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One Step at a Time: A Case Study of Incorporating Universal Design for Learning in Library Instruction

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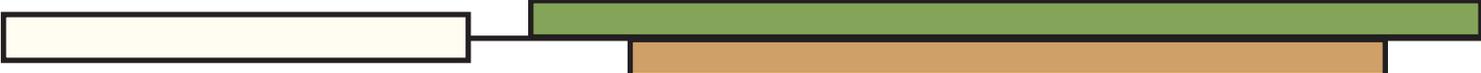
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ONE STEP AT A TIME: A CASE STUDY OF INCORPORATING UNIVERSAL DESIGN FOR LEARNING IN LIBRARY INSTRUCTION

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ABSTRACT

This paper introduces the principles of Universal Design for Learning (UDL), an inclusive pedagogical principle that works to make instruction accessible for all by incorporating different needs of learners into instructional design. This article provides a brief analysis of the literature on UDL within the field of academic libraries and focuses specifically on library instruction. The paper then concludes with a comprehensive case study of the authors' journey to actively incorporate UDL into their information literacy instruction sessions over a two-semester period, including lessons learned throughout their process.

Keywords: Universal Design for Learning, Inclusive Pedagogy, Library Instruction, Information Literacy, Accessibility, Academic Libraries

INTRODUCTION

According to the 2017 census data, the percentage of the United States population who identify as having a disability has increased over the last decade, from 11.9% in 2010 to 12.7% (Bureau, n.d.)¹. This gradual, but significant, increase in the number of people with disabilities means

colleges and universities are potentially enrolling more students with a wide variety of disabilities that may affect learning styles and capabilities. For example, invisible disabilities such as ADHD and autoimmune disorders are becoming more common and require different accommodations (Chodock & Dolinger, 2009). As a result, many colleges and universities have begun to adopt

1. From about 38 million to 41.4 million. We hope to have updated data which will be coming out in the 2020 census which should show continued growth.

Universal Design for Learning (UDL) hoping to meet the needs of this growing number of students. UDL promotes learning in the classroom by designing courses to be accessible for the widest range of abilities. While this growth demonstrates that librarians will be facing more students with disabilities in the classroom, incorporating UDL allows librarians to be pragmatic and removes the need for many accommodations. Because UDL accommodates the widest range of abilities, incorporating these principles do not just help people with disabilities but also any student who may learn differently than others in the classroom. This can include small changes, such as re-wording parts of a syllabus, or larger accommodations that involve classroom technology. While these changes are becoming more commonplace in the classroom, library instruction is not often incorporating such accommodations. UDL does occasionally appear in library literature, but few articles are directly related to library instruction and the majority of the literature is out of date. Unfortunately, disability accommodations need to match the rapid speed at which technology changes.

This article provides a brief analysis of the literature on UDL in library instruction and concludes with a comprehensive case study of two librarians' journey to actively incorporate UDL into their information literacy instruction sessions over a two-semester period at a four year public university.

WHAT IS UNIVERSAL DESIGN FOR LEARNING (UDL)?

The concept of Universal Design (UD) was

introduced in the 1970s by Ronald Mace, an architect and the director of the Center for Universal Design at North Carolina State University ("Center for Universal Design NCSU," 1997). Mace defined UD as "the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design" (Center for Universal Design, 2008, para. 2). While UD is centered primarily on spaces, places, and objects, UDL focuses on pedagogical techniques that create a more flexible and inclusive learning environment.

The concept of Universal Design made its way into higher education in the late 1990s and has taken on many derivative names, including Universal Instruction Design (Silver, Bourke, & Strehorn, 1998, p. 47), and Universal Design for Learning (Meyer & Rose, 2013). Universal Design for Learning has become the primary term used in higher education and pedagogical theory (Lombardi, Murray, & Gerdes, 2011). UDL has also made its way into libraries. In 2012, Ying Zhong wrote "UDL anticipates diversity in learners and takes their needs into consideration from the very beginning of course planning" (2012, p. 36).

The UDL framework consists of three primary principles:

- *Multiple means of representation*, which addresses WHAT students learn and attempts to give students multiple ways of acquiring information and knowledge;
- *Multiple means of action and expression*, which addresses HOW students learn and attempts to

give students multiple ways to demonstrate their knowledge;

- *Multiple means of engagement*, which addresses WHY students learn and attempts to engage and motivate students based on their interests (“CAST: About Universal Design for Learning,” n.d.).

These three primary principles are rooted in cognitive psychology and are intended to serve as a framework for improving learning environments (“CAST: About Universal Design for Learning,” n.d., sec. “The UDL Guidelines”). Over the years, the framework has been reorganized and redefined to meet various needs.

While the three primary principles of UDL remain the dominant framework, there are other constructions of UDL, such as the seven guidelines that were developed by the Center for Universal Design. It has been noted that while those guidelines were originally developed for the design of products and environments, they can also be applicable to educators (King-Sears, 2009, p. 199). Specifically, these guidelines are:

- *Equitable use*, which looks at whether or not course materials are designed in a useful way for a diverse group of abilities;
- *Flexibility in use*, which works to provide choice in the methods of instruction to accommodate different abilities and learning styles;
- *Simple and intuitive*, which evaluates whether the instruction is designed in a simple and clear manner to eliminate unnecessary complexity;
- *Perceptible information*, which looks at whether or not instruction provides effective communication styles for all students;

- *Tolerance for error*, which understands each student learns differently and will have different skills;
- *Low physical effort*, which works to design instruction without having nonessential physical effort;
- *Size and space for approach and use*, which evaluates whether or not the instruction is designed with consideration for a student’s body, posture, mobility, and communication needs (Connell et al., n.d.).

Together, these two sets of guiding principles allow educators to naturally provide accommodations to students with disabilities and students with varied learning styles. Most of the literature and other UDL resources provide examples of all these principles with a traditional classroom in mind: syllabi, assignments, activities, etc. (King-Sears, 2009). However, hardly any of the literature related to UDL and library instruction has taken these principles and reimagined them in the context of a library instruction session (Chodock & Dolinger, 2009; Zhong, 2012).

UDL, LIBRARIES, AND LIBRARY INSTRUCTION

The majority of the literature within the library field discusses Universal Design (UD) in relation to library spaces, with a small number of articles focusing specifically on incorporating Universal Design for Learning (UDL) into library instruction. A brief analysis of the search results within five major library science databases using the search terms “Universal Design” AND “Library Instruction” revealed in Table 1.

Database	Search Terms	Total Article Hits	Relevant Article Hits	Percentage of Relevance
Library, Information Science & Technology Abstracts (LISTA)	“Universal Design” AND “Library Instruction”	18	7	39%
Library Literature & Information Science Index (H. W. Wilson)	“Universal Design” AND “Library Instruction”	10	4	40%
Library and Information Science Abstracts (LISA)	“Universal Design” AND “Library Instruction”	20	5	25%
Information Science and Library Issues Collection (ISLIC)	“Universal Design” AND “Library Instruction”	8	1	13%
Library Science Database (LSD)	“Universal Design” AND “Library Instruction”	20	2	10%

Table 1: Search results from November 2019.

The search results revealed fewer than half of the articles with these specific search terms are directly related to library instruction and UDL. Relevance was calculated by identifying articles that addressed both UDL and library instruction. The search was limited to Library and Information Science (LIS) databases. Additionally, nearly all the databases searched had overlap with the articles that were considered relevant. However, it should be noted that the degree of relevance varied from article to article. Three major articles were identified as the most relevant because they dealt specifically with incorporating UDL into library instruction. The other articles, despite having a degree of relevance to the search terms, are not reviewed in this article because they do not focus on the incorporation of UDL in library instruction. These results support the claim that there is very little library literature related to the use of UDL in library instruction.

Three major articles in this literary review

do address library instruction and UDL principles. The first was written by Zhong from California State University, Bakersfield in 2012. Zhong conducted a study of a group of courses which incorporated the three principles of UDL into the design and teaching of the course. The lesson changed by making a Boolean Logic activity more inclusive by incorporating elements of representation, expression, and engagement. For example, providing accessible PowerPoint presentation, providing handouts, and verbally explaining the concepts (2012, pp. 38-39). After the courses were taught, Zhong sent a survey to students where they evaluated the changes. Overall, the changes were found to be effective and appreciated. Additionally, Zhong found that while students reacted positively to the application of UDL principles in library instruction, students still relied heavily on PowerPoint slides. Throughout the article, Zhong advocates for the importance of including UDL into librarians work, saying

“...librarians need to design and implement instruction that facilitates the learning process of all students in order to remove academic barriers and challenges and to provide equal access to the curriculum” (2012, pp. 33–34).

The second major article, written by Chodock and Dolinger from Landmark College Library, Vermont in 2009, focused primarily on learning disabilities. The authors developed their own concept which they call Universal Design for Information Literacy (UDIL). This principle is similar to Universal Design for Instruction and Learning but incorporates library principles into the seven guiding principles of UDL. It also adds two more principles: a community of learners and instructional climate. A community of learners “promotes interaction and communication between students and between students and faculty” and an instructional climate has “instruction...designed to be welcoming and inclusive...[with]...high expectations for...all students” (Chodock & Dolinger, 2009, p. 27). Chodock and Dolinger argue many of the components of UDL or UDIL “should already be a part of what librarians are doing if they are in line with the ACRL Standards for Proficiencies for Instruction Librarians and Coordinators.” (2009, p. 30). Thus, because the ideas of the ACRL standards—like designing instruction to meet all learners or presenting content in diverse ways—mimic many of the principles within Universal Design, applying these principles into library instruction would not be a major change for librarians (Chodock & Dolinger, 2009).

In the third major article, authors Hoover, Nall, and Willis participated in a collaborative project between East Carolina University (ECU)

and Project STEPP (Supporting Transition and Education through Planned Partnerships) to deliver inclusive library instruction using principles of UDL. This study focused primarily on people with learning disabilities (dyslexia, ADD, ADHD, etc.) and, with the implementation of UDL, librarians noticed increased confidence in information literacy skills of all students (Hoover, Nall, & Willis, 2013).

Our hope is this case study will begin to craft a narrative of how to incorporate UDL into Library Instruction. While the current literature has focused mainly on library spaces and briefly on library instruction attempting to prove the effectiveness of UDL, our case study focuses on direct experiences with incorporating UDL and provides the reader with experiences they can use in their own work.

CASE STUDY

Incorporating UDL into Library Instruction was not something we learned in our information science degree programs. Nor has it been something we encounter on a regular basis in professional development opportunities. The drive to incorporate UDL into our library instruction came from a chance encounter. In 2018 the Instructional Design Librarian was invited to be part of a campus-wide inclusive pedagogy and UDL community. The purpose was to help faculty understand and incorporate UDL principles into their credit-bearing courses. After the first meeting, the Instructional Design Librarian knew this was something that should also be incorporated into library instruction and began working with the Student Success Librarian to make it a reality

at the University of Wyoming Libraries, the only four year public university in the state of Wyoming.

When we decided to incorporate UDL into library instruction sessions, our first step was to gather all the resources about library instruction and UDL which, as the literature review revealed, were limited. The majority of resources we identified were rooted in higher education and focused on incorporating UDL into credit-bearing courses. As a result, the three primary principles of UDL (“CAST: About Universal Design for Learning,” n.d.), as well as the seven guidelines (Connell et al., n.d.), were quickly identified as the most useful tools. The biggest challenge was that it was difficult to imagine how the principles and guidelines could fit into a 50-minute one-shot session—the most common instruction format for our library work. Before we could really start re-designing elements of our instruction, we needed to reimagine the core concepts of UDL in a way that worked for library instruction. To accomplish this, we made charts that provided concrete examples of how to utilize the core concepts of UDL in library instruction (Cook & Clement, 2020). Creating the charts helped us to develop a deeper understanding of how the principles can work with library instruction, and with this new knowledge we began to map out how we would incorporate UDL into our one-shot, embedded, and online instruction sessions.

Implementation in Spring 2019

We knew we could not attempt to incorporate all seven guidelines or all three guiding principles of UDL into our lesson plans at once, as that would be overwhelming and potentially lead

to burnout. Instead, we began by identifying elements of our instruction that were less inclusive. For example, prior to incorporating UDL into our instruction, we would design a PowerPoint for an instruction session that was not shared with students. Additionally, based upon the type of instruction we typically do (primarily upper-level undergraduates and graduate students), we identified which specific principles would best fit the one-shot instruction model. To begin, we focused on two main ideas: providing inclusive access to all materials and redesigning active learning activities to incorporate inclusive principles. As we began to incorporate these materials into our instruction, we used instructional observations, verbal commentary, and library instruction evaluations to determine if we needed to make more changes or if the adapted materials and activities were successful. At this point, we consciously chose not to seek Institutional Review Board approval, as we wanted to test the waters at our institution and see if a full UDL study would be feasible in the future.

Inclusive Access to All Materials

Giving students access to all the materials for the one-shot instruction session was one of the easiest and most important principles to implement. Prior to the UDL implementation, we primarily gave students paper handouts of worksheets—no outline of the instruction session, and no online materials. We wanted to find a way to deliver a variety of materials that students might find useful in a variety of formats. The best way we found to accomplish this inclusive practice was to create a Google Drive folder for each class we taught. In the classes’ Google Drive

folder we placed an outline of the class, links to electronic materials we highlighted or shared during the instruction, relevant images or charts, copies of worksheets and handouts in multiple formats (i.e. Google Docs and PDF), and any other materials that supported the content of the instruction session. Physical copies of all materials were also brought to the instruction sessions. We figured that by providing students with a link to all the class documents at the very beginning of the class, or in some cases prior to the class, students could choose how they would engage with the materials. Additionally, students are able to continue engaging with the class content after the instruction session is over, utilizing a tool they are likely familiar with (Google Drive). All of the electronically provided materials are downloadable and shareable. Furthermore, by providing physical copies as well as electronic copies, students are able to choose how they wished to acquire the materials before, during, and after the instruction session.

Redesigning Active Learning

In order to incorporate the UDL principles in active learning, we looked critically at the activities we did in our one-shot instruction and identified areas where we thought we could be more inclusive of all learning styles and disabilities. For example, many active learning activities require physical movement. We realized that such requirements may unintentionally exclude or harm persons with invisible disabilities, or create a learning environment that is unintentionally anxiety-driven. To help make our activities more inclusive and allow students the opportunity to

choose their level of physical or non-physical involvement, we made small but significant changes to some of our activities. In one case, we had been using a Boolean Operator activity that asked students to get up and move into groups based on the clothing they were wearing. Instead of requiring students to get up and physically move, we shifted to a polling software that allowed students to anonymously respond to the Boolean Operator questions while staying in their seats. Using the polling software allowed students to see the results on the overhead screens and we were still able to effectively explain and visually represent the concept we were trying to teach.

Other small but effective changes included allowing students to choose the groups they wanted to work in rather than requiring them to move to a particular spot in the room and giving students the option to either handwrite or type their responses to worksheets and other activities. We allowed students to self-select their movement levels to promote a more flexible environment where the student had the agency to choose their own learning experience.

Fall 2019

Incorporating only select principles in the spring semester allowed us to fully master the concepts and make them a natural part of our instruction. After successfully modifying our one-shot instruction, we decided to integrate two additional inclusive practices into our instruction workflow. The first was making an effort to meet face-to-face with the professor, requesting instruction prior to the session. This may seem commonplace in library instruction but, in truth,

UDL Implementation	Three Primary Principles	Seven Guiding Principles
Providing a Google Drive folder with downloadable and shareable materials	Multiple Means of Representation Multiple Means of Engagement	Equitable Use Flexibility in Use
Provide a copy of all materials, both digital and physical	Multiple Means of Representation Multiple Means of Engagement	Equitable Use Flexibility in Use
Critical re-design of active learning activities	Multiple Means of Action & Expression	Perceptible Information Low Physical Effort Size and Space for Approach and Use

Table 2: Chart outlining which of the three primary principles and seven guiding principles were most applicable to our instruction re-design in Spring 2019.

librarians typically don't get as much face time with instructional faculty as we should. Meeting with the professor prior to the instruction session allowed us to thoroughly discuss the syllabus, the research assignment, and plan together which core concepts of information literacy to address. Working to better understand the professors and their classes allowed us to be more thoughtful about the activities we planned, ensuring they were as inclusive as possible while still delivering the content effectively. Planning ahead to incorporate principles of UDL into our instruction prepared us to offer students multiple ways to engage with the content, access their materials, and demonstrate their knowledge.

The second practice we adopted was re-examining the ways in which we provide check-ins for mastery throughout the instruction session.

Instructors and librarians are no strangers to the dead silence that follows the question, "Do you have any questions?" In order to make students more comfortable expressing questions, and confirming their mastery of concepts, we began to test different ways of checking knowledge. One of the more popular methods was using polling software to allow students to send in anonymous questions we could then address with the class as a whole. This method prevented students from being singled out and allowed us to reiterate or re-explain concepts with different learning styles in mind.

LESSONS LEARNED

As we have worked to incorporate UDL into different elements of our library instruction, the

UDL Implementation	Three Primary Principles	Seven Guiding Principles
Meet face-to-face with the professor to go over the syllabus, the research assignment, and design the instruction session together.	Multiple Means of Representation Multiple Means of Action & Expression Multiple Means of Engagement	Simple and Intuitive Perceptible Information Flexibility in Use Equitable Use
Provide alternative methods of check-ins throughout the session to see if students are mastering concepts.	Multiple Means of Action & Expression	Flexibility in Use Tolerance for Error

Table 3: Chart outlining which of the three primary principles and seven guiding principles were most applicable to our instruction re-design in Spring 2019.

most important lesson we learned was to not do it all at once. Instead, it was important for us to take these changes one step at a time. When we first thought critically about this implementation, we were overwhelmed with the amount of changes we thought we needed to make. This made incorporating UDL seem almost impossible. Instead, each semester we implemented one or two simple changes and focused on mastering those before moving on to the next step. This allowed the implementation to feel manageable rather than overwhelming.

Another lesson we learned is that, when mastering a principle, it is helpful to practice until that change becomes second nature in your instruction. Practice does make perfect and it allows the process of implementation to feel less stilted and more natural. Becoming comfortable with a new technique before adding more changes to our instruction seemed small and easy to manage. Even though, overall, we were making

big changes to our instruction, it didn't feel like we were because we had broken down the process into manageable steps.

Additionally, we have realized that incorporating UDL into our instruction is not linear but, rather, circular. We will revisit this assessment process as technologies shift, as instruction pedagogies and theories evolve, and as students change and grow. This is also a cycle that will allow us as librarians to constantly evaluate and grow in our instruction. For example, we originally created full slide decks that we shared with students. However, observations by the librarians showed students were using the outlines, not the slides, which led us to prioritize and emphasize the outlines in the Google folders that we made for each class.

Lastly, having a community of practice has been extremely important throughout this process. If we had attempted to implement UDL into our instruction without the support and guidance

of each other and our peers at the University of Wyoming, this process would have been a struggle. We recommend that library instructors develop a community through Twitter, their institution, or through peers to help them implement UDL into their instruction.

Next Steps

Throughout this process we have constantly worked to evaluate different places where our instruction techniques could be more inclusive. This has guided our future efforts to continue incorporating UDL in library practices. We have identified two additional areas where we can improve: incorporating UDL into our LibGuides and tutorials, and formalizing UDL in our department as the standard for instruction. It is our intention to design a full, IRB-approved research study in the coming year that will help us formally assess the effectiveness of UDL in the library classroom.

The University of Wyoming is the only four-year public university in the state. This means some of our students are not located physically on campus but participate in instruction remotely. The resources we provide to distance students include virtual and embedded library instruction sessions, LibGuides, and tutorials. These materials have traditionally had no standards for accessibility and inclusivity and are simply not meeting all of our users' needs. We hope in the next year to begin creating guidelines for how to better incorporate UDL principles into these types of resources to better serve the needs of all our students who come from a variety of backgrounds.

Additionally, the Instructional Design Librarian is working to redesign the UW Libraries basic instruction lesson plan to incorporate Universal Design for Learning. This change could potentially be implemented across all library instruction. Such a change in library-wide pedagogy will not happen overnight and will require buy-in from the different instructors within the libraries.

Overall, we believe that incorporating UDL into our instruction makes a positive difference for our students based on our casual observations. We have logged into Google folders months after instruction sessions and seen students still using our resources. There have also been instances in our instruction evaluations where students commented specifically on having access to content or indicated that they enjoyed our redesigned activities. And now, when we receive accommodation requests from instructors, we don't stress nearly as much about needing to adjust our instruction because the incorporation of UDL has already likely addressed the accommodation. While all these successes have likely made a noticeable difference, they have not come without hurdles. Overcoming those challenges meant taking every change one step at a time, mastering a technique before moving on, and developing a community at our university to encourage growth.

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