempted to minimize any perceived judgment by remaining impartial throughout the interviews. The researcher assured participants that their answers were confidential and that their identities would not be compromised.

A better understanding of online learning leaders' perspectives is an important step in national and global initiatives to ensure online courses are accessible to all students (Linder et al., 2015). The results of this study are intended to add to the understanding of challenges, successes, and opportunities for improvement in inclusive online education.

Online learning is full of potential to meet diverse learners' needs, yet it can also be full of barriers. This is especially true for disabled students when online courses are not designed proactively with accessibility and inclusivity in mind. For institutions to rise to the challenge of fully engaging disabled students in online learning, leaders will need to advocate for and implement clear visions accessibility and inclusivity (Burgstahler, 2022). Online learning leaders are in a unique position to advise stakeholders in the creation of policies, responsibilities, and support structures while leading instructional design teams in the implementation of accessible and inclusive online course design practices. However, research in this area is nascent and questions remain about how to effectively address the issues of full inclusion and engagement of disabled students in online higher education.

# CHAPTER FOUR: STUDY 3 - INSTRUCTIONAL DESIGNERS' PERCEPTIONS OF ACCESSIBLE AND INCLUSIVE ONLINE COURSE DESIGN

The growth of online learning in higher education provides unprecedented educational access for diverse students, including those with disabilities (Rogers & Gronseth, 2021). This leaves institutions challenged to find course design strategies that support the needs of diverse students (Chen, 2017; Westine et al., 2019). The effects of the COVID-19 pandemic have further emphasized the need for accessible and inclusive design strategies to re-envision effective learning in a variety of modalities for a diverse group of students (Burgstahler, 2022; Rogers & Gronseth, 2021). Accessible design tends to be defined as the technical requirements of ensuring content and learning experiences are perceivable, operable, usable, and robust enough for all learners (W3C, 2022). These guidelines are complex and technical, which can lead practitioners to seek additional frameworks to guide their designs in a more practical and easy-to-follow way (Seale et al., 2020). Increasingly, instructional designers are turning to inclusive design frameworks, such as Universal Design for Learning (UDL), to embrace proactive strategies that reduce barriers for the anticipated diversity of students (Seale et al., 2020; Meyer et al., 2014). Several scholars have suggested that many of the requirements and principles of accessibility and inclusive design overlap with quality course design (Baldwin & Ching, 2021; Evmenova, 2021; Lowenthal et al., 2021) and good teaching in general (Rogers & Gronseth, 2021; Schelly et al., 2011).

The authors' experiences coupled with recent research studies (Park & Luo, 2017; Singleton et al., 2019; Xie et al., 2021b) suggest that instructional designers (IDs) are uniquely positioned to assist faculty and institutions in providing more accessible and inclusive online courses that reduce barriers impacting student learning. Instructional designers are often critical in leading innovation and change by providing faculty development for online teaching and learning (Ritzhaupt & Kumar, 2015). However, there is little research into instructional designers' perceptions, knowledge, and skills in this area (Lowenthal & Lomellini, 2022; Singleton et al., 2019; Xie et al., 2021a). Some studies suggest that instructional designers' knowledge, skills, and commitment to accessible and inclusive online learning vary (Lowenthal & Lomellini, 2022; Singleton et al., 2019) and their ability to enact change may be challenged by a lack of agency and ownership of the course content (Lomellini et al., in press; Xie et al., 2021a). We set out in this qualitative study to fill this gap to help improve instructional design practices and support diverse students' learning in online environments.

## Background

### Increased Barriers to Online Learning Caused by COVID-19

The COVID-19 pandemic and shift to emergency remote learning have complicated the delivery of accessible and inclusive online learning (Bartz, 2020; Burgstahler, 2022). Despite an increase in investments in online learning during the pandemic, digital accessibility was often overlooked (Anderson, 2020; Garrett et al., 2021). When courses are not designed with accessible and inclusive strategies from the start, they often pose barriers for students, especially those with disabilities (Fichten et al., 2009; Gladhart, 2009; Kent, 2016). For instance, during the pandemic, many courses

leveraged video and web-conferencing technologies to deliver instruction without accurate captions, transcripts, or interpreters to enable students with learning or hearing disabilities to effectively participate (Anderson, 2020; Bartz, 2020). Early data also suggests that faculty relied more heavily on materials such as scanned textbooks and documents that may be inaccessible or present barriers to certain blind students, autistic students, and students with learning disabilities who use screen reading technologies (Anderson, 2020; Bartz, 2020).

Understanding the barriers faced by disabled students in online courses and implementing design strategies to reduce barriers before they impact learning requires collaboration and training for faculty and instructional designers who assist faculty in the design of online courses (Gladhart, 2009; Rogers & Gronseth, 2021; Tobin & Behling, 2018). Research suggests that there is typically no one person or department that is fully responsible for accessible and inclusive course design and instead it must be a shared endeavor among disability services, faculty, instructional designers, and institutional leadership to support all learners (Fichten et al., 2009; Linder et al., 2015). Disability service personnel, who are not content developers, often employ a reactive model where students must self-identify as disabled to be eligible for individual accommodations (Cory, 2011). Faculty are subject matter experts who are hired for their content knowledge and promoted for their scholarship but are rarely trained in inclusive course design strategies, such as Universal Design for Learning (UDL) (Burgstahler, 2022; Izzo et al., 2008; Linder et al., 2015; Xie & Rice, 2021). Instructional designers, who assist in the planning and development of online learning experiences, have the potential to encourage faculty to use proactive inclusive design strategies that would benefit all

learners, including disabled students (Lomellini & Lowenthal, 2022; Singleton et al., 2019; Xie et al., 2021a); however, instructional designers may lack agency or authority to implement and track the effectiveness of such strategies.

The Role of Instructional Designers

Instructional design job openings have been steadily growing in recent years (Bureau of Labor Statistics, 2022). The field's growth has been further accelerated by the COVID-19 pandemic and the shift to emergency remote instruction. The Bureau of Labor Statistics (2022) projects that the employment of training and development specialists will continue to grow faster than average throughout the next decade due to an increased need for employee training to keep up with advances in new media and technology (Bureau of Labor Statistics, 2022). The growth in the field provides an opportunity to adequately train future instructional designers in accessible and inclusive design strategies.

Instructional designers take on a myriad of roles and responsibilities in higher education (Park & Luo, 2017; Ritzhaupt et al., 2021). They often act as consultants to not only train faculty on new technologies and pedagogies but to also design or support the design of online courses (Halupa, 2019; Legon & Garrett, 2018). Additionally, instructional designers are frequently viewed as agents of change and innovation (Chongway et al., 2020; Ritzhaupt et al., 2021). However, the consultative role of instructional designers poses challenges because they can only recommend best practices to faculty (Haulpa, 2019; Lomellini et al., in press; Xie et al., 2021a). Research suggests that instructional designers may have varied levels of knowledge and commitment to advocating for accessible and inclusive online learning (Lowenthal & Lomellini, 2022;

Singleton et al., 2019). Research into instructional design competencies has not focused on the need or responsibility for accessible and inclusive design strategies (Klein & Kelly, 2018; Kumar & Ritzhaupt, 2017; Ritzhaupt et al., 2021).

## Theoretical Framework

This study is predicated on the social and diversity models of disability that view disability as a social construction, a normal aspect of life, and a cultural identity in which people may take pride (Andrews & Forber-Pratt, 2022). The social model of disability centers on attitudinal, structural, societal, and environmental barriers in society instead of focusing on trying to "fix" or "cure" a person's body. The diversity model of disability extends the social model of disability by viewing disability as a unique and even valued characteristic. Proponents of the diversity model typically embrace terminology that celebrates disability pride (e.g., "disabled people") instead of choosing person-first language (e.g., "people with a disability"). The researchers acknowledge that disability models, language, and preferences are varied and constantly evolving among the heterogeneous disabled community (Andrews & Forber-Pratt, 2022).

In this study, the social and diversity models of disability represent a departure from the traditional medical model of disability often used in higher education (Dolmage, 2017). Many universities require students to disclose and prove their disability to receive retroactive and individualized accommodations (Bogart & Dunn, 2019; Ginsberg & Schulte, 2012; Kumar & Wideman, 2014; Nieminen & Pesonen, 2020). This approach goes against data that suggests that disabled students often choose not to disclose their disabilities due to a myriad of reasons including fear of being stigmatized or stereotyped by their faculty and peers (Bartz, 2020; Black et al., 2015; Gladhart, 2009; Schelly et al.,

2011; Shpigelman et al., 2021). In contrast, the emphasis on social factors and environments shift attention toward the curriculum and the design of the learning experiences, making it everyone's responsibility (Meyer et al., 2014). In this view, instructional designers, faculty, and other administrators all play a critical role in designing and developing online courses that meet the needs of diverse learners, including disabled students.

## Methodology

We contend that instructional designers' consultatory role in higher education combined with technical skills and the ability to influence change puts IDs in a position to assist in designing accessible and inclusive online courses that meet the needs of diverse learners, including disabled students. There is a gap in the literature about instructional designers' experiences, the impact of COVID, and their knowledge and responsibilities related to inclusive online course design (Rogers & Gronseth, 2021). Thus, the purpose of this basic qualitative study (Merriam & Tisdell, 2016) was to understand IDs' perceptions of providing an increasingly diverse student body with accessible and inclusive online learning experiences. This study sought to answer the following research questions:

1. What are instructional designers' perceptions of designing accessible and inclusive online courses?
2. What are instructional designers' perceptions of how institutions are providing accessible and inclusive online learning experiences?

## Research Design

A qualitative research design is best suited to understanding the experiences of participants (Creswell & Poth, 2018; Merriam and Tisdell, 2016). Merriam and Tisdell (2016) describe a basic qualitative research design as based in constructivism, or the belief that people continuously construct reality as they engage and interact with various experiences and phenomena in their environment. The focus of this study was to understand the experiences of instructional designers (IDs) who design or support the design of online courses in higher education. It is important to understand the stories of the instructional designers in this study due to the complex nature of accessible course design.

## Positionality

It is important to acknowledge personal and professional experiences that may influence the research process (Creswell & Poth, 2018). I bring lived experiences as a disabled person as well as professional experience as an instructional designer in higher education. I have personally encountered opportunities and barriers to academic success related to her disabilities. Professionally, I have also spearheaded faculty development initiatives including the design and facilitation of courses, workshops, webinars, resources, software, and more to improve awareness and implementation of accessible and inclusive design strategies in higher education. This passion to reduce barriers and reach the most students possible has led me to delve deeper into researching the experiences of other instructional designers' knowledge, skills, and training related to accessible and inclusive course design.

The participants and I shared the identity of instructional designers with a familiarity of accessible and inclusive design. This insider position afforded me critical awareness, trust, and nuanced insight into the experiences of the research participants (Gair, 2012; Mohler & Rudman, 2022). However, I also differed from the participants in important ways and intersectionalities. I negotiated this insider/outsider space through reflexivity and discourse with the other researchers (Mohler & Rudman, 2022). It was essential to reflect on my positionality as a disabled researcher and instructional designer while understanding that my personal and professional intersectionalities may differ from the experiences of others (Mohler & Rudman, 2022).

Sample / Context

This research project aimed to better understand the role instructional designers play in designing accessible online courses at their institutions. Due to the nascent state of literature in this area and the exploratory nature of this study, I employed maximum variation sampling to highlight different perspectives (Creswell & Poth, 2018). I used LinkedIn and institutional websites to identify instructional designers from different-sized institutions of higher education across the United States of America. Ultimately, nine instructional designers from four large institutions (FTE enrollment of at least 10,000 students), three medium institutions (3,000 - 9,999 FTE), and two small institutions (1,000 - 2,999 FTE) (American Council on Education, 2022) responded to recruitment emails and were all interviewed by the first author. Participants' years of experience as instructional designers in higher education varied from two to eight years, with an average of 5.2 years of experience. All participants held master's degrees or

certificates in education, educational technology, instructional design, or similar disciplines.

Data Collection and Analysis

Data collection in qualitative research involves careful consideration and planning for ethical issues, sampling, recording, responding to issues, and securely storing data (Creswell & Poth, 2018). After obtaining approval from Boise State University's Institutional Review Board, participants were interviewed by the first author via Zoom using a semi-structured interview protocol to learn more about their knowledge, experiences, and perceptions of designing accessible and inclusive online courses. More specifically, participants were asked questions including "How would you describe your knowledge and skills in designing accessible online courses?" "At your institution, who is responsible for designing accessible online courses?" and "What barriers do instructional designers face with designing, and/or supporting faculty to design, accessible online courses at your institution?" Additionally, participants were asked to provide their job descriptions to help support their perceptions about responsibilities. Of the nine participants, five were able to produce their job descriptions for further analysis.

Interviews involve shared knowledge construction between the interviewer and the interviewee in an attempt to better understand their lived experiences (Brinkmann & Kvale, 2015). Interviews were recorded via Zoom, transcribed, and edited for accuracy. I also maintained a research journal to take notes during and after each interview. NVivo was used to analyze the data involving an iterative and cyclical coding process to collect, condense, display, and draw conclusions (Miles et al., 2020). The first cycle included open-ended coding that was later revised as themes emerged from the data. I used a

constant comparison method to identify themes in each interview (Fram, 2013; Leech & Onwuegbuzie, 2007). Continual comparison of the themes and codes assisted in ensuring alignment throughout all phases of the study. Additionally, the first author used Excel to create matrices to further visualize the data and inherent patterns that emerged.

## Reliability, Validity, and Trustworthiness

Reliability, validity, and trustworthiness are essential in qualitative research (Krippendorf, 2004; Schrier, 2012). I used an interview protocol (see Appendix B) to increase reliability and the potential to replicate the study. After the transcripts were edited for accuracy, I sent them to each participant to verify that their intent was accurately captured. Validity is defined as ensuring that the qualitative coding captures the intended data (Schrier, 2012). To ensure validity in this study, I allowed the codes to emerge from the data and be refined through cyclical coding (Miles et al., 2020).

Trustworthiness is established through honest, transparent, and thorough reporting of the research procedures and emergent themes. Miles et al. (2020) emphasize the importance of the researcher as a trustworthy information-gathering instrument. They describe a good "qualitative researcher-as-instrument" as being familiar with the phenomenon, leveraging a multidisciplinary approach, having good social interaction skills, being non-judgemental, and being empathic (Miles et al., 2020, p. 34). This report discloses all sides presented including confirming and discrepant data to respect the diversity of perspectives (Creswell & Poth, 2018).

## Results

This study aimed to better understand participants' perceptions of designing accessible online courses in higher education and their perceptions of how institutions are providing such online courses. Participants in this study described themselves as having the basic knowledge and skills to assist institutions of higher education in their growing efforts to provide more accessible and inclusive online courses. They believed that institutions were looking to instructional designers to support and advise faculty on the importance of accessible and inclusive online course design. However, instructional designers' consultative role often complicated matters because they could not determine the effectiveness of their faculty development training nor ascertain whether the faculty implemented their recommendations to create more accessible and inclusive online courses due to their lack of agency and ownership over the content. Participants also discussed attempts to leverage quality assurance frameworks such as the Quality Matters (QM) Rubric as a means to obtain faculty buy-in. They highlighted limitations with implementing quality assurance processes at their institutions including a lack of accessibility knowledge from peer reviewers and how a lack of accessibility may not be detrimental to a course review. The following section describes the five main themes that emerged from the data (see Table 1).

**Table 4.1. Themes and descriptions of higher education instructional designers' perceptions of accessible and inclusive online learning**

| Themes | Description |
|---|---|
| **Theme 1.** Instructional designers seek on the job training and professional development on accessible and inclusive course design due to the lack of focus on these topics in their graduate studies | Participants described being confident in their knowledge and skills in designing accessible and inclusive online learning despite the fact that their master's programs did not sufficiently cover this topic. They became aware of accessible and inclusive course design while working as instructional designers and typically sought additional professional development to improve their knowledge and skills in this area. |
| **Theme 2.** Institutions expect instructional designers to not only be knowledgeable but also responsible for accessible and inclusive course design, instructional designers are divided on whether they want or do not want to take on this responsibility. | Institutions want instructional designers with knowledge of accessibility and inclusivity as supported by a review of participants' job descriptions. However, the consultative role of instructional designers at many institutions generally requires a shared responsibility between IDs, faculty, and other parties. Some IDs felt that they should have more responsibility because they have the knowledge and skills, while others preferred less responsibility due to a fear of repercussions if there was an accessibility issue in a course. |
| **Theme 3.** Instructional designers feel a growing emphasis on accessible and inclusive course design, especially since COVID-19, which has led some to improve their knowledge and skills. | Participants described how their institutions had a growing emphasis on accessible and inclusive online course design. Some even noted how their current departments prioritize accessible and inclusive course design more than previous places of employment. This increased prioritization motivated some to improve their knowledge and skills. They discussed the positive and negative impacts of COVID, including bringing awareness of accessibility needs and also the challenges with competing priorities during emergency remote teaching. |
| **Theme 4.** Instructional designers play a critical role in raising faculty awareness of the importance of accessible and inclusive course design | Participants described how institutions rely on instructional designers to help raise faculty awareness about the importance of accessible and inclusive online courses. They felt that explaining why accessibility matters to faculty was critical to obtaining buy-in. Participants described strategies such as providing related faculty development and consultations; however, IDs consultative role often meant that they did not know if faculty implemented what they learned. |

| Themes | Description |
|---|---|
| **Theme 5.** Instructional designers described how quality assurance frameworks, like Quality matters, can help demonstrate the importance of accessible course design but can at the same time present barriers due to peer reviewers' lack of knowledge | Participants described leveraged quality assurance frameworks, such as Quality Matters (QM), to get faculty buy-in. Participants felt that standards were a method to demonstrate the importance of accessibility in quality course design. They discussed challenges with peer reviewers not fully understanding accessibility barriers and how accessibility standards may not be prioritized if a course needs to "pass" a review. |

RQ1: What are instructional designers' perceptions of designing accessible and inclusive online courses in higher education?

Theme 1. Instructional designers seek on the job training and professional development on accessible and inclusive course design due to the lack of focus on these topics in their graduate studies

I began by asking participants about their knowledge, skills, and education related to designing accessible and inclusive online courses. Overall, instructional designers in this study described their knowledge and skills in designing accessible and inclusive online courses as average to strong, though some seemed less confident or more hesitant than others. The following quotes illustrate the IDs' hesitant confidence,

> *"I think I would say average….I know those basic ideas, maybe about the closed captioning, having alt text for images, and having those color comparisons, and maybe in enabling live transcripts."*

> *"I think you know I don't have a ton of…I don't really have much work with you know doing checks with screen readers. I don't run through courses or through documents with screen readers but I know how to check Word documents, PowerPoints, Excels, videos. I know obviously know how to do alt text and things like that so…"*

### Master's Programs Did Not Sufficiently Cover Accessibility and Inclusivity

Participants all held at least a master's degree. They each mentioned how their degree programs did not sufficiently cover accessibility and inclusivity. Several participants described that they became aware of the concept of accessibility once they were already working as instructional designers. For instance, one participant stated,

> *"I think I learned about the concept of accessibility, during my work experience…and [I'm] also self-taught…..I actually didn't learn anything specific about that in my [master's] program."*

### Instructional Designers Seek Professional Development

Noting a gap in their skills, most of the participants sought out additional professional development including massive open online courses (MOOCs) from sources including LinkedIn Learning, EDUCAUSE, Coursera, EdX, and others. One participant stated,

> *"[My master's program did not cover] too much actually [about accessibility and inclusivity]. What I've done to learn those pieces has been more through workshops and trainings, like professional development type trainings."*

Participants also shared a desire for additional training in more advanced accessibility topics (e.g., accessibility of authoring tools, testing with screen readers, and programming/coding skills). Others wanted more training on topics related to diversity, equity, and inclusion (DEI) and ways of relating the importance of accessibility and inclusivity to faculty to obtain buy-in. The following quotes illustrate this theme:

> *"I would like to know is more about making sure that the content that I create with authoring tools, like for example Articulate Storyline … make sure that those custom creations are accessible?"*

> *"My interest lies in looking at diversity, equity, and inclusion on the level of the language that we use and courses…. topics that are very current and very hot topics right now."*

> *"I think something that we could grow on is knowing how to relate all that information to our faculty. I think that's where we fall short, is the best way for them to learn it."*

Since accessibility and inclusivity were not covered in most master's programs, participants became aware of these challenges on the job and sought additional professional development to address a gap in their knowledge and skills. The additional training led participants to not only feel more confident in accessible and inclusive course design, but also increase their desire to improve their skills and knowledge even more.

Theme 2. Institutions expect instructional designers to not only be knowledgeable but also responsible for accessible and inclusive course design, instructional designers are divided on whether they want or do not want to take on this responsibility.

Every participant described how they are *"doing the on-the-ground work"* when it comes to accessible and inclusive course design; however, questions remained about who is actually responsible for this work - as well as who wants the responsibility - remains unclear.

### Higher Education Institutions Seek to Hire Instructional Designers Who are Knowledgeable about Accessible and Inclusive Online Course Design

Five participants provided their job descriptions for analysis. Four of those job descriptions mentioned accessibility and inclusivity. Two job descriptions described required knowledge in this area. For instance, one job description required IDs to have *"demonstrated knowledge of pedagogical methods for learners with diverse abilities and backgrounds, specifically Universal Design for Learning (UDL)."* Another job description alluded to the consultative nature of instructional designers by stating that IDs *"provide consultations and serve as a resource to faculty on…Universal Design for*

*Learning (UDL) and accessibility issues…."* Lastly, another job description implied that instructional designers have more responsibility in terms of accessibility and inclusivity. The job description stated that IDs *"ensure course design, course materials and activities promote inclusivity and accessibility."*

### Responsibility for Accessible and Inclusive Online Courses Varied Depending on the Institution's Instructional Design Model

While job descriptions may reflect some level of ID responsibility, participants noted confusion over who is ultimately responsible for accessible and inclusive online courses at their institutions. Instructional design models varied in terms of who designed and built the courses. On one end of the spectrum, instructional designers designed and built courses with assistance from subject matter experts. On the other end, faculty designed and built courses but had the option of seeking instructional design support if they wanted. Official responsibility for creating accessible and inclusive online courses was directly related to an institution's approach to course design. For instance, in institutions where IDs build courses with subject matter experts and faculty only facilitate them, participants described IDs as *"exclusively responsible for accessibility and inclusivity."* In other institutions where faculty are course designers, participants described faculty as the responsible party while instructional designers served as support. One participant noted,

> *"So the designing of courses, the actual building of content and stuff, that is all up to our faculty. So us instructional designers, we can meet with faculty, we can review with them, but we are not the ones putting the content into the LMS. So we actually put the piece of accessibility onto our faculty."*

Given instructional designers' consultative and supportive role at most institutions, other participants thought of creating accessible and inclusive online courses as a shared

responsibility. One participant described how different people across the university play a role and should be responsible, but that challenges remain collaborating across departments.

> *"So [responsibility] is super fragmented. I think we're all responsible, me as an instructional designer, the faculty, and then the university at large. Each stakeholder within here has a piece of that responsibility, So, yeah I think we're all responsible. We just all have to get on the same page."*

Participants were aware that their superiors were looking to them to help their institutions create accessible and inclusive online courses; however, participants often cited a lack of time and resources to be able to effectively accomplish this. In those instances, several participants mentioned that all they could do was to alert their superiors about accessibility barriers. They expressed frustration that their attempts to raise awareness did not always improve online course design. The following quote expresses this idea:

> *"It's on us as instructional designers to raise awareness of what needs to happen….And then departments will say things like, "Oh, we'll hire a student," or, "We'll do X, Y, Z." And I haven't personally seen follow-through on any of that. They have ideas to do that, but then it never happens."*

### Instructional Designers are Split on Whether They Want the Responsibility

In addition to confusion over who is ultimately responsible for accessible and inclusive course design, participants also differed in whether or not they wanted that responsibility. Some felt that since instructional designers are the most knowledgeable in this area, it makes sense for them to take on this responsibility. One participant said,

> *"I'm comfortable taking it on. If it were up to me, yeah, it would fall to my group. … I think faculty members should be familiar with it and should understand it and be able to do some of those things themselves. But…if it does fall on them, they might not know what they don't know ….having a group of people whose job is*

> *solely course development, I think it makes sense for that responsibility to rest on them."*

On the other hand, some participants feared the repercussions of being the responsible party. One noted,

> *"...an important issue with accessibility, is nobody wants to - I shouldn't say nobody - but where the rubber hits the road, "You're the person that checked it and it's not accessible. You said it was accessible and it's not."*

Likewise, another participant was cautious about taking on the responsibility given a lack of resources. The participant described that if they caption videos for one course, for example, other faculty may request the same service; however, their department lacks the resources and time to caption everyone's videos.

Overall, participants described that they are doing the work involved in designing accessible and inclusive online learning despite the confusion and mixed feelings about who is officially responsible. Interestingly, most of the provided job descriptions mentioned accessibility and inclusivity as required knowledge and skills for instructional designers.

Theme 3. Instructional designers feel a growing emphasis on accessible and inclusive course design, especially since COVID-19, which has led some to improve their knowledge and skills.

I asked participants whether or not they felt institutions were putting enough emphasis on this area. Participants discussed how getting new jobs in departments focused on more accessible and inclusive course design actually motivated them to prioritize this work more than in the past. Participants also talked about their perceptions in terms of the impact of the COVID pandemic. Overall, participants felt that there has

been a growing emphasis on accessibility and inclusivity within their institutions, and specifically within their departments.

Motivated by Departmental Emphasis

Whether participants wanted the responsibility or not, many mentioned that they were more committed and motivated when working in departments that prioritized it versus when working in departments that did not. Several participants described how this area was not a priority in their work until they joined a team that emphasized its importance. The following quotes illustrate this theme:

> *"Honestly, [accessibility] wasn't so much [my priority]... it was in the back of my mind at my previous position, but you know you're only I think as motivated as your department puts emphasis on it, right? ... It wasn't discussed and it didn't seem to be a priority. But coming in here it was like, "We want to make sure that everything is fully accessible and that's part of your job to do that," so that's why it's my focus now."*

> *"I think I feel pretty good about accessibility myself and I think a big part of that was joining a team that had an emphasis on accessibility and accessible course design from the beginning…. I never thought about accessibility at all before I came into this job. So having that group focus really pushed me to want to be good at it and understand what was going on."*

Participants noted that there has been a growing institutional culture shift to prioritize accessibility and inclusivity in recent years. One participant mentioned that, *"there's a lot of care and effort, and yeah I feel that all the way to the top….I kind of feel like that's the culture in general within the university system."* However, some participants questioned whether the increased rhetoric around accessibility and inclusivity led to tangible actions. One participant stated,

> *"I think there's a lot of talk about it. I don't think there's…the practice of it. It's just too time-consuming, too expensive, and you know, it's a lot of moving parts and I think other things might take precedence."*

### Need for Top-Down Support of Accessible and Inclusive Course Design

In these instances, participants expressed a desire for more top-down support from senior leadership. Participants felt that leadership and the institution as a whole need to communicate to faculty that accessibility is important and required. They felt that required training, strong policies, contractual obligations for faculty, and increased utilization of instructional design units would help support a more accessible and inclusive learning environment. The following quotes express this idea:

> *"Because a lot of time I understand for faculty members, if you want to promote something or if you want to have them apply some strategies, I think sometimes it has to come down from the leadership and has to communicate with the faculty and tell them that, 'Okay, this is a requirement and not an optional thing.'"*

Some participants noted that top-down support was essential, even if they may not feel that it is the best approach. For instance, one participant noted,

> *"I want kind of - and I hate to say - like a top-down initiative where it's just more of a collective institutional…we're on the same page, the same starting place with this. I think that that's really important."*

### The Impact of COVID on Prioritizing Accessible and Inclusive Online Course Design

When discussing whether or not they felt institutions were providing enough emphasis on accessible and inclusive online learning, participants mentioned the impact of the COVID pandemic. For some, the pandemic halted progress in this area because of competing priorities and the need to put content online during emergency remote teaching. One participant noted,

> *"I hate to say it, but....especially since COVID, honestly we haven't addressed any of it….We're just trying to make sure that stuff is in the LMS and we haven't exactly focused on if it's accessible."*

For others, the pandemic brought issues of inequity and inaccessibility to the forefront. Some participants felt that the pandemic may have encouraged previously reluctant faculty to seek out instructional design services in general as they had to move quickly online. The following quotes illustrate this idea:

> *"I think it really probably brought [accessibility] to the forefront again because everybody was having to plug into technology and so people were finding out…what might have been missing accessible-wise….I just think you…probably had a lot more students realize they needed certain things in online learning that maybe they didn't realize before."*

> *"So folks that maybe wouldn't have come to us in the past, or would've been not happy about coming to us in the past are a lot more open to suggestions and a lot more open to talking through ideas. So that's been really nice to see even though it hasn't been something that's been emphasized from the top down necessarily."*

Some participants described a more recent shift away from emergency remote teaching that would allow IDs more time to prioritize accessibility.

> *"Now it's like, "Okay, we have time to breathe. Let's go back and put the time into living our values," right? If that's what we say is our mission then let's make it so, and you know before it was kind of like level one, and now we have time to go back and go deeper and really make sure everything is fully accessible."*

Overall, participants described a growing institutional emphasis and culture shift toward prioritizing accessible and inclusive online learning. Most of the participants credited their department's focus for helping them personally prioritize accessibility in their work. Participants were mixed on the effects of the COVID-19 pandemic on their work; however, most agreed that there was a growing level of empathy and awareness that facilitated their advocacy for equitable access.

RQ2: What are instructional designers' perceptions of how institutions are providing accessible and inclusive online learning experiences?

We wanted to better understand the specific barriers and strategies that institutions - and instructional designers in particular - used to provide accessible and inclusive online

experiences. Participants described how instructional design teams are leading the charge in providing faculty development initiatives in this area because they are trained in course design and accessibility whereas most faculty are hired for their subject matter expertise. However, they felt limited by a lack of data about the effectiveness of their offerings. Participants also discussed leveraging quality assurance frameworks with accessibility components (e.g., Quality Matters Standards) and the associated challenges with implementing such initiatives. They noted how course design standards may help faculty understand the importance of quality course design and especially accessibility. Participants also pointed out issues with peer reviewers not being familiar enough to note accessibility barriers and added that it is sometimes easier to find other standards to improve in order to "pass" quality assurance reviews.

### Theme 4. Instructional designers play a critical role in raising faculty awareness of the importance of accessible and inclusive course design

#### Instructional Designers Help Faculty Understand the "Why"

I asked participants about the barriers they face in accessible and inclusive online course design. Many participants discussed challenges with obtaining faculty buy-in. They felt it was crucial for faculty to understand why accessibility is important to motivate them to seek further assistance and training from instructional designers. One participant noted,

> *"I would say the barrier would be [that] it's hard for them to understand the value of why [we're] doing this. If they don't understand why they wouldn't have the motivation to take our training."*

Some participants believed that faculty may not think they will have disabled students in their online courses. In these situations, participants felt that it was their job to explain to faculty how accessibility and inclusivity strategies can benefit all learners. One participant described,

> "*Sometimes also I think faculty forget, or they think, "Well, I'm not going to have a deaf student in my class. I'm not going to have a blind student in my class." And what they need to realize is those pieces of accessibility affect students that do or don't have disabilities. And as well as how many of our students don't state that they have one."*

Other participants acknowledged that faculty are subject matter experts who may not have had any training in online pedagogy, let alone accessible course design strategies. Additionally, participants discussed how faculty are faced with a number of competing priorities. The following quotes express this challenge:

> *"[Faculty are] experts in their field, very smart, very good researchers, name recognition, but a lot of them weren't trained in online course development nor accessibility, nor really any interest in knowing about it. I would say some of them - not all of them."*

Instructional Designers' Role in Spreading Awareness of Accessible and Inclusive Online Course Design through Faculty Development and Consultations

Participants talked about how they leverage a variety of faculty development initiatives and consultation strategies to help faculty understand why accessibility is important. They described designing and delivering courses, webinars, job aids, tutorials, and providing one-on-one consultations related to accessibility. The following quotes demonstrate how participants felt IDs were critical in raising faculty awareness through consultations and training.

> *"I think the way that [instructors] learn about accessibility is through our training process. I think for those instructors that if they don't take the process, they might not know about the concept or the importance of having their course become accessible."*

> *"Sometimes we don't always get the buy-in [from faculty] right away. So, we have to really do a lot of influencing and I really build in the case for why this needs to be done this way."*

Lack of Measures of Effectiveness of Training/Advocacy

Some participants believed that faculty who had been exposed to accessibility training were more open to the instructional designers' suggestions because they understood the significance of the work. One participant stated,

> *"...when we first started getting into accessibility, there was really zero familiarity among faculty members. Nowadays, most faculty members have had at least some workshop or some form of PD in accessibility. So even if they don't know how to do it, they understand the importance. So they're more open to it. I think that was a challenge early on that there was more of that pushback just because they didn't understand the importance."*

However, other participants were not always clear on the effectiveness of their advocacy and the training initiatives. Their awareness goals were to ensure that all students were supported in their online courses. But without information about how faculty ultimately designed their course, IDs were unsure what faculty learned or implemented from the training provided.

> *"We know if [faculty are] using [our training courses] and in it, but we don't know exactly what they're getting from it…. So I think [what we lack to get] our institution fully accessible is that I just don't know what they know."*

> *"And also a lot of time what I see is that even though they take those trainings about accessibility, they just don't use it. They don't actually apply it in their course."*

For instance, participants described how they often make accessible course design suggestions, but they lack data to know if the faculty implemented their recommendations. One participant noted,

> *"We guide and we say, "These videos are automatically captioned through Panopto. They're machine-captioned, which is a start." And then we guide faculty and say, "You should go in and look at these videos and make sure the captions are accurate." Do they always do that? I can't say they do. We hope they do, but that's probably the hardest part because of the time commitment to do that."*

Overall, participants felt IDs were critical in helping faculty understand the importance of designing with accessibility and inclusivity in mind. Participants found that

to obtain faculty buy-in, they needed to bring awareness as to "why" accessibility matters in online courses. However, IDs' consultative role often meant a lack of data to measure if their advocacy and training efforts resulted in more accessible and inclusive course designs.

Theme 5. Instructional designers described how quality assurance frameworks, like Quality matters, can help demonstrate the importance of accessible course design but can at the same time present barriers due to peer reviewers' lack of knowledge

We asked participants about additional strategies used at their institutions to support accessible and inclusive online learning. Participants discussed ways they try to implement and measure quality course design, including accessibility.

Participants talked about leveraging quality assurance frameworks (e.g., the Quality Matters Rubric) to guide their advocacy efforts and help faculty understand that accessibility is an important quality of online course design. Most participants had an internal set of quality standards that were *"inspired by Quality Matters"* and included accessibility. Participants also described a variety of internal course design review processes; however, the review processes were often met with challenges. For instance, one participant described how academic divisions conduct their own peer reviews but they may not be knowledgeable about accessibility or other online course design elements. The participant described,

> *"Individual divisions do peer reviews, which are great. But there, again, as you're doing a peer review, if your peer doesn't know what needs to be in there, it doesn't exactly do much good."*

Other participants talked about their internal course design review process where courses need to meet a specific score on the internal rubric. One participant described

how they may not focus on accessibility if they need to help faculty attain a higher score on their quality assurance rubric. The participant stated,

> *"If we want to push the faculty members to over some certain score of that rubric, we might not necessarily bring up the part of accessibility because we just want to bring up the component that may help them to achieve some kind of specific score on rubrics. I don't think we specify emphasis enough about accessibility. We don't talk about it every time."*

Participants described using quality assurance frameworks as a strategy to advocate for quality course design and accessibility. Several participants wished for additional top-down support for these initiatives and described the challenges they face in implementing such strategies. Sometimes peer reviewers were not familiar with accessibility and inclusivity and important barriers could be overlooked during a course review. Other times, the need to "pass" a course review on a certain schedule led IDs to find easier ways to meet the standards instead of improving the accessibility of the course.

## Discussion

This study was designed to investigate instructional designers' perceptions of accessible and inclusive online course design in higher education. We explored instructional designers' knowledge, education, and perceptions of barriers and strategies that prevent or help an institutional cultural shift toward more proactive accessible and inclusive online courses. The results of this study build on previous research suggesting that instructional designers play a critical role in this institutional culture shift (Lowenthal & Lomellini, 2022; Singleton et al., 2019; Xie et al., 2021a). This study also aligns with literature suggesting that confusion remains about who is responsible for accessible and inclusive online course design (Linder et al., 2015).

## Accessibility Knowledge and Skills: An Opportunity for Instructional Designer Preparatory Programs

Participants defined accessibility and inclusivity as interconnected but separate entities. They felt that accessibility directly translated to supporting disabled students, while inclusivity had a more broad focus including students of different races and economic backgrounds. Previous research also suggested that accessibility is central to inclusive design frameworks such as Universal Design for Learning (UDL) (Rogers & Gronseth, 2021). Instructional designers in this study had a developing and technical conception of accessibility that included a focus on *"the basics"* including captions, transcripts, alternative text, and color contrast. To address inclusivity, participants most often discussed strategies involving UDL and especially a need to present content in multiple formats. This aligns with previous research suggesting that presenting content in different ways has a significant impact on students' learning (Davies et al., 2013; Evmenova, 2021). Participants were generally less confident in their knowledge related to inclusive online course design compared to accessibility. They often sought professional development to improve their skills in implementing UDL strategies and understanding - and communicating to faculty - students' experiences with barriers in online learning. The desire for additional training in application of UDL principles and understanding the human side of accessibility has also been suggested in previous research (Lowenthal & Lomellini, 2022; Xie & Rice, 2021a; Xie et al., 2021b).

Participants in this study hesitantly described their skills in accessible and inclusive online course design as average to strong, which aligns with previous research (Lowenthal & Lomellini, 2022s; Singleton et al., 2019; Rogers & Gronseth, 2021).

Participants discussed the importance of learning from their colleagues and seeking additional professional development beyond the limited coverage of accessible and inclusive online course design topics in their master's degree programs. Rogers and Gronseth (2021) also found that instructional designers learn about accessible design from independent research, their colleagues, workshops, and videos. In a recent pilot study which asked instructional designers about where they learned their skills related to accessibility and inclusivity, participants most frequently cited learning from their coworkers, online resources, and professional development (Lowenthal & Lomellini, 2022). In that study, college coursework was the least cited method of learning about accessible and inclusive online course design. Those findings coupled with the majority of participants in this study stating that their master's programs did not cover accessibility sufficiently, suggest that instructional designer preparatory programs have the opportunity to provide more coursework related to accessibility and inclusivity to better prepare students.

### Instructional Designers' Roles and Responsibilities in Accessible and Inclusive Course Design

Research suggests that digital accessibility is an increasingly important priority in higher education, but questions remain on who is responsible for accessible and inclusive materials and online course design (Frey & Mancilla, 2020; Linder et al., 2015; Lomellini et al., in press; Xie et al., 2021a). Some researchers view accessibility as a major responsibility of instructional designers (Xie et al., 2021a), whether it be in their role as faculty trainers, advocates, or in a shared responsibility for course development (Frey & Mancilla, 2020; Xie et al., 2021a; Xie et al., 2021b). Participants in this study felt

strongly that instructional designers played a critical role in supporting their institution's growing emphasis on accessibility and inclusivity. They believed that without their intervention and advocacy, faculty may not be aware of the digital accessibility needs of their students. This finding aligns with previous research that faculty are hired as subject matter experts and may not have training in online pedagogy or accessible and inclusive design (Izzo et al., 2008; Linder et al., 2015; Lomellini & Lowenthal, 2022).

Participants in this study felt that institutions were relying on their expertise to deliver faculty development training and to help faculty understand the importance of accessible and inclusive online course design. Their perceptions were reinforced by an analysis of the provided instructional designer job descriptions, most of which described required knowledge and shared responsibility for accessible course materials and design. Interestingly, previous research about instructional designers' required competencies has often overlooked accessibility (Klein & Kelly, 2018; Kumar & Ritzhaupt, 2017; Ritzhaupt et al., 2021). This presents an opportunity for future research to explore if accessibility and inclusivity are areas where institutions are increasingly relying on instructional designers.

This study also brought up questions about whether or not instructional designers want the responsibility associated with designing accessible and inclusive online experiences. Some participants felt confident and well-prepared. They believed that they were trained in design, pedagogy, and had the technical skills to create accessible online courses; others feared what may happen if a course they built created an accessibility barrier for a student. The latter participant preferred to bring accessibility issues to the attention of leaders and ask for support and guidance. The lack of clear definitions of

responsibility is a common barrier mentioned in the literature (Behling & Linder, 2017; Linder et al., 2015; Lowenthal & Lomellini, 2022).

Accessible and Inclusive Design as Quality Course Design

Overall, participants in this study related accessible and inclusive design strategies to quality instructional design in general. They commented on the importance of proactively planning for consistent and clear design as other research has highlighted (Burgstahler & Russo-Gleicher, 2015; Meyer et al., 2014; Rogers & Gronseth, 2021). Several participants discussed how they use Universal Design for Learning (UDL) as a framework for their designs and as a means to start conversations and raise awareness of the importance of accessibility and inclusivity with faculty. They noted how faculty, who are subject matter experts and not necessarily training in online pedagogy, may rely on teaching methods that mirror how they were taught (e.g., long lectures). They described how such methods may not be considered quality course design or engaging in addition to posing accessibility challenges. Participants in this study felt that additional training on best practices of quality online course design, in general, could help faculty develop more engaging and accessible learning experiences.

Previous research has suggested that an internally-designed rubric, often based on Quality Matters (QM) Rubric, is the most common way to measure course quality (Lenert & Janes, 2017). It is also common that courses go through an internal review process. In Lenert and Janes' (2017) study, 68% of participants' courses were reviewed and improved each year, but 32% of participants noted that their courses were rarely or never reviewed or improved annually. The majority of participants in the current study also used an internal version of the Quality Matters' Rubric and a peer review process.

However, the participants in this study noted significant challenges with implementing quality course design initiatives. For instance, participants discussed how official QM reviews were expensive, time consuming, and sometimes not applicable to their institutional culture. Participants also admitted that accessibility is not always a priority in online course reviews because it can be easier to meet other standards to "pass" a review on a tight schedule. Previous research also cautioned that over-reliance on standards may reduce the complex topics of accessible and inclusive online course design and create a problematic compliance mentality (Baldwin & Ching, 2021; Lowenthal et al., 2021). The standards set forth in any rubric should be understood in the broader context of removing barriers, including accessibility and usability barriers, from online course designs (Lowenthal et al., 2021).

### Challenges to Providing Accessible and Inclusive Online Course Designs

With instructional designers leading the charge - officially or unofficially - to help faculty become more aware of accessible and inclusive course design strategies, participants described the challenges involved in their strategic initiatives. Firstly, participants discussed using faculty development and consultations as a means of spreading awareness of the importance of accessibility and inclusivity. However, these initiatives are often limited by a lack of faculty attendance and engagement. Faculty often face challenges of competing priorities, limited time and resources, and varying knowledge and skills related to accessible and inclusive online course design (Singleton et al., 2019; West et al., 2016). Research suggests that faculty development aimed at increasing faculty awareness and shifting their mindset toward the social model of

disability can lead to a willingness to improve the accessibility and inclusivity of their course designs (Ginsberg & Schulte, 2012; Izzo et al., 2008; Rogers & Gronseth, 2021).

On the other hand, even when faculty have the knowledge and desire to create inclusive learning experiences, they may not have the time or resources to implement the strategies in their course designs (Lombardi et al., 2011). Instructional designers, who typically have a consultative role in online course design, may lack the agency to enact real change (Lomellini et al., in press). Participants in this study emphasized a need for more measures of effectiveness to know if faculty implement the accessible and inclusive course design strategies they recommend. They also called - some more reluctantly than others - for more top-down support from leadership to require faculty to complete related training and prioritize accessible and inclusive online course design in general. Some participants in this study recognized that top-down mandates may not be the best approach to obtain faculty buy-in, but they felt stymied by a lack of faculty engagement with the training and resources they offered. The need for support from leadership is echoed throughout the literature (Seale et al., 2020; Singleton et al., 2019).

## Conclusion

This study was limited by the relatively small, self-selected group of participants, making the results difficult to generalize. However, the value of qualitative research is rooted in the description of themes that emerge from a shared phenomenon (i.e., the experience of designing accessible and inclusive courses) and not in generalizability (Creswell & Poth, 2018). It is likely that those who responded to the call for participation in this study had more experience or interest in accessibility. While this could have potentially skewed the results, the challenges and successes of experienced professionals

ultimately provided deeper insight into the shared phenomenon of accessible and inclusive online course design.

Research in this area suggests that effective implementation of inclusive online course design strategies require greater institutional support and additional training for instructional designers as well as faculty. Instructional designers are on the front lines of online course design at a critical time in history. Understanding their perceptions of the challenges and successes in designing inclusive online courses, the impact of COVID on inclusive design initiatives, and how they perceive and attain related knowledge, skills, training, and responsibilities will help inform ID preparatory programs, improve instructional design practice, and support the learning experiences of diverse students.

# CHAPTER FIVE: DISSERTATION CONCLUSION

Online learning in higher education presents opportunities for the inclusion of disabled students; however, questions remain about whether disabled students' needs are being met by current practices and institutional cultures. The effects of the COVID-19 pandemic and the resulting increase in online course offerings have further expedited the necessity to ensure equitable access for diverse learners. The intersection of instructional design and disabilities studies is a burgeoning field with limited research (Rao et al., 2014; Xie et al., 2021b); thus, this exploratory approach added to the body of research by providing insights into the current state of accessible and inclusive online learning in higher education and instructional design teams' evolving roles and responsibilities, which can be applicable to future research and instructional designers' preparation and practice. The purpose of the studies was to address the research question: What are the perceptions of the current state of higher education institutions' ability to provide accessible and inclusive online learning?

There are several factors that influence institutions' abilities to provide accessible and inclusive online course design practices and services that effectively address disabled students' needs (Seale et al., 2020). The proposed studies address the research question by leveraging Seale et al.'s (2020) macro, meso, and micro levels of institutional focus. On a macro level, I leveraged a literature review to explore instructional design services and practices, internal factors such as faulty and instructional designers' roles and responsibilities, and external factors such as models of disability, legal contexts, online

learning barriers, and inclusive design frameworks. At the meso level (i.e., delivery of services and technologies contributing to students' academic success), I conducted a qualitative study of online learning leaders' perceptions of the challenges and opportunities for providing accessible and inclusive online learning services. Research suggests that effectively engaging disabled students in online learning requires support from leadership to advocate and implement institutional change (Gladhart, 2009; Linder et al., 2015; Lomellini & Lowenthal, 2022; Tobin & Behling, 2018). Finally, at the micro level (i.e., involving the hands-on practice of making teaching and learning accessible), I conducted a qualitative study of instructional designers' perceptions of accessible and inclusive online learning in higher education. Research suggests a varying degree of knowledge, skills, and training for instructional designers in this area (Singleton et al., 2019).

The results of these studies into the varying levels of institutional focus can help inform the field in general, leaders' initiatives, and instructional designers' preparation and practices. Ultimately, the goal is to gain an improved understanding of the current state of institutions' ability to provide accessible and inclusive online learning.

## Summary of Findings

### Findings from Study 1: Literature Review

In the literature review, I set out to synthesize the research about how online learning is meeting the needs of disabled students and how institutions are providing accessible and inclusive online learning experiences. I reviewed empirical peer-reviewed sources and gray literature published between 2002 - 2022 due to the nascent state of research in this area. The themes that emerged from the data included the barriers specific

to disabled students in online learning, frameworks for accessible and inclusive online course design, and the roles and responsibilities of faculty and instructional designers.

Conceptualizing and defining disability is an ever-evolving topic. In recent years in the United States, society has begun to move away from conceptualizing disability as a purely medical problem and toward understanding the role that environments play in creating accessibility barriers (WHO, 2011); however, institutions generally still rely on the medical model of disability that focuses on the student's diagnosis (Ginsberg & Schulte, 2012). At many institutions, students must prove their disability and engage in a sometimes lengthy and complicated process to obtain accommodations (Harris et al., 2019). Much of the research describes how barriers from the accommodation process and the complex nature of disabilities often lead students to chose not to disclose their disabilities (Black et al., 2014; Shpigelman et al., 2021). Without the proper support and without courses being intentionally designed with consideration for disabled students' needs, they can face significant barriers to educational attainment (Bartz, 2020). In online learning, disabled students may face barriers to communication, inaccessible content (e.g., course materials not optimized for screen readers), varying needs and preferences, and timing issues in addition to the emotional and medical demands of having a disability in the first place. On the other hand, research shows that when disabled students are provided with accessible materials and learning experiences, they achieve the learning objectives (Black et al., 2014; Xie et al., 2021b).

For institutions to adequately support disabled students, course designers need ways to proactively prioritize accessible and inclusive online course design (Seale, 2020). There are a number of frameworks discussed in the literature including UDL, UDI, UDA,

UID, and more. Research focuses on the perceptions of students, faculty, and to a lesser extent, instructional designers' perceptions of courses designed with one or more of these inclusive frameworks in mind. However, the complexity, limited research, and overlapping nature of the frameworks make generalizing results across studies difficult. Previous researchers have highlighted a need for consistency of terminology and reporting and empirical research demonstrating increased student learning (Boysen, 2021; Roberts et al., 2011; Fornauf & Erickson, 2020). Additionally, there needs to be an increased focus and prevalence on disabled learners in the research (Bartz, 2020).

Lastly, the literature review emphasized research into faculty and instructional designers' roles and responsibilities in providing accessible and inclusive online learning experiences. Research indicated that faculty who align themselves with the social model of disability are typically more open and willing to collaborate and meet the needs of disabled students (Ginsberg & Schulte, 2012). Faculty, who are subject matter experts and not necessarily trained in pedagogy and course design, tend to implement accessible and inclusive strategies after even limited exposure or training (Izzo et al., 2008; Lombardi et al., 2011; Schelly et al., 2011). This is significant because instructional designers can provide this type of training to help faculty learn more about accessible and inclusive online course design.

While there is limited but growing research into instructional designers' competencies, perceptions, and roles in accessible and inclusive online course design (Lowenthal & Lomellini, in press; Singleton et al., 2019; Xie et al., 2021), there is evidence that it is a growing area of interest in the field and on the job (Park & Luo, 2017; Xie et al., 2021a).

Findings from Study 2: Qualitative Study

In this qualitative study, I explored online learning leaders' perceptions of the current state of institutions' ability to provide accessible and inclusive online learning in higher education and the strategies that institutions were using to accomplish this work. The themes that emerged from the data demonstrate a need to clarify definitions and possibly provide additional training, specifically on inclusivity, to ensure team members can design learning environments that will support all learners. The participants in this study highlighted a growing but still insufficient institutional emphasis on accessibility and inclusivity. They recognized that this topic was becoming a priority, but identified barriers that prevent an institutional culture shift toward widespread buy-in for accessible and inclusive online course design strategies. The data also indicated that instructional designers are increasingly being tasked with supporting faculty in accessible and inclusive design practices, but their lack of ownership over the content presented challenges. Online learning leaders believed that part of their role was to communicate the importance of this work to various stakeholders to make it more of a priority and to support the instructional designers on their teams to accomplish the goal of designing courses that welcome and support all learners. Lastly, the participants in this study outlined various strategies used by instructional design teams, including creating faculty development and leveraging quality standards, to overcome challenges and continue to assist institutions in shifting the culture to prioritize accessible and inclusive online learning in higher education.

Overall, the data from this study suggested that the participants may have a somewhat negative perception of the term *accessibility*. They discussed accessibility as

established technical requirements intended to address the needs of disabled students specifically and that accessibility can be difficult to convince faculty to prioritize. Inclusivity, perhaps due to the broader target audience (e.g., racial, ethnic, and socioeconomic diversity), was seen as newer and a potentially more intriguing way of obtaining buy-in from leaders and faculty alike. Participants noted the importance of capitalizing on the current social movement toward diversity, equity, and inclusion happening nationally and on many campuses.

The data suggested that participants sense the growing momentum and prioritization on their campuses; however, they also felt that the growing emphasis did not necessarily translate into administrative support including the necessary resources or faculty buy-in. A major theme that emerged from the data was that instructional designers are generally the most skilled and knowledgeable in this area, but they lack the agency to enact changes because faculty are typically responsible for the online course content. The question of who is responsible - or should be responsible - for accessible and inclusive online learning in higher education was a contested and largely unanswered question. Participants supported the upskilling of their instructional designers to continue to support and educate faculty on accessible and inclusive online course design strategies regardless of their official responsibility.

Another major theme that arose from the data was the role and responsibilities of the participants as online learning leaders. While they did not generally design courses themselves, they believed that communicating the importance of accessible and inclusive online course design with various stakeholders was an essential part of their role. Participants' strategies shifted from messages about recruitment, retention, and planning

with leadership to the impact of accessible and inclusive design strategies on the student experience when speaking with faculty. To further obtain faculty buy-in for accessible and inclusive design strategies, participants described how their team created a variety of faculty development offerings and leveraged course design quality assurance frameworks; however, without the support from leadership, instructional design teams were limited by a lack of faculty attendance, engagement, and data. Finally, participants also described how they implemented accessibility checker tools such as Ally and UDOIT into their learning management systems to help illustrate accessibility barriers to faculty through a visual flagging system. Again, participants reiterated how the tools may have had an initial impact, but that any accessible and inclusive design initiative needs to be supported by senior administrators and faculty.

Findings from Study 3

This qualitative study was a follow-up to the previous study focusing on online learning leaders in higher education. In this study, I explored instructional designers' perceptions of designing accessible and inclusive online courses and their perceptions of how institutions were accomplishing this goal. The results demonstrated that participants were aware of the importance of accessible and inclusive online course design, despite a lack of sufficient coverage of the topic in their master's programs. Participants engaged in additional professional development to learn the skills needed on the job. The necessity of these skills was affirmed by an analysis of participants' job descriptions which required knowledge, skills, and responsibilities in accessible and inclusive online course design. However, participants were unsure of whether they wanted the responsibility or not. Participants also noted a growing emphasis on accessible and inclusive online course

design at their institutions, and especially within their individual departments since the COVID-19 pandemic and shift to emergency remote teaching. Regardless of their thoughts on who is ultimately responsible for accessible and inclusive online learning, participants generally believed that they played a critical role in helping faculty understand the importance and helping them implement strategies to support learners. Participants described how they used online course design quality assurance frameworks to obtain faculty buy-in, but that strategy also had its limitations.

Participants in this study felt hesitantly confident in their skills in accessible and inclusive online course design; however, they generally believed that their master's programs did not sufficiently prepare them for the on-the-job expectations. Participants felt that they played a critical role in accessible and inclusive online course design, which was corroborated by their job descriptions. Interestingly, participants' job descriptions described required knowledge - specifically UDL, consultative support for faculty in this area, and a level of responsibility for ensuring course designs and materials are inclusive and accessible.

Again, the question of who is responsible for accessible and inclusive online courses and materials arose. The data from this study suggested an alignment between the institutions' instructional design model (i.e., the spectrum of requirements to use instructional design services) and who was perceived as responsible for accessible and inclusive online course design. At institutions where instructional designers built the course with subject matter experts and faculty served only as facilitators, instructional designers were viewed as responsible for the accessibility and inclusivity of course content. However, most participants described a more collaborative approach that

convoluted official responsibilities. Participants described this *"fragmented"* responsibility as a significant barrier to enacting a shift toward accessible and inclusive online course design as an accepted and expected practice. Some felt comfortable in taking responsibility for accessibility and inclusivity while others did not want the responsibility for fear of being blamed for any issues.

Participants described a growing emphasis on accessible and inclusive online course design. Many noted how the COVID pandemic and the recent socio-political events motivated institutions and departments to prioritize this work. Participants described a reluctant need for top-down support to maintain the momentum and growth in this area. They recognized that forcing faculty to utilize instructional design services may not be the best approach. Yet they also believed that it was required to obtain faculty buy-in, especially during a time when faculty have a multitude of competing priorities. The COVID pandemic and the resultant shift to emergency remote teaching had a polarizing effect. At some institutions, it increased faculty's empathy and awareness of the needs of their students. In other instances, it created additional demands on time and resources (e.g., learning new technologies and pedagogical strategies) that decreased emphasis on accessible and inclusive online course design.

Participants in this study emphasized that their role included helping faculty understand the importance of designing accessible and inclusive online learning experiences. They believed that the awareness and understanding built into faculty development initiatives would motivate faculty to implement related strategies. They viewed their role as influencers and advocates to obtain faculty buy-in through one-on-one consultations and training offerings. However, participants also noted a lack of data

on the effectiveness of their efforts in terms of the implementation of strategies into courses. This theme directly ties back to instructional designers' lack of agency over the content. Their consultative role meant that they could only make suggestions, but they did not know to what extent faculty used what they learned.

Lastly, participants described how institutions used course design quality assurance frameworks to prioritize quality, which included accessibility. However, participants noted that faculty did not always engage in quality assurance initiatives. They also noted the limitations of quality assurance frameworks and how they can become boxes to check. For instance, if peer reviewers were not knowledgeable about accessibility, they may miss important barriers. Some participants also noted that it was easier to check other boxes to "pass" a course review than it was to address accessibility issues.

## Scholarly Significance of the Dissertation

This dissertation adds to the nascent but emerging body of literature on the intersection of online learning and disability studies. In particular, these studies addressed the gap in the literature about the potential role of instructional design teams in creating more accessible and inclusive online learning in higher education. The literature review built on previous research but provided a unique perspective by focusing on instructional design teams' role in online course design. Preliminary research suggests that shifting the culture and mindset of institutions and stakeholders will require a collaborative approach (Bugstahler, 2016; Gladhart, 2009; Linder et al., 2015; Tobin & Behling, 2018). Online learning leaders are privy to institutional factors, barriers, and strategies that may influence the abilities of instructional design teams to provide these services and do this

work. Yet, few studies have explored accessible and inclusive online learning from their perspective. More research in this area could influence course design strategies and policies as well as bring needed awareness to accessibility and inclusivity as institutional priorities. Instructional designers are often influential in encouraging faculty to adopt different techniques and pedagogies (Ritzhaupt et al., 2021). I posit that instructional designers are well-positioned to assist faculty and institutions in meeting the needs of diverse learners; however, research suggests that instructional designers may require additional training in accessible and inclusive design to be able to meet the demand of diverse learners and that they may face challenges related to a lack of agency and control over course content in online higher education. Additional research into instructional designers' perceptions of the current state of accessible and inclusive online course design could help to inform preparatory programs, improve instructional design practice, and ultimately support diverse learners.

## Limitations and Assumptions of the Dissertation

As with all research, the studies outlined in this dissertation are based on several assumptions and limited in certain ways. For instance, the stance that instructional design teams are well-positioned to assist faculty and institutions in meeting the needs of diverse learners assumes that instructional designers want this responsibility. Research suggests that instructional designers' commitment to inclusive design varies (Singleton et al., 2019). The results of the third study about instructional designers' perceptions also indicated a split in whether participants wanted the responsibility associated with accessible and inclusive online course design. This dissertation also assumes that institutions and stakeholders want to shift their mindsets and cultures toward a social

model of disability. The social model of disability challenges the way institutions are used to operating, which could be problematic.

As the researcher, I began this research with my own biases and assumptions based on my experiences as a disabled student, instructional designer, and associate director of online learning. It was important to continuously reflect on how my biases and assumptions could impact the research process. I navigated the insider/outsider position by maintaining a research journal, providing participants with a transcript and an opportunity to ensure their intent came across during the interview, and collaborating with Committee members.

Additionally, those who agreed to participate in these studies were likely familiar with accessible and inclusive online course design. While this self-selection bias is a limitation, it could also be a strength in that those with more experience in this area may be able to provide deeper insight into the barriers and opportunities. There is the possibility that participants may have embellished the truth in an attempt to be portrayed in a better light. Accessibility can be difficult to study because participants may want to conform to social norms and appear to be more inclusive than reality. To mitigate this, I attempted to minimize judgment and maintain impartiality during interviews and reiterate my commitment to the confidentiality of the participants.

## Future Research Agenda

These exploratory studies will serve as the guiding foundation for my larger research agenda. The three studies exposed interesting avenues for future research. For instance, in the future, I would like to analyze instructional designer job postings to determine if leaders are actively recruiting instructional designers with skills in accessible

and inclusive course design. Additionally, I am interested in creating a survey to further understand instructional designers skills and knowledge in this area at scale. The survey would be informed by the emergent themes from the three proposed studies. It would also be interesting to understand faculty's perceptions of responsibility in the area of accessible and inclusive course design in online higher education. I am currently part of a research team exploring faculty's perceptions of Ally, an accessibility checking tool in learning management systems. Study two of this dissertation highlighted the potential opportunities for a tool such as Ally to open conversations between instructional design teams and faculty; however, participants in study two of this dissertation also noted how the intrigue of accessibility checking tools may wane after the initial introduction. Our survey will help understand faculty's perceptions of the usefulness and effectiveness of Ally. A follow-up study could also explore instructional designers' perceptions of accessibility checkers as both conversation starters with faculty as well as their perceptions of the impact on disabled students' learning.

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APPENDIX A

## Chapter Three: Study 2 Interview Protocol

The following interview protocol was used during the semi-structured interviews.

1. How long have you been working in the field of instructional design and technology?
2. What is your role at your university?
3. How did you gain the knowledge and skills needed to do your job? (e.g., Do you have a degree or coursework in instructional design and technology?)
4. What does accessible and inclusive online learning mean to you?
5. How would you describe your knowledge and skills on designing accessible and inclusive online? And your team? What about the faculty at your institution?
6. What challenges or barriers do institutions face with providing accessible and inclusive online learning experiences?
7. What strategies is your institution, or other institutions, using to provide accessible and inclusive online courses?
8. Do you think institutions are placing enough emphasis on providing accessible and inclusive online courses? Please explain.
9. Do you think the field, in general, is focused enough on accessible and inclusive online learning?
10. How can leadership improve an institution's ability to deliver accessible and inclusive online learning experiences?
11. Are there any factors that influenced your team's ability to provide accessible and inclusive online learning experiences?
12. Do you have any additional comments?

APPENDIX B

## Chapter Four: Study 3 Interview Protocol

I asked the participants the following questions during the semi-structured interview.

1. Please describe your background as an instructional designer. How long have you worked in the field? What training or coursework have you completed to prepare you to do your job?
2. What does accessible and inclusive online learning mean to you?
3. How would you describe your knowledge and skills in designing accessible online courses? How about your fellow instructional designers? And faculty?
4. What aspects of accessible course design do you think you and/or your fellow instructional designers could use additional training on and/or support with?
5. At your institution, who is responsible for designing accessible online courses?
6. What barriers do instructional designers face with designing, and/or supporting faculty to design, accessible online courses at your institution?
7. How (if at all) have instructional designers addressed these barriers at your institution?
8. From your perspective, does your institution place enough emphasis on designing accessible online courses? Please explain.
   If not, what could they be doing differently?
9. How has your institution's emphasis on creating accessible online courses changed during the past few years?
10. Do you have any additional comments?