# Implementing Universal Design for Learning in Higher Education

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Action research is a method of inquiry useful in solving social problems in higher education. This study seeks to address a significant problem: higher education's use of traditional instructional methods in higher education settings. Ineffective techniques, such as lecturing, fail to account for students' variable learning needs. In contrast to traditional pedagogy, universal design for learning (UDL) is a robust framework that "[improves] and [optimizes] teaching and learning for all people" (CAST, 2018), including students with disabilities. For this study a UDL & Accessibility Specialist at their institution was chosen for two reasons: (1) to learn how to implement UDL practices in their classrooms, and in turn, (2) motivate other faculty members at their institution to consider enacting UDL principles. A thematic analysis of the interview transcript reveals themes relevant to practicing UDL. Implications for future practice, as well as the researchers' reflections on the research process, are shared in the discussion section.

**Key words:** *Universal Design for Learning; Action Research; Higher Education, Inclusive Practice.*

**Implementing Universal Design for Learning in Higher Education**

In higher education, faculty members tend to favour traditional pedagogical methods of instruction, such as lecturing (Jones, 2007; French & Kennedy, 2017). This holds especially true at large universities, where class sizes typically possess greater numbers of students (Gibbs & Jenkins, 2014; Jones, 2007). While it may be the most convenient instructional method of content delivery, lecturing fails to accommodate the diverse learning styles among student populations. Doing so may benefit auditory learners; however, lecturing limits information access for other learners e.g. visual and kinaesthetic learners (Rogowsky, Calhoun & Talla, 2015). The pedagogical practice of lecturing has been proven ineffective, because students lack opportunities to foster and deepen critical thinking skills (Zheng, Chen & Huang, 2016). These students may also struggle when applying course concepts to real-life

scenarios (Zheng et al., 2016; Bristol, 2016). In higher education learning environments, it is crucial for students to learn how to apply course concepts to field practice. Thus, emphasising the need for university faculties to become aware of the benefits of Universal Design for Learning (UDL) practices.

Traditional pedagogy also neglects the learning needs of students with disabilities. The U.S. Department of Education reports that 11% of students enrolled in American colleges and universities possess some form of physical or cognitive impairment (Raue & Lewis, 2011). This number is expected to grow in the coming years (Newman, Wagner, Cameto, Knokey & Shaver, 2010). To meet the needs of all students, including those with disabilities, instructors at colleges and universities should consider implementing UDL, a dynamic framework designed to help students become "expert learners" (CAST, 2018). Since educators value diversity and equality in the classroom, it is vital for educators to implement pedagogical methods that suit the needs of varied learners, such as students with disabilities.

Contrary to traditional means of instruction, UDL is a framework for "[improving] and [optimizing] teaching and learning for all people" (2018), including students with physical and cognitive impairments. Educators who implement UDL practices in their classrooms can better address their students' variable learning needs. While the framework has existed since the 1980s, UDL is a progressive, yet relatively new concept within higher education. Thus, faculty members may be unaware of its benefits (Bedrossian, 2018). By learning about and adopting UDL, faculty members in postsecondary institutions can reduce barriers to information access and foster a more inclusive learning environment (U.S. Department of Education, 2008).

**Purpose of the Study**

An insider approach was used for this study by using a professor at a large University (McNiff, 2017). The researcher identifies as having a disability and is sensitive to the needs of students with diverse learning styles. The purpose of this action research study is two-fold: firstly, the researcher's desire to improve their instructional practices by learning about and adopting the UDL framework; and secondly, to motivate other faculty members at the University to enact UDL practices in their classrooms. By conducting an interview with the institution's UDL & Accessibility Specialist, the researchers will identify ways in which they can improve their teaching and promote UDL campus-wide.

**Significance of the Study**

This study is crucial to drawing attention to UDL and the magnitude of its benefits. The researcher's endeavour is to enhance their own teaching, inspire other faculty members at their institution to embrace UDL, and ultimately, help all University students acquire a

positive learning experience. By implementing and sharing the UDL principles, the researchers will help foster an inclusive learning environment in which students are purposeful and motivated, resourceful and knowledgeable, and strategic and goal-directed (CAST, 2018).

**Research Questions**

There are two research questions underlying this study:

RQ1:   How can we implement universal design for learning (UDL) practices to best accommodate our students' variable learning needs?

RQ2:   How can we motivate faculty members to consider enacting UDL practices?

**Review of Literature**

***Overview of Universal Design for Learning (UDL)***

UDL is a framework for "[improving] and [optimizing] teaching and learning for all people" (CAST, 2018), including students with physical and cognitive impairments. UDL was developed based on theories of education and neuroscience (Rose & Gravel, 2010). Educators who implement UDL practices in their classrooms –physical and remote – can best account for their students' variable learning needs. While the framework has existed since the 1980s, UDL is a relatively new concept within higher education (Bedrossian, 2018). Faculty members in colleges and universities can adapt their instructional methods to reduce barriers to information access and foster a more inclusive learning environment (U.S. Department of Education, 2008). As Bedrossian (2018) writes, "disability service providers are in prime position to advocate for more deliberate planning and use of diverse teaching, learning, assessment, and motivation approaches" (p. 7). To put UDL into practice in their classrooms, faculty members should follow the UDL framework.

The UDL framework provides three guidelines for instructors to follow (CAST, 2018). First, educators should provide their students with multiple means of engagement. Students with unique interests must find value in educational content before they will attend to and process information. Second, instructors should represent concepts in various ways. Students who process information differently (e.g., visual, auditory), or learners who enter the classroom with varying degrees of prior knowledge, should benefit from the same lesson. Third, educators should provide multiple means of action and expression. For example, a student who is dyslexic may struggle to write a paper. Instead of requiring every student to submit a written assignment, the instructor could permit the student to deliver a presentation to the

class, or perhaps record a video of him or herself. While the delivery method may be different, the assignment's objective and the quality of the student's ideas remain the same.

### *Traditional Teaching Methods Present Barriers to Learning*

Teaching commonly consists of two phases, per the constructionist inquiry-based learning model: (1) acquiring conceptual understanding of the content being taught, and (2) applying the concepts to real-world examples (Jensen, Kummer & Godoy, 2014). This is commonly achieved through the use of traditional pedagogical models of instruction. In traditional pedagogy, instructors facilitate the attainment of content through lecturing, the primary method of delivery in higher education (Jones, 2007; French & Kennedy, 2017). This holds especially true at large universities, where classes typically have greater numbers of students (Gibbs & Jenkins, 2014; Jones, 2007).

Although lecturing is the most convenient instructional strategy, it fails to accommodate all learning styles. Lecturing suits the needs of auditory learners, but limits information access for visual and kinaesthetic learners (Rogowsky, Calhoun & Talla, 2015). To meet the needs of all learners, it is imperative that instructors at colleges and universities implement more dynamic instructional methods that better satisfy the needs of variable learners.

Not only does lecturing inadequately meet the needs of a diverse student population, the technique has been proven to be ineffective (French & Kennedy, 2017). Some researchers argue that lecturing alone is "unethical" due to its proven barriers (Bajak, 2014). Lectures do not provide students with opportunities to foster critical thinking skills (Zheng, Chen & Huang, 2016). Additionally, students who attend lectures lack the ability to apply course concepts in real-life scenarios (Zheng et al., 2016; Bristol, 2016). Therefore, traditional instructional methods, such as lecturing, are ineffective. Faculty members in higher education should strongly consider implementing UDL in their classrooms.

### *Creating Expert Learners*

The ultimate aim of UDL is to create "expert learners" (CAST, 2018). Expert learners are purposeful and motivated, resourceful and knowledgeable, and strategic and goal-directed (2018). Students become expert learners when they: become engaged with learning content; have clear, rigorous learning objectives; strategically plan for upcoming assignments; and can articulate their ideas in constructive ways. Rogers-Shaw, Carr-Chellman & Choi (2018) illustrated the benefits of UDL when describing their efforts to redesign an online course using the framework's guidelines. In their study, students reported greater enjoyment and motivation when they engaged with more accessible learning materials. Therefore, students benefit when instructors enact UDL principles.

## Methodology

### Action Research

To answer RQ1 and RQ2 the researchers employed an action research design. Action research enables anyone, regardless of their background, to reflect on their own practices and, ultimately, solve significant social problems (McNiff, 2017). Following the action-reflection cycle documented in McNiff (2017), the researchers sought to understand the importance of UDL and inspire faculty members to implement UDL practices in their classrooms. To achieve a fuller understanding of UDL practices, and how the framework can be used to optimise diverse students' learning experiences, the researcher interviewed an expert on how to best implement UDL practices in higher education settings. This framework can be utilised by instructors in both physical and remote learning environments.

### Data Collection

To gain additional insights into UDL practices and how they may improve students' learning outcomes, the researchers interviewed "Chris," a pseudonym for a UDL & Accessibility Specialist at a public University. One of the researchers emailed Chris to arrange a face-to-face group interview, which was scheduled to last approximately 45–60 minutes. This semi-structured interview, which was audio recorded, comprised a series of open-ended questions that addressed UDL principles and the framework's presence in University classrooms. To develop their line of questioning, the researchers examined the existing UDL guidelines (CAST, 2018), and they also conducted informal research on the interviewee's academic and professional background. Each of the researchers crafted a list of potential interview questions, from which the researchers selected those questions (Appendix A) that would yield the thickest description (Tracy, 2010). Following the interview, the researchers generated a verbatim transcript of the session.

### Data Analysis

The researchers began data analysis by first reading through the transcript together to ensure its accuracy. Once they agreed on the transcript's completeness, the researchers individually generated open process and narrative codes from the text in order to extract meaning. These codes were then clustered together to form categories and ultimately themes. After individually analysing the transcript, the researchers employed the constant comparative method (Lindlof & Taylor, 2019) as a means of establishing a collective set of codes, categories and themes. Employing thematic analysis enabled the researchers to best synthesise and make sense of the data (Merriam, 1998). The resulting themes may inform practitioners' understanding of UDL and how the framework can be applied in higher

education classrooms. Coming to an awareness of UDL practices, and how to apply them, reflects the completion of an initial action research cycle.

## Findings

Three themes emerged from the researcher's interview with Chris: (1) intentionality in teaching, (2) flexibility in assessment design, and (3) reflective practice.

## Theme One: Intentionality in Teaching

The concept of intentionality was a prevailing theme throughout the interview. Secondary themes within intentionality included embracing multiple mediums of expression and providing mastery feedback. Chris expressed the implementation of these intentionality themes through premeditated preparation for each class. Intentionality allows the participant to systematically address student needs among variable learners.

### *Multiple Mediums of Expression*
Chris consistently emphasised the need to provide students with multiple mediums of expression in higher education. The notion of intentionally integrating multiple mediums of expression allows learners to embrace their personal learning style when participating in class and demonstrating content mastery. The participant also emphasised that the use of multiple communication mediums does not change the content. It only changes the format in which the content is displayed, thus, resulting in higher levels of conceptual understanding among learners. As Chris shared:

> *. . . the idea of multiple, and sometimes we substitute that with flexible means of representation, et cetera, is that . . . we're not going to have one way of doing this that's gonna work for everybody . . . . So, for example, when I'm delivering a lecture, I might, at the same time that I'm delivering the lecture represent ideas graphically. They're the same ideas, just presented in a different format. And then pause the lecture to have the students interact with it. Have a discussion.*

### *Mastery-Oriented Feedback*
The participant displayed enthusiasm when discussing the significance of intentional master-oriented feedback. He conveyed an emphasis on how providing master-oriented feedback positively influences students' intrinsic motivation to further apply the concepts they are acquiring in their classroom environments. Through the intentional use of mastery-oriented feedback, the participant is able to foster personal growth among students rather than extrinsic gain. As Chris shared:

> *. . . we've known that mastery-oriented feedback, that is, feedback that contributes to growth instead of finality, is extremely effective . . . . Intentionally choosing, why, in this case am I offering mastery-oriented feedback? Because, I feel like, if I just give them, based on prior experience, or based on the nature of this work, if I just give them a grade and move on, I don't think that they're going to continue to learn and to improve. So, it's an intentionality there.*

Along with fostering intrinsic growth, the participant also discussed how maser-oriented feedback neurologically benefits students throughout their learning processes.

> *But now we can frame that under the affective network of the brain is because we need to be motivated and sustained to persist in effort.*

**Theme Two: Flexibility in Assessment Design**

Another recurring theme that arose during the interview with Chris is the importance of flexibility in assessment design. To assess students' understanding of a key course concept, an instructor might require that they write an essay. While an essay could be used to measure students' comprehension, providing a sole means of expression may disadvantage those students who cannot communicate effectively through writing. As Chris suggested, instructors should consider allowing their students to demonstrate their understanding of the course material through other means of expression:

> *You can write an essay. You can make a podcast. You can do a [presentation] . . . . No matter what you do, it's the same rubric. I'm looking for these points which would demonstrate understanding. So make sure you hit on those with your work . . . . Some [students] would say, 'I like writing,' and would choose the essay. But that's the beauty of this, is that I'm not going to find one thing that works for everybody.*

Instructors who are flexible when developing assignments may find that their students feel liberated and engage themselves more in the learning experience. Chris shared with the researcher how becoming more flexible in assessment design empowered his students:

> *I've got students in classes that I've worked with, that are talking about how I can express myself now for the first time . . . . They're enjoying their learning more.*

**Theme Three: Reflective Practice**

A final theme that emerged when analysing the transcript concerns reflective practice. Reflective practitioners should be inquisitive, identifying the limitations in their knowledge and improving their practices. As Chris stated:

*It's a willingness to sit down and think about where am I going? What do I want my students to achieve? And being very clear about those outcomes and then being very flexible in how we enable them to get there. It's a lot more work on the front end than what we traditionally do.*

Chris also shared the importance of teaching students to reflect on course concepts and apply them in real-life scenarios: *I'm trying to develop [students'] attitudes using case studies . . . real stories to help them see.*

## Discussion

## Limitations

As is all of research, limitations were present. Students were not interviewed for data analysis, which presented another limitation. In future action research cycles, the researcher will interview students and other faculty members. This will allow the researchers to gain a broader insight into the benefits of implementing UDL and students' perceptions of the framework.

## Implications for Instructional Practice

### *Using UDL Teaching Strategies in Future Classes.*
Educators must address these research questions in order to ensure students are obtaining equal access to content based on their individual learning needs. In order to address our research questions, implications for higher education instructional practice included integrating UDL into the researchers' own classrooms. This implication addresses RQ1. The themes uncovered by the researchers will aid them in applying the framework's guidelines. In order to implement UDL, members of the researcher will try applying the specific teaching strategies described by the interviewee. These strategies were conveyed as being the most beneficial in addressing students' diverse learning styles. Specific examples of this that were mentioned in the interview include the use of open discussions throughout lectures, incorporating hands-on activities, and using visual and auditory aids. These tactics will help address the needs of variable learners by presenting content in different formats.

### *Promoting UDL at Large Universities*
Another implication for practice involved motivating faculty members to implement UDL guidelines. This strategy addresses RQ2. In order to help promote the use of UDL, UDL workshops will be given to faculty members. The workshop's purpose will be to persuade faculty members to attend the workshop. Workshop attendees will learn about the benefits of

using UDL and how to improve their instructional practices. Follow up interviews for future studies will be implemented after the completion of workshop training.

### *Embracing Intentionality in Practice*

The final theme of intentionality is vital to instruction with UDL. As shared by the interviewee, every teaching strategy employed in the classroom should be intentional. This means that the researchers need to understand how to effectively plan for the needs of variable learners. Being able to anticipate students' needs enables the instructor to identify the most effective media for content delivery, develop the most useful assessments that align with learning outcomes, and provide meaningful feedback to students. Since every class has different students, it is possible that the instructor may need to revise their instructional methods throughout the duration of the course.

## Concluding Thoughts

Overall, instructors who practice UDL can create positive learning experiences for their students. The researchers identified several themes relevant to incorporating UDL, including being intentional, flexible in assessment design, and reflective in practice. Upon completing this study, members of this research reflected on their own teaching, acknowledging ways in which they could better serve their students. To enhance their students' learning, the researchers shared how they could implement UDL principles in their own physical and virtual classrooms.

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**Appendices**
**Appendix A: Interview Guide**
The researcher interviewed participant using the questions below:

1. How did you become the UDL & Accessibility Specialist for your University?
2. Why is UDL important to you (*i.e.,* his definition and experience with UDL)?

3. How does UDL differ from the traditional definition of accessibility?

4. Do faculty at UTK implement UDL practices in their classrooms? If UDL is not widely used, why not?
5. CAST is a valuable resource for learning about UDL. Are there other resources or training opportunities of which UTK faculty could take advantage?

In our current roles as graduate researchers, how can we help UTK faculty, and the institution as a whole, to embrace UDL.