

UDL: A TOOL FOR INCREASING ACCESS TO LEARNING

By

CLARE ANN EMMERT

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Approved by:

Dr. Sue Kroeger

Department of Disability and Psychoeducational Studies

Abstract

As the student population on University campuses continues to diversify, there is an increasing need for course curriculum that models the core values of access, equity, and inclusion. Universal Design for Learning, a theoretical framework that expects diversity, can be used in the design and implementation of course curriculum that facilitates effective learning for all students. Using the UDL Guidelines Checklist, two courses in the department of Family Studies and Human Development were evaluated for their alignment with UDL principles. Results indicate that UDL alignment is poor across both course curriculums, emphasizing the need for further research that explores the barriers to UDL implementation.

Introduction

For many, the experience of going to college is invaluable, as it brings both exciting and challenging opportunities to learn. While universities enroll individuals from vastly different backgrounds, including some who have already held a career and others who have yet to decide which major fits their interests, there is one theme that unites the student body: the years spent on a college campus can be transformative. As individuals take classes, live on their own, and make more choices independently, they develop lifelong friendships, greater responsibility, and a career interest. Undeniably, the university experience serves as a conduit for personal growth for many who participate. For people with intellectual disabilities, this life-changing experience is not typically accessible. Universal Design for Learning (UDL) is an evidence-based theoretical framework that targets this gap, as it aims to create course curricula that are accessible to not only students with diverse learning needs, but to all learners. This project serves as a starting point for evaluation of UDL implementation on the University of Arizona campus by assessing two Family Studies and Human Development (FSHD) course curricula.

Background

People with disabilities have experienced an oppressive history that has limited their ability to participate in society as an equal and valued member. For those with intellectual disabilities, that history has been especially horrific. For example, in the early 1900s, people with intellectual disabilities were involuntarily sterilized in an effort to eliminate the population altogether (“Story of Intellectual Disability Timeline”). By 1967, over 194,000 individuals with intellectual disabilities were living in institutions based on the widely held belief that they were a burden on their family and held no potential (“Story of Intellectual Disability Timeline”). In 1972, journalist Geraldo Rivera saw for himself the terrible conditions of one of these institutions- Willowbrook- where individuals with disabilities experienced neglect, physical and sexual abuse, and dangerous living conditions (Brown). Undeniably, people with intellectual disabilities have endured significant stigma and oppression throughout history.

The passage of the Americans With Disabilities Act in 1990, marks a major victory for those who recognized the need to confront the inequities experienced by people with disabilities. This legislation mandates access and reasonable accommodations while prohibiting discrimination (“The Americans with Disabilities Act of 1990”). People with intellectual disabilities now have greater opportunities to participate in the community and be treated with dignity and respect (“Story of Intellectual Disability Timeline”).

Despite these gains, educational access has long been an area to which people with intellectual disabilities have been left behind. The Education for All Handicapped Children Act of 1975, was the first law that guaranteed students with disabilities the right to a public education (Kleinert, Jones, Sheppard-Jones, Harp, & Harrison, 2012). The Individuals With Disabilities

Education Act (IDEA) of 2004, moved one step further by ensuring that individuals with disabilities would learn alongside their peers (Kleinert et al., 2012). As society continues to expand opportunities regarding inclusive education for individuals with intellectual disabilities, there are more programs available for students with intellectual disabilities to attend college, with over 260 such programs currently operating nationwide (Jones et al., 2015). Still, students with intellectual disabilities in particular remain the most underrepresented group of students with disabilities attending post-secondary education (Kleinert et al., 2012).

The University of Arizona and Universal Design for Learning

Intellectual disabilities, according to Hart et al. (2006), “refers to students with significant learning, cognitive, and other conditions” (p.2). Accordingly, success in an academic setting can be challenging for individuals with intellectual disabilities who have not experienced a teaching philosophy that expects (rather than solely accommodates) diverse learners. To ensure that teachers are prepared to meet the needs of diverse learners, a set of guiding principles has been developed to support curriculum development and teaching strategies. This is called Universal Design for Learning (UDL).

Perhaps a simple way to understand the UDL framework is to begin with Universal Design (UD), which is defined as environments designed to be usable by the greatest number of people possible (Hartmann, 2015). A common example of Universal Design is curb cuts. Placing a curb cut at the end of a sidewalk, wheelchair users, individuals pushing a stroller, delivery personnel, or even skateboarders benefit. Universal Design for Learning carries the same goal, except instead of providing diverse populations with greater access to the physical environment, UDL targets accessibility as it pertains to access to *learning*. UDL is rooted in the acknowledgement that 21st century learners are diverse. They come to classrooms with different

backgrounds, identities, experiences, and strengths (Hartmann, 2015). Two individuals with similarities in each of these areas may learn best in different ways (Hartmann, 2015). Thus, UDL seeks to address learner variability by creating optimal access to general education course content (Hartmann, 2015). Hartmann (2015) reminds readers of a very important concept, which is that “When students are paired with an inflexible curriculum, the variability found in learners is often perceived as a challenge that must be overcome through remediation of the student. The UDL framework helps teachers to see how inflexible curricula are the problem, not the learner” (p.57). This perspective is powerful, as it places the responsibility of access to learning on the course designer, i.e., faculty, over the student. Such a statement acknowledges UDL as a crucial teaching philosophy, as it teaches educators to expect and plan for diversity through flexible, universally designed curricula.

The three principles of UDL are Principle I: provide multiple means of representation (“the ‘what’ of learning”), Principle II: provide multiple means of action and expression (“the ‘how’ of learning”), and Principle III: provide multiple means of engagement (“the ‘why’ of learning”) (Wakefield, 2011). Principle I targets perception and comprehension, Principle II targets physical action, expression/communication, and executive functioning, and Principle III targets recruiting interest, sustaining effort, and providing options for self-regulation (Wakefield, 2011).

The University of Arizona not only acknowledges the value of a diverse student body with statements on the value of inclusive excellence (IE), but also promotes Universal Design for Learning (UDL) as a theoretical framework that can be used to support the learning of all students. In its dedication to inclusive excellence (IE), the University of Arizona has stated

that:

“At the center of IE is the recognition and acceptance of the talents, worldviews, perceptions, cultures and skills that diverse communities bring to the educational enterprise that can be harnessed to prepare students for leading, living and working in a diverse world. Native American, LGBTQ, Asian American, White, Latino, African American, women, veterans, people with disabilities, Jewish, Christian, International, Muslim, fraternities and sororities, athletes, alumni and many other communities of students, staff and faculty contribute positively to all dimensions of the university.” (“A Vision For Our Campus”).

The University of Arizona publicly acknowledges the talents and skills of people with disabilities as those who “contribute positively to all dimensions of the university” (“A Vision For Our Campus”). These statements are supportive of the very values that led individuals with intellectual disabilities out of institutions and into greater community participation, access to choices, and ultimately, an increased quality of life.

Additionally, the Disability Resource Center (DRC) has extensive resources related to UDL on their website, including a UDL page. The site includes a tool for UDL implementation, as well as an extensive list of additional resources that includes websites, peer reviewed articles and books, online tutorials, and accessible technology. It is clear that the University of Arizona supports and recognizes the importance of UDL implementation as it pertains to the learning experience of all students.

Review of Literature

The benefits of college for students with intellectual disabilities

Historically, the idea of individuals with intellectual disabilities attending college has been challenged (Jones et al., 2015). However, there is substantial support that the inclusion of intellectual diversity in postsecondary institutions is beneficial to everyone. Attending college fulfills aspirations held by individuals with intellectual disabilities to access employment, gain independence, have friends, engage in campus life, and attend classes (Moon, Grigal, & Neubert, 2001). Participation in a postsecondary program also improves health and wellness, including “emotional well-being, interpersonal relationships, personal development, self-determination, and social inclusion” (Kleinert et al., 2012, p.28). Furthermore, a study by Kleinert et al. (2012) showed that the college experience led to better employment outcomes for individuals with intellectual disabilities, with participants being 26% more likely to have exited their post-secondary program with a paid job and an income that was 73% higher than individuals with disabilities who only received services from vocational rehabilitation. Zafft, Hart, & Zimbrich (2004) suggested that simply being able to say one has attended college also targets the negative biases held by others, and thus participation in college can begin to alleviate the attitudinal barriers to community participation and employment that individuals with intellectual disabilities face. Hart, Grigal, Sax, Martinez, & Will (2006) capture the importance of college for individuals with intellectual disabilities, claiming:

“For students with intellectual disabilities, this growth is also reflected in increased self-esteem when they begin to see themselves as more similar to than different from their peers without disabilities. Being part of campus life, taking classes (whether auditing or for credit), and learning to navigate a world of high expectations develops

the skills needed for successful adult life. When we keep college in the mix of possibilities as students with intellectual disabilities explore which steps to take after high school, it makes the statement that we believe in their potential for success.”

(p.1)

Indeed, people with intellectual disabilities deserve to be viewed as valuable members of society whose “difference, including difference in ability, is perceived as a strength and an integral part of any community” (Jones et al., 2015, p.1). With over 260 postsecondary programs across the country (including the University of Arizona) and substantial support of its benefits, the question of “Should students with intellectual disabilities be in college?” is being replaced with “How can Universities better serve this student population?”

Teaching students with intellectual disabilities can benefit everyone

One of the most crucial aspects of UDL is that the strategies implemented are intended to benefit the greatest number of students possible. Accordingly, it is important to acknowledge that adhering to criteria outlined by the UDL framework can increase access to learning for all students. For example, a campus culture rooted in inclusion (Obiozor et al., 2011) is beneficial for everyone because “...educational environments are most powerful when they offer students three fundamental conditions: a sense of security and inclusion, mechanisms for involvement, and an experience of community” (Strange & Banning, 2001). Furthermore, using technology to provide multiple formats (Obiozor et al., 2011) promotes the learning of all students because they cultivate an engaging environment that targets different learning styles. For example, visual learners benefit from videos/PowerPoints rather than text, and blind students require lecture content that can be accessed audibly (National

Center on Universal Design for Learning).

UDL's guidance of breaking down concepts into chunks (Obiozor et al., 2011) is also beneficial because it allows for the mastery of one concept before moving onto the next. Opitz (2002) states that “easy-to-read content benefits all learners by ‘chunking’ the information into blocks of important information that can be easily read and understood by any audience,” and not hindering the learning experience of any student (p.17). Speaking slowly (Obiozor et al., 2011) also benefits diverse learners, such as deaf students who have an interpreter or students whose first language is not English (Munroe & Derwig, 2011). Lastly, employing hands-on learning (Obiozor et al., 2011), which could include practicum experiences, community involvement, or a classroom-based activity, provides “not-so-obvious benefits of experiential learning, including school-community linkages, proactive economic development outcomes, and technology transfers” (Cantor, 1997). Thus students who may not necessarily require hands-on learning to grasp course content do actually benefit from these practical experiences.

It is important to note that the goal of creating accessible, inclusive classrooms for students with intellectual disabilities does not mean that the learning of other students is compromised. Instead, UDL promotes that a course should be designed to benefit the most students possible “without the need for adaptation or specialized design” (Burgstahler). This is supported by the University of Connecticut, which states UDL “operates on the premise that the planning and delivery of instruction, as well as the evaluation of learning can incorporate inclusive attributes that embrace diversity in learners without compromising academic standards” (UDI Online Project). It can be concluded that the strategies that support

access to learning for SWIDs do fit into the UDL framework, uphold the academic rigor of a course, and benefit all students.

The implementation of UDL has the potential to change the university experience for all students. The benefits for SWIDs include improved employment and psychological outcomes, while students and teachers gain greater appreciation for human difference. When courses are universally designed, all students benefit from inclusion, opportunities to learn and demonstrate knowledge, and stronger classroom communities. While the University of Arizona's DRC provides an extensive list of resources for UDL implementation, there remains a critical question: are these resources being used by professors? Therefore, this project aims to begin an effort to understand UDL guidance and implementation on the University of Arizona campus through an evaluation of two Family Studies and Human Development (FSHD) courses.

Methods

Two course curricula in the FSHD department were evaluated three times each over a four week period. The content of the two courses varied significantly. FSHD 197A: "Introduction to Family Studies and Human Development" is a one-unit course that prepares students for the FSHD major through awareness of department resources, graduation requirements, and career opportunities. For many FSHD students, this the first course they take upon declaring an FSHD pre-major. In contrast, FSHD 487: "Advanced Family Relations" is an upper-division course that students take when nearing graduation. This course draws on knowledge of FSHD theory and research that students gain from the program. These courses were selected for the UDL Guidelines Checklist evaluation because

both are courses that every FSHD student is required to take, yet each is unique from the other in terms of content and prerequisites.

Through in-person observation and access to online platforms (D2L), each curriculum was evaluated using the UDL Guidelines Checklist from the West Virginia Department of Education. This checklist was based on original UDL guidelines developed by the National Center on Universal Design for Learning. The evaluator modified the checklist by adding numbers (i.e. 1.1.1, 1.1.2, etc.) to criteria previously listed as numberless bullet points under major checkpoints (i.e. Checkpoint 1.1). This modification allowed for systematic evaluation and data reporting that could be based on curricular criteria. Materials used during lecture, materials provided online, and homework assignments due on the day of observation were all considered by the evaluator when completing the UDL Guidelines Checklist. For FSHD 197A, observation days included the following three lectures: “FSHD Advising Part 1,” “FSHD Advising Part 2,” and “APA Writing.” For FSHD 487, observation days included the following lectures: “Social Exchange/ Interdependence,” “Interdependence,” and “Feminism.” The evaluator then reviewed the data to determine which checkpoints were met and unmet by each course. For a checkpoint to be considered “met,” over 50% of the supporting criteria needed to be satisfied by the curriculum. For example, FSHD 197A did not meet Checkpoint 5.1 (*Use multiple media for communication*) because the curriculum only satisfied one criteria (5.1.1) out of five relevant criteria (5.1.1-5.1.5).

Results

Figure 1.0 shows the results of the UDL Guidelines Checklists for each class, allowing for comparisons between the two course curricula. An “X” represents that the

checkpoint criteria was met, while a blank box represents that the checkpoint criteria was not met. The abbreviation “NR” for *not relevant* denotes which checkpoint criteria were not considered when determining if over 50% of criteria were met. For example, criteria 2.3.2 from Checkpoint 2.3 requires “use of automatic voicing with digital mathematical notation (Math ML)” (National Center on Universal Design for Learning). However, FSHD 197A is not a math class and math was not in the curriculum, so this criteria was not relevant when determining if Checkpoint 2.3 was met.

Figure 1.0: Evaluation Results of the UDL Guidelines Checklist for FSHD 197A and FSHD 487

Checkpoint	Criteria	FSHD 197A	FSHD 487	Checkpoint	Criteria	FSHD 197A	FSHD 487
1.1	1.1.1		X	5.2	5.2.6		
	1.1.2		X		5.2.7	NR	
	1.1.3		X		5.2.8	X	
	1.1.4	NR		5.3	5.3.1	X	X
	1.1.5	NR			5.3.2	X	X
	1.1.6		X		5.3.3		
	1.1.7		X		5.3.4		
1.2	1.2.1				5.3.5		
	1.2.2	NR		6.1	6.1.1		X
	1.2.3	NR			6.1.2	X	
	1.2.4	NR	NR		6.1.3		
	1.2.5	X			6.1.4	X	
	1.2.6	NR		6.2	6.2.1		X
	1.2.7	NR			6.2.2		X

1.3	1.3.1	X	X		6.2.3	X	
	1.3.2				6.2.4		
	1.3.3				6.2.5	X	
	1.3.4	X		6.3	6.3.1	X	
	1.3.5	NR			6.3.2		
	1.3.6				6.3.3	X	X
	1.3.7			6.4	6.4.1	X	X
2.1	2.1.1	X	X		6.4.2		X
	2.1.2	NR			6.4.3		
	2.1.3	NR	X		6.4.4		
	2.1.4				6.4.5		
	2.1.5				6.4.6		
2.2	2.2.1		X	7.1	7.1.1		
	2.2.2				7.1.2		
	2.2.3		X		7.1.3		
2.3	2.3.1	NR	NR		7.1.4		X
	2.3.2	NR	NR		7.1.5		
	2.3.3	NR	NR		7.1.6		
	2.3.4	NR	NR		7.1.7		
	2.3.5	NR	NR		7.1.8	X	
2.4	2.4.1			7.2	7.2.1	X	X
	2.4.2				7.2.2	X	X
	2.4.3	NR			7.2.3	X	X
	2.4.4				7.2.4	X	X
	2.4.5		X		7.2.5	X	X
2.5	2.5.1		X		7.2.6	X	X
	2.5.2		X		7.2.7	X	X
3.1	3.1.1		X		7.2.8		X

	3.1.2	X			7.2.9		X
	3.1.3	X	X	7.3	7.3.1	X	X
	3.1.4				7.3.2	X	
	3.1.5	X	X		7.3.3		X
3.2	3.2.1	X	X		7.3.4		
	3.2.2	X	X		7.3.5		
	3.2.3	X	X		7.3.6		X
	3.2.4				7.3.7	X	X
	3.2.5				7.3.8	X	X
3.3	3.3.1		X		7.3.9		X
	3.3.2	X		8.1	8.1.1	X	
	3.3.3	X			8.1.2	X	
	3.3.4	X	X		8.1.3	X	
	3.3.5		X		8.1.4	X	
	3.3.6		X		8.1.5	X	
	3.3.7		X		8.1.6		
	3.3.8	X	X	8.2	8.2.1		
3.4	3.4.1	X			8.2.2		
	3.4.2				8.2.3		
	3.4.3	X	X		8.2.4		
	3.4.4			8.3	8.3.1		X
	3.4.5				8.3.2	NR	NR
	3.4.6		X		8.3.3		
	3.4.7				8.3.4	X	X
	3.4.8				8.3.5	X	X
4.1	4.1.1				8.3.6	NR	X
	4.1.2			8.4	8.4.1		
	4.1.3				8.4.2		X

4.2	4.2.1				8.4.3		X
	4.2.2				8.4.4		X
	4.2.3				8.4.5		X
	4.2.4			9.1	9.1.1		
	4.2.5				9.1.2		
5.1	5.1.1	X	X		9.1.3		
	5.1.2				9.1.4	X	
	5.1.3				9.1.5	X	
	5.1.4		X	9.2	9.2.1		
	5.1.5				9.2.2		
5.2	5.2.1				9.2.3		
	5.2.2				9.2.4		
	5.2.3	NR			9.2.5		
	5.2.4			9.3	9.3.1		
	5.2.5		X		9.3.2		

Although there were 31 total checkpoints, 1 checkpoint (Checkpoint 2.3) received “NR” for every supporting criteria in both classes. Therefore, Checkpoint 2.3 was not included in the data analysis. Out of 30 possible relevant checkpoints, there were thirteen identical checkpoints that both course curricula did not meet (43.3%). In contrast, there were two identical checkpoints that both course curricula did meet (6.7%). The remaining 15 checkpoints were cases in which the checkpoint was met by one course but not the other. When looking at each course individually, FSHD 197A did not meet 25 out of 30 total checkpoints (83.3%), while FSHD 487 did not meet 20 out of 30 total checkpoints (66.7%). In contrast, FSHD 197A did meet 5 out of 30 total checkpoints (16.7%) and FSHD 487 met 10 out of 30 total checkpoints (33.3%). The following sections will address the two sets of identical checkpoints (those which were met and

those which were not met by both courses) to provide a foundation for understanding how well the broader FSHD department incorporates UDL.

Identical Set A: checkpoints met by both course curricula

There were two checkpoints in which both courses met more than 50% of the criteria: Checkpoint 3.2 and Checkpoint 7.2. The first, Checkpoint 3.2, suggests that course curricula “highlight patterns, critical features, big ideas, and relationships” (National Center on Universal Design for Learning). This checkpoint has been placed beneath *Guideline 3: Provide options for comprehension*, which aims not only to make information accessible, but to also ensure that information is usable and translatable to new contexts by learners. Crucial to achieving this guideline is the ability to differentiate between material that is critical and material which is less important (supported by Checkpoint 3.2). In both courses, the course curriculum showed evidence that supported Criteria 3.2.1: Highlight or emphasize key elements in text, graphics, diagrams, formulas; Criteria 3.2.2: Use outlines, graphic organizers, unit organizer routines, concept organizer routines, and concept mastery routines to emphasize key ideas and relationships; and Criteria 3.2.3: Use multiple examples and non-examples to emphasize critical features (National Center on Universal Design for Learning).

In FSHD 487, the lecture included diagrams to highlight and explain relationships in theories, such as Social Exchange Theory (Criteria 3.2.3). These diagrams were also explained verbally and in written text on PowerPoint slides (Criteria 3.2.3), while key elements were marked on slides in bold lettering (Criteria 3.2.1). In FSHD 197A, the lecture included both a hard-copy diagram to illustrate the requirements needed to graduate from the FSHD major (Criteria 3.2.1) as well as provided two different organizational worksheets (one as a customizable planning tool, the other as a checklist) (Criteria 3.2.2). In both cases, key elements

were highlighted on the handouts (Criteria 3.2.1) and multiple examples were provided (Criteria 3.2.3).

Checkpoint 7.2, which suggests course curricula “optimize relevance, value, and authenticity” (National Center on Universal Design for Learning) was also met by both course curricula. This included Criteria 7.2.1: (Vary activities and sources of information so that they can be) personalized and contextualized to learners’ lives; Criteria 7.2.2: (Vary activities and sources of information so that they can be) culturally relevant and responsive; Criteria 7.2.3: (Vary activities and sources of information so that they can be) socially relevant; Criteria 7.2.4: (Vary activities and sources of information so that they can be) age and ability appropriate; Criteria 7.2.5: (Vary activities and sources of information so that they can be) appropriate for different racial, cultural, ethnic, and gender groups; Criteria 7.2.6: Design activities so that learning outcomes are authentic, communicate to real audiences, and reflect a purpose that is clear to the participants; and Criteria 7.2.7: Provide tasks that allow for active participation, exploration, and experimentation (National Center on Universal Design for Learning).

Checkpoint 7.2 seeks to maximize accessibility by recruiting learners’ interest and helping learners find meaning and relevance in content, especially as it pertains to their personal goals (National Center on Universal Design for Learning). In each FSHD 197A class observed, students were encouraged to consider their career goals when doing class assignments (Criteria 7.2.1), made aware of different thematic minors that could deepen student’s education around areas important to them, such as American Indian studies (Criteria 7.2.2), and provided resources surrounding clubs they may become involved in to deepen their understanding of FSHD curricula (Criteria 7.2.3). Resources provided often incorporated “what-if” advising scenarios, such as for students who may have credits transferring from high school, as well as

recommended courses to strengthen students' educational foundation before moving onto more advanced classes (Criteria 7.2.4). The curricula also emphasized the flexibility of the FSHD program to suit students' unique attributes and interests so as to be relevant to individuals from different racial, cultural, ethnic, or gender groups (Criteria 7.2.5). Lastly, curricula frequently referenced the end goal (i.e. graduation) to keep course content relevant and purposeful (Criteria 7.2.6), and in-class activities included experimentation in designing a customizable graduation plan (Criteria 7.2.7).

The curriculum of FSHD 487 also met Checkpoint 7.2. In each class observed, students engaged in group work in which they were given a case study and asked to answer reflection questions that built on new material. The stories were often representative of individuals with diverse characteristics (i.e. from different racial, ethnic, and socioeconomic backgrounds, of various ages, etc.), which satisfies Criteria 7.2.2, 7.2.3, 7.2.4, and 7.2.5. Furthermore, every group member had to participate, supporting Criteria 7.2.7. The variation in group work case studies was complemented by lectures that incorporated recent news articles, songs from popular artists, and stories about celebrities, which supports making content relevant to students' personal lives (Criteria 7.2.1). Lastly, the instructor frequently clarified how course content could be used to support students in developing or sustaining healthy relationships with others (reflecting purposeful learning), thus meeting Criteria 7.2.6.

Checkpoints not met by both course curricula

While it is important to consider the strengths of these two FSHD curriculums, it is also necessary to observe areas that require improvement in UDL alignment so as to better meet the needs of diverse learners. There were thirteen different checkpoints that were not met by course curricula, meaning 50% or less of corresponding criteria were satisfied. These included

Checkpoint 1.3: Offer alternatives for visual information; Checkpoint 2.4: Promote understandings across languages; Checkpoint 3.4: Maximize transfer and generalization; Checkpoint 4.1: Vary the methods for response and navigation; Checkpoint 4.2: Optimize access to tools and assistive technologies; Checkpoint 5.1: Use multiple media for communication; Checkpoint 5.3: Build fluencies with graduated levels of support for practice and performance; Checkpoint 6.4: Enhance capacity for monitoring progress; Checkpoint 7.1: Optimize individual choice and autonomy; Checkpoint 8.2: Vary demands and resources to optimize challenge; Checkpoint 9.1: Promote expectations and beliefs that optimize motivation; Checkpoint 9.2: Facilitate personal coping skills and strategies; and Checkpoint 9.3: Develop self-assessment and reflection (National Center on Universal Design for Learning). In the unmet checkpoint neither course satisfied more than 40% of the criteria, meaning rates at which the criteria of individual checkpoints was not met ranged from 60%-100%. There were five checkpoints (16%) in which 100% of the criteria were not met by either course: Checkpoints 4.1, 4.2, 8.2, 9.2, and 9.3.

Discussion

Overall, the results indicate that, although FSHD 487 performed better than FSHD 197A, the implementation of UDL in FSHD 197A and FSHD 487 is poor. As an evidence-based framework, UDL provides a solution to the potential gap between the design of course curricula and the needs of diverse learners. Despite the validity of the UDL framework, the need, and the University of Arizona's explicit support, both courses failed to meet the majority of UDL checkpoints. Perhaps most troubling is that 16% of all checkpoints had 100% of criteria unmet. These checkpoints require little modification of course curriculum to satisfy supporting criteria.

For example, one of the checkpoints (Checkpoint 4.1) requires that course curricula “vary the methods for response and navigation” (National Center on Universal Design for Learning). This suggests course curricula offer alternatives to the ways in which students engage with in-class activities, such as variation of timing or physical effort. FSHD 197A, only provided the graduation planning tools in a hard-copy format, meaning students’ only option to engage in course material was by physically writing on the form. For students who prefer or can only use digital formats, the professor could provide an electronic copy of the form via D2L so that students may access an alternative format during class. Similarly, in FSHD 487, students were required to turn in hand-written responses from group-work. Alternatively, students could be given the option of typing their responses and emailing a copy to the professor by the designated deadline. It is strongly encouraged that professors utilize DRC resources to target the checkpoints unmet by their courses, as modifications may be simple and readily achievable.

The results of this project point to a critical question: what is preventing UDL implementation? Considering there were more checkpoints unmet than met, it is clear that further research is required to determine barriers. For example, are professors simply unaware of the UDL framework? Are professors aware of the UDL framework, but choose not to implement it (and if so, why)? Are professors attempting to implement UDL but not receiving any results? As this study has established that UDL is not significantly evident in these two FSHD curricula, further research should aim to better understand the barriers to UDL implementation through professor interviews or focus groups.

There are substantial limitations to this study. Due to resource constraints, only three observations were made in each class. Therefore, the evaluations were reflective of the content presented on observation days only. Future studies should evaluate courses from beginning to

end to gain a more complete understanding of curriculum design. Furthermore, additional courses in the FSHD department should be evaluated in order to make accurate generalizations around FSHD curriculum and UDL alignment. Future studies should also expand to different departments within the University of Arizona to explore whether certain areas of study align with the UDL framework, including how and why.

Conclusion

While the data only represents two course designs in the FSHD department, the results establish a foundation for evaluating FSHD curricula and predicting strong and weak points of UDL implementation in the FSHD department. Future research building upon this study could be invaluable to the DRC to improve outreach materials and faculty resources. The need for successful UDL implementation cannot be over emphasized, as it promotes the message that every student is equally deserving of a high-quality education to help them attain their goals. While this study initially focused on improving access to learning for students with intellectual disabilities, it is clear that the UDL framework is critical for today's diverse student populations. Teachers and members of educational institutions should prioritize UDL implementation, as the quality of education matters and should be accessible and effective for all students.

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