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Developing Universal Design for Learning Asynchronous Training in an Academic Library
Développer la conception universelle de l'apprentissage pour la formation asynchrone dans une bibliothèque universitaire

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Article abstract

This paper explores the design and initial implementation of online training modules for Universal Design for Learning in the context of academic libraries. Academic libraries are shifting away from the provision of resources and toward actively providing instruction and engaging with learners. The COVID-19 pandemic saw a quick transition from many in-person resources to virtual resources. Ensuring librarians are equipped to support learners in this manner is crucial. The goal of this paper was to determine how best to assist academic librarians with developing effective online resources. To achieve this goal, we conducted interviews with academic librarians. After consulting the literature and collecting information from academic librarians, we identified four key concepts for providing valuable instruction and designing material. The four themes included making content accessible, usable, meaningful, and reliable. We then developed four online training modules using Articulate Rise. The modules provide a foundation for aiding academic librarians with their teaching practice and engaging with a broad range of learners. These modules quickly demonstrated their value in the library context, and future testing, assessing, and iterating will enable their continuous improvement via institutional and cross-institutional collaboration.

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Développer la conception universelle de l'apprentissage pour la formation asynchrone dans une bibliothèque universitaire

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Abstract / Résumé

This paper explores the design and initial implementation of online training modules for Universal Design for Learning in the context of academic libraries. Academic libraries are shifting away from the provision of resources and toward actively providing instruction and engaging with learners. The COVID-19 pandemic saw a quick transition from many in-person resources to virtual resources. Ensuring librarians are equipped to support learners in this manner is crucial. The goal of this paper was to determine how best to assist academic librarians with developing effective online resources. To achieve this goal, we conducted interviews with academic librarians. After consulting the literature and collecting information from academic librarians, we identified four key concepts for providing valuable instruction and designing material. The four themes included making content accessible, usable, meaningful, and reliable. We then developed four online training modules using Articulate Rise. The modules provide a foundation for aiding academic librarians with their teaching practice and engaging with a broad range of learners. These modules quickly demonstrated their value in the library context, and future testing, assessing, and iterating will enable their continuous improvement via institutional and cross-institutional collaboration.

Cet article explore la conception et la mise en œuvre initiale de modules de formation en ligne sur la conception universelle de l'apprentissage dans le contexte des bibliothèques universitaires. Les bibliothèques universitaires s'éloignent de leur rôle de fournir un accès aux ressources pour se consacrer activement à l'enseignement et à l'engagement auprès des apprenants. La pandémie de la COVID-19 a nécessité une transition rapide de nombreuses ressources en personnes vers des ressources en ligne. Il est primordial de s'assurer que les bibliothécaires soient prêts à soutenir les apprenants de cette façon. L'objectif de cet article était de déterminer la meilleure façon d'aider les bibliothécaires universitaires à développer des ressources en ligne efficaces. Afin d'atteindre cet objectif, nous avons mené des entrevues avec des bibliothécaires universitaires. Après avoir fait une recension des écrits et recueilli des informations auprès de bibliothécaires universitaires, nous avons identifié quatre concepts clés pour fournir de la formation utile et pour concevoir du matériel de qualité. Ces quatre thèmes portent sur le développement de contenu accessible, utilisable, significatif et fiable. Nous avons ensuite développé quatre modules de formation en ligne en utilisant Articulate Rise. Les modules fournissent une base pour aider les bibliothécaires universitaires avec leur pratique pédagogique et avec la façon dont ils interagissent avec un large éventail d'apprenants. Ces modules ont rapidement démontré leur valeur dans le contexte des bibliothèques et les tests, les évaluations et les itérations à venir permettront leur amélioration continue grâce à des collaborations institutionnelles et interinstitutionnelles.

Keywords / Mots-clés

instructional design, universal design for learning, academic library, training, online learning; conception pédagogique, conception universelle de l'apprentissage, bibliothèques universitaires, formation, apprentissage en ligne

Introduction

Over the last 25 years, academic libraries have been actively reshaping their purpose and presence at higher education institutions. Since the internet became widely available to the public, the way information is shared, accessed, and presented has radically shifted from a model of direct assistance to a model focused on educating users to locate, evaluate, and use information independently (Choy & Goh, 2016; Salisbury & Griffis, 2014). With this transition, many services and resources have become available online, especially through asynchronous delivery, enabling libraries to support access for a greater collection of learners. The COVID-19 pandemic saw a massive transition to teaching and learning in online environments (Cox & Brewster, 2020). This involved many academic libraries providing "virtual support to their users, such as provision of references, document delivery, literature searches and systematic reviews. Some libraries have initiated online webinar[s] and sessions to keep in touch with their users" (Ali & Gatiti, 2020, p. 160). Nevertheless, creating effective online learning tools poses challenges, especially when considering the wide range of learner needs libraries must meet through their instructional materials. Additionally, librarians' teaching contexts often differ significantly from those of disciplinary faculty: librarians are often limited to providing one-shot instructional sessions or workshops. Given the

time limitations of library instruction sessions, academic librarians have leaned into learner engagement both through design and through accommodating the widest array of learners.

A powerful way to address different learners' needs is to design resources using the Universal Design for Learning (UDL) principles (Adams Becker et al., 2017; Peter & Clement, 2020). CAST (2018) outlined three pillars that guide UDL:

1. Provide multiple means of engagement
2. Provide multiple means of representation
3. Provide multiple means of action and expression

Though universal design emerged in the field of architecture to accommodate individuals with disabilities, it has expanded into the field of education via instructional strategies (Hays & Handler, 2020). According to Peter and Clement (2020), "UDL promotes learning in the classroom by designing courses to be accessible for the widest range of abilities" (p. 29). Moreover, UDL provides a framework that is well aligned with the ethos of academic librarianship, especially because academic librarians work with a wide array of individuals at multiple skill and ability levels. Catalano (2014) explained that UDL is a

> proactive rather than reactive approach. By designing learning environments to be accessible for all learners, you are mitigating the need for assistive technology or for having to react to the need for a special accommodation by adapting or creating a specialized design. (p. 23)

In a remote-learning environment shaped by COVID-19, the need for this framework became evident to academic librarians at the University of Waterloo (UW). While librarians at UW had, at various times, received in-person training on the fundamentals of UDL, the prior training had emphasized ideas and techniques for in-person classes. Librarians expressed interest in an asynchronous resource that would provide them with tools and resources for creating and delivering online content while allowing them independently to revisit or refresh their knowledge of UDL. This paper details an initiative to design and develop online training modules that would both teach and provide examples of online pedagogy. These modules are now used to guide online library instruction at UW.

Literature Review

Librarians are often tasked with presenting information to students in the form of workshops, classes, and online resources (Lewitzky, 2020a). This literature review reflects four prevalent themes regarding instructional design in academic libraries: accessibility, usability (user experience), personalization (or making content meaningful), and reliability.

The broad range of learners that academic librarians must support necessitates the creation of materials that are accessible to a diverse audience of learners from varied

backgrounds, with different educational experiences, who are comfortable with different learning modalities. Given the wide array of learners at post-secondary institutions, including students, staff, faculty, and local communities, developing engaging and accessible content is essential. These considerations are best addressed by attention to content presentation that supports multiple ways of learning and opportunities for learner engagement. This proactively provides widespread accommodations for individuals with disabilities. Hill (2013) noted: “Libraries and professional library associations have long been advocates of providing materials in accessible formats to people with disabilities” (p. 137). Factors to consider when designing accessible content include font, legibility, readability, plain language, and alternative formats (Oswald et al., 2018). Consistent use of these elements establishes a logical map and provides learners with multiple ways to access content (Dell et al., 2015). Hill (2013) highlighted the importance of ensuring that online content is user-friendly and technically accessible. Moreover, providing information about how to make instructional tools accessible to learners is an important component of instructional design training in academic libraries.

In addition to accessibility, user experience considerations are crucial to instructional design practices. Academic librarians serve, at a minimum, students, staff, and faculty; thus, they are tasked with ensuring that information is presented in a manner appropriate for varying levels of expertise. To accommodate a wide range of individuals, content should follow a logical sequence and organization pattern (Gutierrez, 2012). Backwards design (i.e., designing content with the end goal in mind) helps achieve this structure, and learning goals should help dictate the organization and structure of online learning material (Dell et al., 2015; Mesmer-Magnus & Viswesvaran, 2010). Additional recommendations include using consistent formatting, chunking information, decreasing extraneous load, and managing intrinsic load (Lierman & Santiago, 2019; O’Malley, 2017; van Merriënboer & Sweller, 2010). Eichelberger and Leong (2019) argued technical issues in online learning environments create “insurmountable barriers” (p. 130) for learners and instructors. Therefore, it is crucial that both learners and instructors have a thorough understanding of how learning management systems function and how to organize content in an intuitive and user-friendly manner.

Knowledge building and knowledge construction often happen in a collective manner, in which individuals are able to engage with one another. Garrison et al. (1999) argued that for such learning to take place online, there must be a community of inquiry (CoI) consisting of teaching presence, social presence, and cognitive presence. The role of the instructor is to create a collaborative, meaningful, organized online community. The instructor can facilitate an online presence by incorporating videos, discussion forums, and personal experiences. Likewise, teaching presence can be established with practices such as pre-training, formative assessment, and choice (Dell et al., 2015; Mesmer-Magnus & Viswesvaran, 2010). Social presence involves open communication, group cohesion, and emotional expression (Garrison et al., 1999). Ferguson and DeFelice (2010) argued that peer-to-peer interaction is essential to successful online course deployment. Moreover, collaborative online environments allow for increased learner satisfaction (Nummenmaa & Nummenmaa, 2008). Finally, cognitive presence involves learners communicating with one another to construct meaning (Lee, 2014).

Developing online resources influenced by the CoI framework provides an opportunity for "facilitating deep and meaningful learning in a computer conference environment" (Garrison et al., 1999, p. 93).

While academic librarians are often tasked with teaching course-related content, they are also expected to teach learning skills, such as communication skills and research skills (Bliquez & Deeken, 2016; Raju, 2017). When library instruction is asynchronous, learners must have autonomy over their learning so they may independently acquire the skills they need to become lifelong learners (Hanover Research, 2013; Lierman & Santiago, 2019). Developing content that supports learner efficacy and autonomy helps learners become more proficient in managing their time, setting goals, taking initiative, and organizing workflow (Bracknett et al., 2015). This extends to the notion of assessment. Incorporating self-assessment, peer-assessment, and instructor assessment offers learners varied and valuable feedback (Lanning et al., 2011). Scaffolding assignments is the process of "breaking up assignments into smaller steps that [will] build on each other and creating opportunities for stepwise learning on several levels" (Wishkoski et al., 2019, p. 105). Training content that encourages learners to reflect on their progress further contributes to building transferable metacognitive skills.

In addition to developing resources and facilitating online learning, the design process must also ensure learners are provided with the information they need. Food and Agriculture Organization of the United Nations ([FAO],2021) outlined this process using the ADDIE model: (1) analysis; (2) design; (3) development; (4) implementation; and (5) evaluation. These five phases provide a learner-focused rationale for content creation. Additionally, they provide opportunities for feedback, discussion, and collaboration. For example, prior to developing resources, librarians can conduct interviews with colleagues, faculty, and students to determine what content should be covered and how the content should be presented. Next, a task analysis can be created based on the information procured from the interviews. Then the proposed content can be designed and developed through the use of a design journal. Finally, the resources can be changed and edited based on feedback.

It is clear from the literature that specific steps can be taken to ensure academic librarians have the tools required to create online resources for diverse audiences. Through our initiative, we incorporated these concepts into a UDL course that encompasses accessibility, user experience, personalization (meaningful content), and reliability to provide academic librarians with a foundation for designing and building content for learners.

Design and Implementation

Module Platform

Bearing these needs and design factors in mind, we reviewed available tools for module development and selected the platform Articulate Rise (AR) for a variety of reasons. First, it is a well supported technical platform that has already been used to develop other library resources. It is easy to share and access resources built using AR. The

platform also routinely receives positive feedback from users regarding its usability and layout. For example, it has clearly defined keyboard interactions for many of the available interactive elements for accessibility compliance. Additionally, AR follows the principles of the Triple E Framework—engage, enhance, and extend learning—that Keren-Kolb (2013) argued should be used by educational technology. The intended audience of the UDL modules was already familiar with the software, so this would enable them to engage with the content and focus on the material rather than trying to learn how to use the platform. AR also provides opportunities to enhance the learning experience of the target audience by allowing interactive activities, formative assessment, and access to material in a way that learners would not experience without a user-friendly online platform. Participants can extend their learning in several ways with AR, such as through flashcards, matching and sorting activities, and reflective questions. In addition to accessing external resources and references within the modules, learners are also presented with modules that are designed using best practice principles for online design. Therefore, the modules provide an example of the types of online learning objects that can be built in the context of the library. This allows librarians and faculty to create online project proposals and learning tools in a more informed manner because they are taught how to create online learning objects in addition to being provided exemplars.

Module Design

Using the guiding themes that emerged from the literature, we created four modules to teach academic librarians about UDL in the context of instructional design.

The goal of the UDL modules was to teach staff and faculty how to design library resources that promote cognitive access, self-regulation, and engagement (Rao et al., 2015). After completing the modules, staff and faculty members should be able to:

1. use accessibility standards to guide the creation of content,
2. create material that is easily utilized by learners,
3. develop meaningful content for learners, and
4. design reliable and credible online learning tools.

These modules were built using the principle of assessment as learning (Black et al., 2003). The UDL modules include many features that prompt learners to reflect on their learning process; designing the modules in this way provides opportunities for learners to learn from their interactions with the content. An open version of the modules can be found in the University of Waterloo Library's Online Learning Object Repository (Lewitzky, 2020b).

Each module starts with a welcome message, introduction video, learning goals, key terms, and module duration. Figure 1 shows an example of the welcome message for Module 1. Note that there is a diamond with the letters A, U, M, and R in separate triangles, representing accessibility, usability, meaningful content, and reliability, respectively. The highlighted triangle changes as learners proceed through the modules.

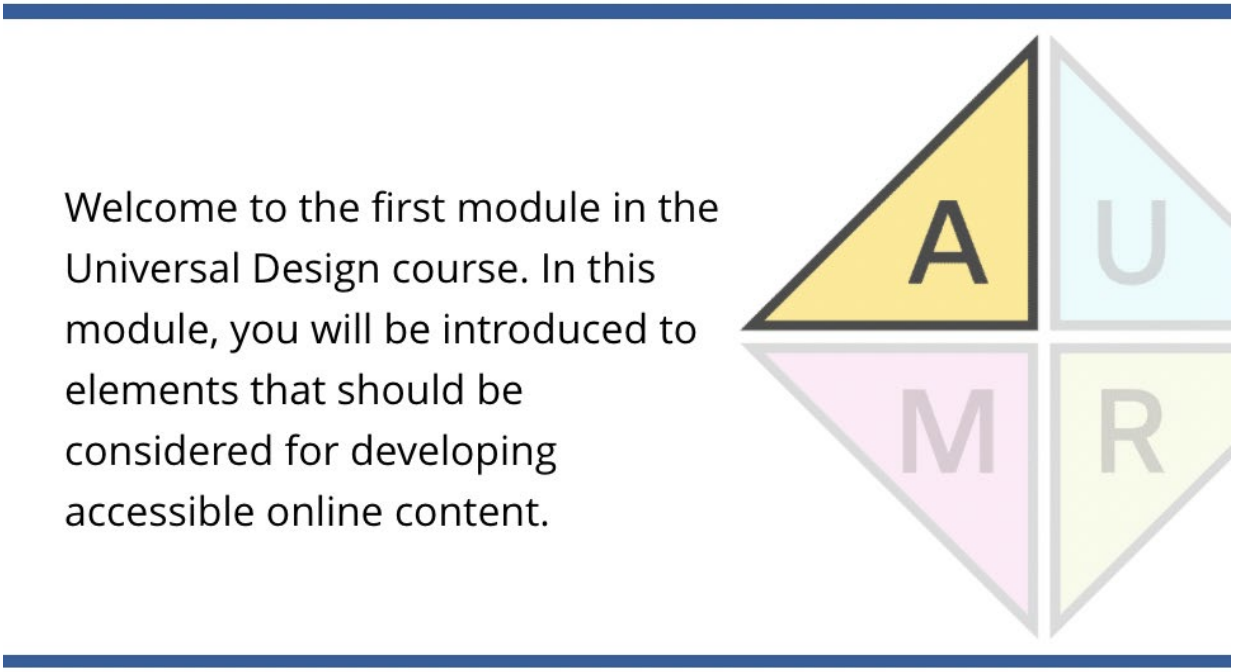

Figure 1. The welcome message for the accessibility module in the UDL course.

These elements are pre-training tools that support assessment as learning (Ontario Ministry of Education, 2010). The welcome message and introduction video present learners with information that will be covered in the module. This allows learners to recall information and make connections to prior knowledge (Rizzuto, 2017). Additionally, the module offers learners the opportunity to identify learning goals and key terms, which promotes metacognitive learning strategies such as goal setting and cognitive organization (Mesmer-Magnus & Viswesvaran, 2010).

Lastly, the welcome page provides learners with a consistent template for navigating each module. The consistent design teaches learners what to expect, allowing them to focus on the content instead of trying to figure out how to navigate the module (University of Sheffield, 2017).

In addition to reflecting on their own learning, learners can also monitor their progress. Each module contains at least one interactive assessment (e.g., flashcards, matching activities, or sorting activities). For example, Figure 2 shows a matching activity for learning terms and definitions. These assessments allow learners to determine whether they understand the content. This structure helps demonstrate to learners how formative feedback can be used to help identify gaps in understanding. Only formative assessment was incorporated in the UDL modules because librarians and library resources do not regularly provide summative assessment for courses at the institution.

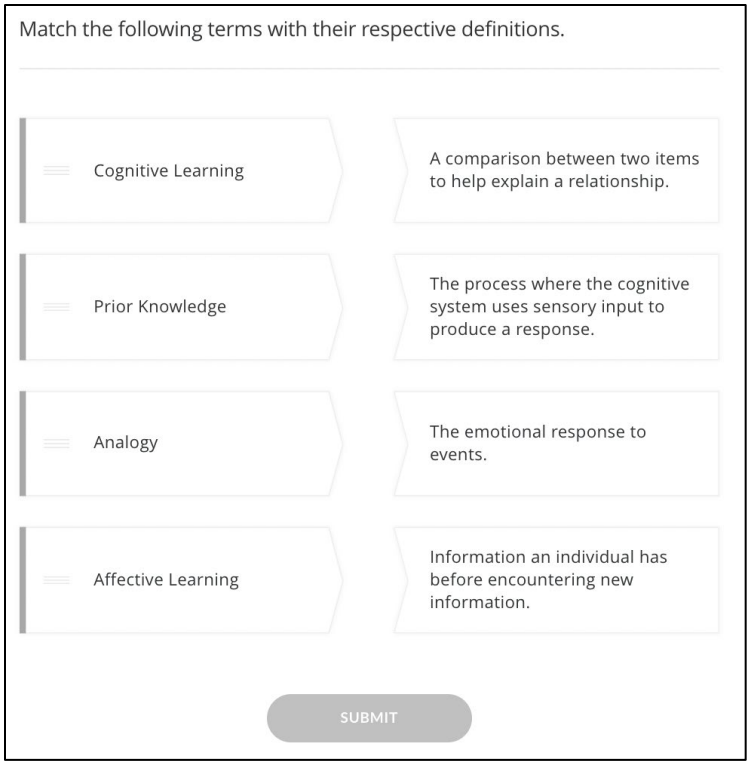

Figure 2. A matching activity from the meaningful content module about pre-training terms.

Module 1: Accessibility

The first module guides learners through the principles of designing accessible content. By the end of the module, learners should be able to:

1. utilize colour palettes that are appropriate for learners,
2. identify accessible fonts,
3. develop content using plain language, and
4. create alternative resources.

The module includes various subsections, and the first subsection focuses on fonts. It begins with a discussion about the use of font size as well as font family (i.e., serif fonts versus sans-serif fonts). Explicit examples are provided to demonstrate the consequences of selecting each font family. For example, it is difficult to determine the difference between an upper-case “I” and a lower-case “i” using a sans-serif font. The font subsection includes a concept check in the form of a flashcard activity that asks learners to identify the font family of different writing samples.

In addition to font, this module introduces learners to readability and legibility. This component of instructional design focuses on formatting text (e.g., text alignment and text colour). This section of the module provides examples of texts that are and are not accessible, as shown in Figure 3. This section also provides learners with examples of how to format text (e.g., justification and alignment).

Figure 3. The front of one of the flashcards demonstrates text colour contrast, and the back of the same flashcard shows the contrast ratio meets AA compliance guidelines.

Following the conversation about readability and legibility, there is a section about plain language and alternative formats. Plain language includes using active voice, appropriate words, short sentences, and suitable lists. This includes clarifying any acronyms, abbreviations, and jargon. In keeping with the theme of providing clarity, the section on alternative formats discusses the importance of presenting information in various ways. For example, video content should include captions and a transcript.

This module concludes with a formative assessment piece that recaps the module and a closing statement. All of the modules designed during this initiative are accessible; the modules are meant to serve as both an instructional tool and an exemplar of how to design and create content that is accessible to learners.

Module 2: Usability

The second module focuses on usability and user experience, examining the intricacies of content development, structure, and design. By the end of this module, learners should be able to:

1. organize content for learners,
2. create a cohesive structure,
3. incorporate consistency principles, and
4. design optimal material for cognitive processing.

This module discusses organization strategies and provides suggestions for how to design content that is manageable and intuitive for learners. The first topic addressed in this module is content structure. It starts with a description of backwards design and explains how learning objectives should be used to guide content development. Further,

this module provides strategies for organizing content, such as structuring content chronologically, by order of importance, via categories, sequentially, or relationally.

In addition to content organization, the usability module also discusses content structure, including examples of structural models. For example, content could be structured via storytelling, scenarios, “choose-your-own-adventure” (i.e., toolkit method), or demonstration-practice examples. Figure 4 shows an example of the demonstration-practice method in which learners are asked to determine whether their research question is open-ended or close-ended.

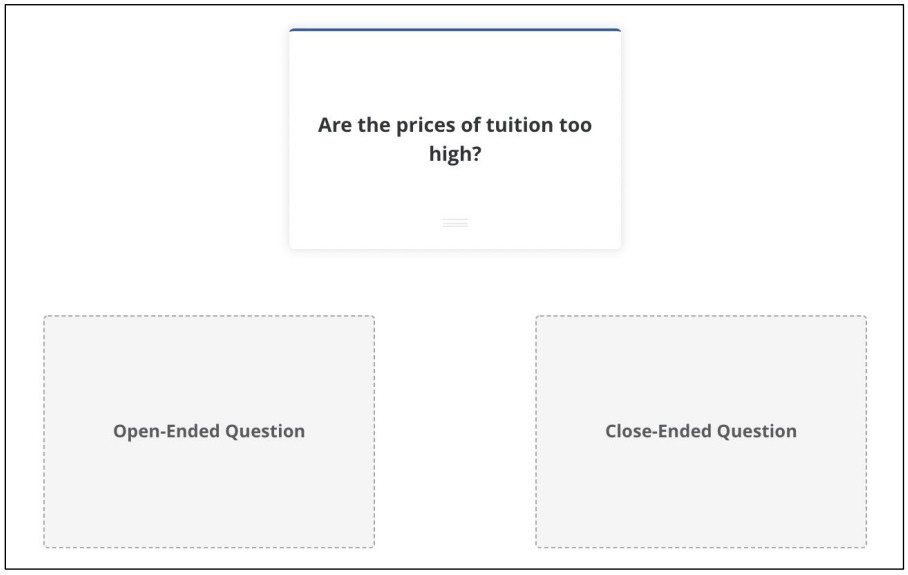

Figure 4. A concept check activity in which learners sort research questions into open-ended and close-ended question categories.

This module also discusses strategies for content design. Within this section, there are comments about four goals of instructional design: consistency, chunking, decreasing extraneous load, and managing intrinsic load.

Providing academic librarians with tools regarding user experience and usability will help them establish a foundation for designing and delivering online instruction. Further, the techniques discussed in the module are employed throughout the course; this ensures academic librarians have an example of how to create content that meets learners’ needs and enhances user experience.

Module 3: Meaningful Content

While academic librarians may have difficulty providing personalized experiences for the diverse set of learners they support, they can take some measures to support learners broadly. These measures are the focus of Module 3. By the end of this module, learners should be able to:

1. develop content that incorporates pre-training,

2. design formative assessment pieces,
3. organize content such that users can complete sections at their own pace, and
4. provide users with opportunities to develop time management skills and self-efficacy.

Scaffolding, a practice used to aid knowledge development and understanding, is addressed in this module. Moreover, this section discusses strategies for making connections between prior knowledge and new knowledge. The module provides suggestions for tracking learner progress and levels of understanding via formative assessment and gives a rationale for using timely feedback.

This module also discusses the importance of learner choice. Online learning provides opportunities for learning to be flexible and self-directed. For this reason, the module explores methods for integrating such experiences and fostering learner efficacy, such as allowing for flexible scheduling and formative assessment. Figure 5 contains an illustration of various ways to provide learners with formative assessment opportunities.

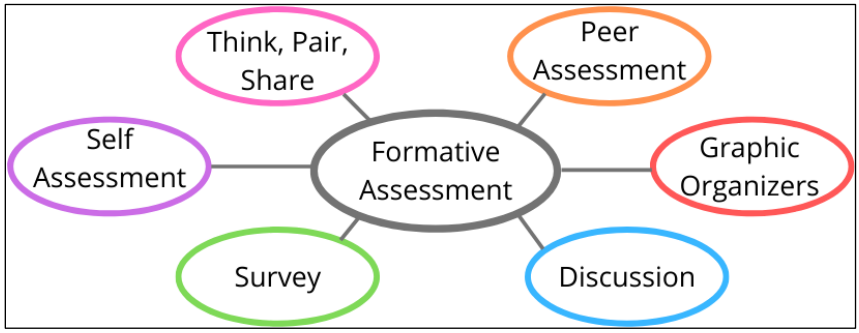

Figure 5. A collection of formative assessment strategies discussed in the meaningful content module.

The final section in this module identifies methods for supporting autonomy and inspiring lifelong learning. This section delves into self-reflection prompts to promote deeper content engagement, such as interpreting, analyzing, predicting, and evaluating information. To help teach skills for lifelong learning, the module provides insight into teaching learners about managing their time, taking initiative, and learning to learn.

Module 4: Reliability

The final module in the UDL course discusses developing reliable content and the instructional design process. Saving this topic for the final module helps academic librarians see how the information presented in the previous modules comes together during the design process. By the end of the final module, learners should be able to:

1. apply needs and learner assessment techniques,
2. conduct task analysis research,
3. consult with subject matter experts to storyboard and design online learning objects, and
4. test content and make appropriate changes/updates.

The first stage of the instructional design process is conducting a needs and learner assessment. The needs and learner assessment determines key information about the audience and content, including learners' prior knowledge, theory and practice pertaining to online learning, and learner demographics. Conducting a needs and learner analysis prior to designing and developing content helps establish the end goal and thus creates a roadmap for backwards design.

Once the needs and learner analysis is complete, academic librarians can proceed to the task analysis. This phase includes identifying learning goals, describing, prioritizing, and sequencing tasks, and establishing links between tasks and learning goals. The list of tasks of the first module in UW library's new employee reference training is provided as an example for librarians embarking on this work. It looks like this:

1. Introduction to the library:
    - 1.1. Mission and vision statements
    - 1.2. Locations and hours of the library
        - 1.2.1. Affiliated institutions
        - 1.2.2. Affiliated university libraries
    - 1.3. Tri-University Group (TUG)
    - 1.4. Universities within TUG

Table 1 shows what the task breakdown would look like for this list of tasks.

Table 1

Task Breakdown

Module	Specific Task	Assessment
1 Introduction to the Library	Welcome message	N/A
1.1 Mission and vision statements	Present the library's vision, mission, and strategic plan	Fill in the blanks
1.2 Locations and hours of the Library	Discuss the locations, standard hours, and scope of the UW libraries. Including Davis Centre, Dana Porter, Musagetes Architecture, and Witer Learning Resource Centre	Drag and match
1.2.1 Affiliated Institutions	Discuss the relationship between UW and the following: Renison, St. Jerome's, St. Paul's, and Conrad Grebel	N/A

Module	Specific Task	Assessment
1.2.1.1 Affiliated Institutions–Libraries	Briefly discuss the size and scope of the libraries at each affiliated University college	N/A
1.3 Tri-University Group (TUG)	Briefly discuss the partnership between the three universities	N/A
1.3.1 Universities within TUG	Identify the universities that are within TUG	Multiple choice question: “Which of the following is not associated with TUG?”

After the task analysis is complete, the storyboarding and design phase can start. This process involves making decisions about navigation, interaction, and media. Further, considerations about accessibility, content cohesiveness, assessment, and communication must be made. This module provides storyboarding examples and images that show completed designs.

Finally, once an online course has been designed, developed, and delivered, the evaluation process can begin. The design process for instructional tools is never finished or complete; rather, it involves a practice of reflexivity. Moreover, the tasks, design features, and content should be reviewed so that revisions can be made. This can be accomplished by soliciting feedback from learners and sharing content with colleagues. During this process, it is important to establish a protocol for making changes and updates so that previous versions of instructional tools can be accessed.

Challenges

We faced four main challenges in the development of the UDL modules. The first challenge was controlling the scope of the content. UDL is a popular topic in online learning, and several factors contribute to how researchers approach the subject, including academic field, profession, and learner needs. After interviewing colleagues and focusing research on UDL in libraries, we were able to narrow the scope of the modules to the four main concepts described in the previous section.

The next challenge was completing the effort within a reasonable timeline. Developing four modules was quite a substantial undertaking for this project; however, each module was essential to the success of the overall project. In the process of creating the design journal, a storyboard was developed for each module, which provided an estimate of how much content each module would cover and the amount of time it would take to develop. This also allowed for the creation of a timeline for each module. This process helped keep the creation effort on track throughout the project. Additionally, in the development phase, each module was fully created before proceeding, so that if any scheduling setbacks arose, we could adjust the project goals accordingly.

Because of the nature of the interrelated content, we struggled to determine the order of the modules. Even approaching the project with a background in education, we had difficulty ascertaining whether it was better to present learners with theory and then practice, or vice versa. After much consultation, we decided to present learners with application-based information pertaining to accessible, usable, and meaningful content before presenting theory-based information about design rationale and reliability. This approach aligned with the feedback we received during consultation and reflected andragogy (adult learning) principles, including the ideas that adult learners are more intrinsically motivated and that they appreciate seeing a direct application of the presented knowledge (Knowles, 1984).

The software itself presented the final challenge. Though the modules were built in AR, accessible alternatives needed to be developed for some interactive elements to ensure compliance with accessibility best practices and legal requirements for accessible web materials. The AR software requires the use of a locally hosted repository, web page, or arranged course in the campus learning management system; therefore, the modules could not be disseminated to learners using AR long term. Thus, the modules will need to be updated periodically using the AR platform, and the old version will need to be replaced in the relevant repository, web page, or course. This challenge was not specific to the AR software; issues related to long-term dissemination and delivery are common to all forms of instructional design software currently in use.

Implications

This project has several future directions. First, it would benefit from continuous feedback from colleagues and members of higher education institutions. This feedback might allow for future collaboration and iteration. The information might also be adaptable to other key instructional tools, including LibGuides. Second, the project has only recently been released for use by individuals at UW. While it has had considerable use by librarians and other library staff, in addition to use as training material for undergraduate students assisting with online course development during the COVID-19 pandemic, we have only received limited feedback so far. Thus, questions remain about the efficacy of the training for stakeholders beyond the library setting. Finally, while the project has been made available as an open educational resource, there have been questions about asking individuals to complete such training using the honour system. A future iteration may provide a way to offer a certificate of completion or similar verification that an individual has completed the modules.

While these modules were designed to help individuals create online content in the context of the library, they could be used to assist those interested in developing online resources for other service departments or online content for courses. In the case of developing online course content, two additional topics should be addressed: online presence and summative assessment. While these topics extended beyond the scope of this project, it would be worth exploring how they impact resource design and development.

Conclusion

Libraries have a unique place at the center of academic life, so they are uniquely positioned to meet the needs of a broad range of learners. Providing instruction to diverse populations requires the ability to accommodate various backgrounds, learning styles, and individual needs (Zhong, 2012). This creates an opportunity to develop resources that are accessible, usable, meaningful, and reliable. The demand for remote and online-based training has led to a need for the creation of learning objects that adhere to UDL principles, but libraries must first train librarians and other staff on the core UDL principles. This paper describes the considerations, development, and challenges of just such a project designed to provide a foundation for future institutional and cross-institutional collaboration. Ultimately, with the massive move to online instruction, educators in academic libraries must be provided with the tools they need to help learners succeed, and the UDL modules described in this paper provide a powerful first step.

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