Accessibility Testing Initiative Report

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Background and Purpose

 In January 2020, Western Libraries' User Experience (UX) team received funding approval to carry out the libraries' inaugural Accessibility Testing Initiative. Manual accessibility testing provides a deeper understanding of how users living with disabilities experience library services and spaces. Due to the ongoing COVID-19 pandemic, the focus of the first round of testing shifted fully to assessing the accessibility Western Libraries' online services. With much of Western's community working, researching, and completing coursework remotely, determining the accessibility of our online tools and spaces has taken on a heightened importance. Within this study, digital/web accessibility will be defined as "the practice of making websites usable by people of all abilities and disabilities" (Open University). This broad definition highlights the fact that establishing digital accessibility benefits everyone.

Two overarching objectives underly this testing. First, it seeks to understand the specific accessibility and usability challenges that participants face when using these library services and, in consultation with the testing participants, aims to make recommendations that will be used to improve the accessibility of the particular services tested and recommendations that will be generally applicable to the development of Western Libraries' future online content. Second, this testing is an opportunity to explore the best practices and most effective strategies for conducting participatory accessibility testing with people with disabilities, as this type of accessibility testing has not been carried out at Western libraries in the past and there is limited information on it generally.

Accessibility at Western

Western's Accessibility Plan is a statement of commitment that focuses on dignity, independence, integration and equal opportunity for people of all ability (Western University, Multi-Year Accessibility Plan 2013). The multi-year plan emphasizes compliance with the AODA, with years 2020-2021 focusing on web accessibility and online learning. By January 2020, all educational libraries and the multi-media/digital resources they provide must be made accessible. By January 2021, all websites and web content must conform to the Website Content Accessibility Guidelines (WCAG 2.0) at a AA level. Achieving a AAA level, the highest standard outlined in WCAG 2.0, is a preferred goal as it optimizes the user experience of individuals living with disabilities.

Accessibility is a required consideration in the development and provision of all library services at Western Libraries. User Services has been tracking accessibility issues related to service desk interactions using LibInsight. Since July 2019, there have been 154 accessibility interactions recorded in the Service Desk Activity dataset. This captures accessibility requests that occur at the desk, whether it be requests for an accessible study room, requests for book retrievals, directional and facilities-related questions, or questions about loanable technology. It does not capture accessibility issues on our website or with our e-learning resources.

Method

Accessibility Testing and Participatory Research

In a content analysis of the library and information science literature related to accessibility and disability, Hill (2013) found that "the predominant approach to testing accessibility is to have fully able-bodied researchers perform testing" and notes that without involving people with disabilities in the testing, "it may make for cases of token accessibility over true accessibility" (p. 12). In order to work towards the more nuanced "true accessibility" mentioned by Hill and to make our libraries genuinely user-centred, it is essential to involve library users with disabilities in the testing and design of our digital library services.

Participatory design is commonly understood as a method of "building spaces, services, and tools where the people who will use those things participate centrally in coming up with concepts and then designing the actual products" (Foster, 2012, 1). In taking a participatory approach, the Accessibility Testing Initiative recognizes that the members of our community with disabilities are experts on accessibility and accessible services, and that they have the most at stake in research on the accessibility of Western Libraries. As such, we sought to work collaboratively with the participants to assess the accessibility of Western Libraries' online services, and to make recommendations about how the libraries' can be made more accessible.

Participant Pool

In keeping with best practices that emphasize the importance of collaborating with accessibility services (Brunskill 2020; Pontoriero and Zippo-Mazur, 2019; Arzola 2016), the UX team reached out to Lesley Oliver, the Diversity and Accessibility Coordinator at Western, and Wendy Dickinson at Accessible Education. Wendy circulated an invitation to participate in the initiative to approximately 200 students who use a variety of assistive technologies during exams. Lesley also connected the team with Ashton Forrest, Accessibility Coordinator for SOGS, who gave the team a list of students who might be interested in participating. Interested students contacted the UX team and scheduled a time to conduct one-hour testing sessions.

A survey was emailed to all participants prior to their first testing session to gather key contextual information, such as their prior experience with Western Libraries, status at the university (e.g., faculty, staff, (under)graduate student), and, if applicable, level of study (Dermody & Makekodunmi 2011; Xie et al. 2020). Under privacy protections of AODA and based on best practices for user research with participants with disabilities, there were no question asking for a specific diagnosis or statement of disability. However, participants were asked to broadly categorize their disability (e.g.,, hearing disability, learning disability, etc.) (Pontoriero and Zippo-Mazur, 2019). This question allowed the UX team to determine the applicability of the testing results.

Seven of the eight participants who engaged in the testing completed the survey. From this, we learned that those who completed the surveys were all lower or upper-year undergraduate Western students and all but one (n=6) of the students had some familiarity with Western Libraries' online presence. The following is a breakdown of the general disability categories that the seven participants self-identified with:

Disability Type	# of participants (n=7)
Vision	2

Auditory	2
Learning	4
Mobility	1
Other	1

This data shows that although the participant pool was small, those who contributed identified as having a range of disabilities and in some cases more than one distinct disability. Pionke (2017a) has noted that libraries have generally failed to take into consideration the accessibility needs of people with invisible disabilities (e.g., learning disabilities). A more holistic representation of disabilities helps to illustrate the spectrum of accessibility challenges that people with disabilities experience when using online services (Brunskill 2020; Schmutz et al 2017).

The assistive devices and technology used by participants at different points in the testing include: Read and Write literacy software, Kurzweil 3000, screen magnifiers, high contrast display plugins, and hearing aids. It is possible that participants used additional devices during the testing sessions, as some participants moved frequently between different technology.

The participants were given $25 honorariums for each testing session that they participated in as an acknowledgment of their expertise and the collaborative role they took on in the testing.

Tests and Testing Sessions
The UX team reached out to the different units in the library to determine priority testing areas for the initial round of testing. In consultation with these library partners, five initial testing objects were identified: Articulate Storyline information literacy modules; the LibCal seat and computer booking tool; FAQS created through LibAnswers; an OWL information literacy module for nursing students; and an Omeka site used to display the Archives and Special Collections' digitized collections.

In total, we conducted fourteen one hour-long testing sessions with the eight participants throughout October of 2020; two participants participated in one test and six opted to participate in two tests.

Prior to each testing session, participants were sent copies of the tests. This aligns with best practices identified in the literature and allows participants to ask questions in advance of the testing itself (Brunskill 2020; Mulliken & Falloon 2019).

Testing was conducted remotely using Zoom and was not recorded to protect participant privacy. Two members of the UX team took turns guiding participants through the testing sessions and taking notes that captured verbatim comments from the participants. Consent to participate in the test and to be quoted in this report and subsequent scholarship was received from all participants.

The testing sessions followed a semi-structured format. While each session loosely followed the script of one of three pre-written accessibility tests, we followed the lead of the participants by improvising questions based on their comments and recommendations and shifting the discussion and accessibility tasks based on the particular testing experience of each participant. This flexibility is recommended as it allows participants to have more control over their comments and recommendations (Mulliken & Falloon 2019; Pionke 2017; Kitchin 2000).

As per the scripted guidelines of each test, the testing lead explained specific tests that the participant would be conducting and asked that participants 'think aloud' as they conducted the test. The script emphasized that it was online materials being tested and not the participants. Throughout the tests participants were encouraged to freely point out any observations or concerns that came to mind. The participants used their own assistive technology so that the testing would more accurately mimic their day-to-day experiences with online services and to ensure a sense of familiarity for participants.

Research Questions

- **Set 1: Accessibility of Western Libraries Online Services**
    - What specific challenges do people with different disabilities experience when accessing online library services and materials?
    - What specific changes can be implemented to improve the accessibility of these online services and materials?
    - What opportunities exist for Western Libraries to create universally designed services?
- **Set 2: Accessibility Testing**
    - What are the best practices and most effective strategies for conducting accessibility testing with people with disabilities?
    - What can we learn about designing accessible online content by talking to library users with various disabilities?
    - What can we learn from conducting participatory research?

Findings

Interpreting the Findings

This was an exploratory qualitative study that took an in-depth look at eight participants' experiences interacting with five of the libraries' online materials. Due to the small participant pool, some accessibility concerns with these materials may have been missed. Additionally, these recommendations are not a replacement for the accessibility guidelines contained in WCAG 2.0. Instead, they are meant to provide context into real library users' accessibility challenges and offer recommendations for optimizing the user experience.

This report draws together the accessibility and usability issues and recommendations that emerged in four smaller reports about each of the specific tests (see the appendices). To develop those reports, open coding of participants' comments and testing experiences was used to establish the distinct accessibility issues that arose in each of the tests.

Findings Part 1: Accessibility Findings:

Layout and Design Features

The testing demonstrated that the layout and design of content on webpages can have a significant impact on how accessible that content is to different users. In particular, the importance of sufficiently "breaking down" or "chunking" content and including adequate spacing between distinct sections of content was a theme that resurfaced throughout the tests. Similarly, the importance of using high-contrast colours was an issue that recurred through the testing

Use chunking, spacing, and bulleted lists to break content down

Content that is not sufficiently broken down into distinct sections can be incompatible with assistive technology and difficult for people with various disabilities to process and interpret. These challenges were noted by a participant who was assessing a webpage that contained a significant amount of text that was not broken down into sections. She noted that Kurzweil, the scan and read program that she frequently uses, does not always read text properly when it is "too tight." She further commented: "I would [recommend] spacing it out more, putting more spaces in between text to break up the paragraphs and to break up the sections and the titles. My eyes go everywhere when I see a lot of text, so it's a little overwhelming." Similar comments were made by another participant who was interacting with content within one of the OWL lessons and recommended breaking up content with increased spacing and text boxes:

> For people who get visually stimulated and overwhelmed, a break would be helpful. Otherwise, I get overwhelmed. Separate boxes for each subheading would be helpful. My eyes have a hard time focusing when there is so much there. It's very common with autism and ADHD.

Some participants also identified lists as being an effective way of separating distinct information.

Including adequate spacing between different elements of quizzes (i.e., between answers and between answers and questions) was also identified as a best practice, as was only including one question per-page. Within the quizzes included in the Articulate Storyline modules and the OWL module, participants appreciated the highlighting that appeared on answers that the mouse was hovering over, because it allowed them to know "where one thing [answer] started and ended" and it "helps you differentiate and break up the test."

Always use high-contrast colours

A lack of colour contrast between text and backgrounds made content in several tests less accessible to some participants. Colour combinations such as black and grey, white and light blue, or white and yellow were all found to provide poor contrast. The content within grey text boxes--especially where the font within the box was not black--was inaccessible to a participant who encountered this issue in two different testing sessions. In one instance the participant remarked, "grey on black is my nightmare," when she had troubles completing a drag-and-drop quiz that required her to drag answers into a grey box that was placed on top of a black background, and in other instances she had troubles seeing a grey menu button and reading the text within a grey text box. When this occurred, the participant's frustration was palpable and was heightened by the fact that the lack of contrast made text "unnecessarily harder to read." Participants had similar difficulties reading text that was placed over textured backgrounds or images.

Participants had mixed reactions to the use of colour coding in various contexts. While some found it to be a useful way of distinguishing different sections of information, others found that it could be "visually overwhelming," and confusing.

Clearly mark hyperlinks and place them in expected locations

Hyperlinks were viewed as an accessible and useful means of directing library users to additional information or forms when they were clearly marked (with high contrast colour and underlining) and located in expected places. Some participants did not initially notice the "Book a Study Seat or Computer" link on Western Libraries' homepage; one participant explained that the link "was purple like

the [rest of the site] so I didn't notice." Within the OWL module, participants had no problems finding the clearly marked links within the content of the lessons, but no one noticed that the subheadings within one of the lessons were links to databases. In this instance, participants missed the links because they did not appear in an expected part of the lesson and looked similar to the other subheadings throughout the module.

Multimedia: Graphics, Animations, and Videos

Provide different content formats and customization options

Throughout the testing, participants showed a preference for tools and spaces that could be customized. In particular, the pacing of audio and graphics in videos/slideshows and the size of font on webpages were flagged as elements of online content that the testers wanted to be able to customize. For example, when watching a video included in the OWL module for nursing students, a participant found one of the videos to be more accessible when she adjusted its speed: "I switched to 1.5 speed, which mitigated the pacing. It's good that you have the option to slow it down or speed it up."

Participants also recommended providing alternate content formats (e.g., audio narration, graphics, scripts, sign language) to enhance the accessibility of this content for different users. Scripts were identified as a crucial format type. Most of the participants who provided feedback on the Articulate Storyline modules and the videos that appeared in the OWL modules requested scripts be included for all modules—including modules without sound or those that linked to YouTube versions with closed captions. Scripts are necessary not only for people with visual impairments, but also for people with other disabilities since "a script is nice for a screen reader" and users with a variety of disabilities use screen readers. As one participant explained, "I'm the type that would need both [module and the script] … I would split screen it...I would have this [the module] open and the script, and I would follow along [using the script]."

When certain content formats were inaccessible to participants, they wanted to know if all of the information was conveyed in the alternate content format and if anything was missing. This was a question raised by a participant who was testing an Articulate Storyline module and who liked "that the images [included in the module were] supplementary, so that it wasn't like [they] were missing out if [they] couldn't see." The importance of creating content that all users are able to equally access was also raised by a participant reviewing a video embedded in the OWL module, who commented, "If the video is saying things the text isn't saying, it would be good to add that so that people who are hard of hearing or deaf don't miss that."

Create balanced content

In general, participants preferred interacting with content that incorporated a mix of text, graphics, and other media. When content was blended, it was viewed as being more engaging and, at times, more accessible than content that contained a single type of media. The importance of creating well-balanced content was demonstrated through testing of the Articulate Storyline modules, where the more crowded slides sometimes left participants feeling overwhelmed, but slides with no images were considered less interesting and harder to differentiate. One Articulate Storyline module that was tested was specifically designed with accessibility in mind and contained black text on white slides, without any graphics, animations, or audio components. While the content on the individual slides was accessible to the participants, most preferred slides with blended content. One participant explained, "It's difficult to tell these slides apart—there is nothing here that sets one slide apart from the others."

Avoid making videos or modules too fast or overly stimulating

The pacing of videos/modules and the speed at which graphics move were the most frequently discussed issues regarding videos and animations. In most cases, participants recommended slowing down the pacing in these materials, because "putting up the information so fast was hard to follow" and when images move too fast, it becomes difficult "to remember the connection" between the images shown and the audio component. Therefore, most participants preferred when images moved slowly, and key terms or phrases remain "static". However, the testing demonstrated that there is no one-size-fits-all for accessibility—including pacing—as one participant preferred watching videos at a quicker pace.

Always provide closed captioning

Almost all participants mentioned that embedding closed captions in any videos that are included in modules is an important accessibility feature that helps users with a variety of disabilities, including those with learning disabilities and hearing impairments, as well as ESL users. As one participant explained when testing a video without captions, closed captions "would be good for people who are hard of hearing. If I didn't have my hearing aids in, I wouldn't be able to hear."

In another instance, a participant interacting with a video without captions opted to watch the same video from Western Libraries' YouTube channel, in order to adjust the speed of the video and use the captions provided by YouTube. She noted that if she was watching this video independently, this would be her preferred way of interacting with it because it would help her "understand the information better."

However, when discussing YouTube's closed captions, another participant noted that it is important to be aware of the limitations within YouTube's closed captions:

> I have a bone to pick when it comes to YouTube closed captioning. It's sometimes computer generated and sometimes the words don't match up. A lot of people in the deaf community don't like YouTube's closed captioning, but it's better than nothing.

In this instance and others that occurred throughout the testing, it was not just the participant's assessment of the material being tested that was instructive, but also her discussion of the specific challenges associated with different assistive tools and technologies.

Information Orientation and Navigation

By information orientation, we refer broadly to any element on a webpage that is intended to help the user understand how to interact with that particular space or tool (e.g., instructions, checklists, bolded text). Participants frequently commented on issues related to the information orientation provided (or absent) within particular virtual spaces and most often found that further information orientation would be useful.

Participants found navigation tools (e.g., menus and search bars) to be very helpful for moving through and between different online materials, and they generally recommended that additional navigation tools or features be included when possible. However, navigation tools were less accessible and less useful when they were not placed in expected locations, intuitive to use, and made highly visible.

Label accessibility specifications

The participants using assistive technology frequently had to adapt to the different materials that were being tested and were sometimes unsure of how compatible their assistive technologies would be with these materials. Providing more information about the accessibility specifications of different resources would save people who use such technologies from having to repeatedly check for compatibility issues. For example, in one instance a participant was surprised to discover that her Kurzweil software was able to pick up some of the text from a very old scanned newspaper that she was testing. When it started reading the text, she told us, "Honestly, I didn't think it was going to work." When there is no indication of whether a tool like this is compatible with assistive technology, there is a risk that people who use assistive technology will either choose not to use it, assuming that it will not work, or, if it does not work, waste their time trying to use it. Therefore, where possible, spaces and tools should be clearly labelled with accessibility specifications.

Detailed information regarding the accessibility of physical spaces should also be noted on the libraries' website. This was pointed out to us by participants who were testing the seat-booking function on the website's homepage. When viewing the seats with the accessibility logo, multiple participants wondered if these seats were reserved solely for students with disabilities. As well, one participant explained the detailed information that is needed for students with disabilities, particularly for students who use wheelchairs: "that's good, that they show which [seats] are accessible…I would say put more details like are there automatic doors…space, how big is the room… maybe like an image, a few angles". This participant explained that, without this information, it is difficult to determine who the space would be accessible for. Such feedback made it clear that inadequately labeled spaces can be frustrating and time-consuming for people with disabilities to navigate.

Provide instructions and other cues about how to engage with online materials

Participants frequently described feeling overwhelmed by the content that they encountered. In these cases, they were uncertain about how to parse or interpret the information being presented. As a remedy for this, some participants recommended including more guidance about what information was the most important and what those interacting with the information should be able to take-away from it. For instance, when testing the OWL module, participants thought that embedded hyperlinks and videos were useful, but some wanted more information about which of these were the most crucial. As one tester remarked, "I prefer if they only include the videos that are really required and not repeated in the text. If videos are optional, they should say they are for if you're interested." Similarly, participants liked the inclusion of learning outcomes at the beginning of Articulate Storyline modules, because they "let you know what's coming" and communicated "exactly what [your] takeaways [are]."

Make navigation tools intuitive to use and to find

Navigation tools and buttons are most accessible and usable when they are intuitive and conform to common conventions for placement and functionality. Within the Omeka website, several participants did not expect that the menu button—located on the top right of the webpage—would cause a left navigation menu to open. One participant explained, "since the button is on the opposite side, it threw me off a bit." Another participant pointed out, "usually, [clicking on a menu] drops something under it" and, because it did not follow this convention, he thought that it would be less accessible to other library users.

Participants generally preferred using search bars to other navigation methods, and some made recommendations about how to enhance their functionality. One student was unable to find a digitized item on the Omeka site due to not spelling the name of the item correctly in the search bar; she pointed out that her preference is to use the search bar because she has "a lot of trouble going through the research on a site," but that search bars without an autocomplete function are not useful to her. Another participant noted that it is confusing to use search bars when the scope of the search is not indicated (e.g., if it only searches a particular webpage or all of Western Libraries).

In several tests, participants identified navigation tools that were difficult to locate and recommended that such tools be made highly visible by increasing their size and improving the colour contrast of the tools. One person had difficulty making a seat booking within LibCal because "the [dropdown menu at the bottom] is really small" and they were initially unable to find it. Within an information literacy module, another participant could not find or click on some of the navigation buttons because of their small size and lack of colour contrast: "I have to zoom to find the submit button. It would be easier if it was a different colour and not just grey." In this instance, she had to use her magnifier to enlarge the button until it was sufficiently large for her to find. Participants also noted that it is particularly important to make navigation buttons and tools within quizzes easily noticeable.

Findings Part 2: Accessibility Testing

Participants supported the testing and volunteered because they are passionate about improving accessibility for all

The discussions we had with participants and their responses to the post-survey made it clear that they were very invested in the accessibility testing. When asked why they chose to participate in the Accessibility Testing Initiative, all of the participants indicated that they wanted to help make things more accessible for people with disabilities. For example, one participant noted, "I care about accessibility as someone who believes that the system of university is inherently ableist, and bound to leave disabled people behind" and another explained, "I want to improve the quality of accessibility everywhere." Similarly, a third participant noted, "I felt that the project was important, so I decided to participate."

The participants repeatedly expressed their enthusiasm for the project in their emails to us and during the testing sessions, and most indicated that they would like to be involved in any further accessibility testing carried out by the libraries. When they were invited to participate in a second testing session, almost everyone chose to book another session. From our discussions with the students, it was clear to us that they appreciated having the opportunity to share their experiences and expertise, and in some cases they expressed their frustrations with encountering inaccessible spaces and resources on campus and in the libraries.

Participants were active collaborators and knowledgeable about a wide range of accessibility issues

The participants demonstrated a deep knowledge of and empathy towards the accessibility challenges encountered by people with the same disabilities that they identified as having, as well as challenges experienced by people with other types of disabilities. For example, comments that took into consideration other library users with disabilities, such as, "others that I know would have trouble

finding that," were very common. This holistic and nuanced understanding of accessibility informed much of the feedback that we received through the testing.

The participants' feedback and recommendations often did not relate solely to accessibility issues; often their suggestions aligned with best practices for web design and web writing and, if implemented, would be beneficial to a broad spectrum of library users and would make the libraries more universally accessible. Therefore, collaborating with people with diverse abilities is an effective way of simultaneously learning about the specific accessibility features of our spaces and services and the general usability of these spaces and services.

Additionally, we noticed that the hour-long testing sessions gave participants the room to become comfortable with sharing their thoughts and experiences and that the participants who were involved in two testing sessions were more particularly confident in making suggestions about what elements of the content should be tested and how digital content could be redesigned to be more accessible.

Untargeted accessibility testing exposed the intersections in participants' experiences

In opening the accessibility testing to people with diverse abilities, including "invisible" disabilities (e.g., learning disabilities), rather than targeting people with specific disabilities, we were able to obtain a more holistic portrait of the various experiences that people interacting with the libraries' online spaces have. As one participant wrote in the post-test survey, "It's important to have an intersectional approach to accessibility--hearing from all types of disabled people!"

Furthermore, the testing demonstrated the danger of making assumptions about the behaviours and accessibility needs of people with particular disabilities. For instance, a participant who had a vision impairment did not use screen readers for the testing and told us that she hated screen readers, while another user, who self-identified as having a learning disability, found screen readers to be very helpful. Similarly, there were numerous instances where participants with diverse abilities had very similar experiences when testing a particular material. Again, this highlights the often intersectional nature of disabilities and the value of open accessibility testing.

A flexible testing structure and working with the same participants in two sessions enabled participants to take the lead

Due to the diverse accessibility needs of the participants that we worked with, we found it most effective to keep our testing structure open and responsive to the comments and recommendations that they made. In a number of instances, participants recommended alternate features that should be tested or alternate modes of testing, based on accessibility challenges they had experienced in the past. For instance, at different points participants recommended testing tools on their mobile phones, at different speeds, and using different software. In following the lead of the testers in such cases, we learned about accessibility issues that we would not have otherwise been aware of.

For some participants, the testing could be tiring and overwhelming. This was especially the case for participants who were prone to being overwhelmed by sensory stimuli or large amounts of information. Therefore, it was important for us to monitor their reactions to the content and adjust the usability tasks when they were too frustrating or uncomfortable for a participant.

Conducting accessibility testing virtually is effective and convenient

Carrying out the testing on Zoom generally went very smoothly, though technical issues related to Zoom settings were encountered in a couple of testing sessions. The virtual testing was convenient for participants, and it gave them the option of either appearing on video or only using audio. All of the participants were comfortable sharing their screens.

Based on this testing, we recommend virtual accessibility testing (and virtual general usability testing) as an effective means of carrying out testing when in-person testing is not a viable option or a convenient option for participants.

Conclusion and Recommendations

The first round of testing demonstrated that participatory accessibility testing is an effective way of obtaining detailed feedback on the accessibility and general usability of Western Libraries virtual spaces. Many of the recommendations made by participants are not difficult to implement but have the potential to make the materials more accessible for library users with a range of abilities. The materials tested were not completely inaccessible to any of the participants, but were sometimes "unnecessarily difficult", time consuming, or stressful to engage with when there was a simple fix available that could make this inconvenience avoidable. For example, when participants had to adjust settings on assistive technology or try out different tools to see what would make something more accessible, it required them to spend extra time using the material and it could be frustrating. Labeling accessibility information, increasing font size and colour contrast, and chunking content are some of the quick solutions that would make these materials more accessible.

Based on this inaugural round of testing, it is recommended that Western Libraries continue to carry out accessibility testing with library users with disabilities and integrate this form of testing into its process of designing online materials. Rather than conducting such testing on virtual or physical tools and spaces that have already been developed, the ideal is to test them during the design phase to ensure that they are universally accessible and usable from the start. Through this initial testing a participant base has been established which has the potential to be expanded by continuing to reach out to accessibility partners on campus and through recruitment via Western Libraries' User Participation Lab.

General Recommendations:

Accessibility Recommendations

Layout and Design Features
- Break content down with "chunking", spacing, subheadings, bulleted lists etc.
- Separate and clearly distinguish the different elements of quizzes (e.g., include one question per page, highlight chosen answers etc.)
- Always use high-contrast colours to distinguish text or images from backgrounds
- Place text over solid backgrounds. Avoid grey text boxes and backgrounds with images or textures.
- Use bolded text to emphasize important content (generally avoid underlining and italics)
- Make hyperlinks noticeable with high colour-contrast and underlining
- Place hyperlinks in conventional locations and consider including a list of links at the bottom of pages for easy identification

Multimedia: Graphics, Animations, and Videos

- Create balanced content that contains a mix of different types of media
- Where possible, provide multiple content formats and customization options (e.g., ability to adjust speed of videos)
- Embed captions within all videos and modules on the library website
- Always include scripts for videos and narrated modules
- Ensure that there is consistency between content in different formats and that no important information is omitted from any format
- Avoid making videos or modules too fast or overly stimulating

Information Orientation and Navigation

- Include in-depth accessibility information and specifications about online resources/tools and, on relevant pages, about physical spaces
- Where applicable, provide instructions and other cues about how to engage with online materials
- Include auto-suggestion mechanisms and placeholder text in search bars
- Make navigation tools and buttons noticeable by making them large, using high-contrast colours, and placing them in conventional locations
- Provide information about how to use search tools and their scope

Accessibility Testing Recommendations:

- Consult accessibility partners on campus for assistance in recruiting participants
- Provide participants with scripts and other information about the testing sessions prior to their first testing session
- Talk to library users with various disabilities about their experiences with digital accessibility and have them perform manual accessibility tests
- Use untargeted accessibility testing (i.e., with participants with diverse abilities) when testing the general accessibility of digital objects
- Work collaboratively with participants and encourage them to be actively involved in the testing process and to make recommendations about how digital materials can be made more accessible
- Keep testing sessions flexible
- Involve the same participants in multiple testing sessions
- Conduct accessibility testing virtually when in-person testing is not feasible or convenient

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Appendix A
Information provided at the beginning of all tests (script):

1. Hi, my name is _____, and I'm going to be walking you through this session. We are not recording this session, but my colleague _____will be taking notes throughout the session. I know that you already know some of the background information about this test, but I wanted to go over it briefly again with you and give you the opportunity to ask questions. This test is part of Western Libraries' Accessibility Testing Initiative which is designed to test library spaces and resources to ensure that they work well and are accessible to all users. As a result of this testing, the library will work to improve areas that our testing participants find to be not user friendly.

2. This session is expected to take about one hour and I will make sure that it does not go over the hour. Please let us know if you wish to stop the session at any time.

3. Your feedback and expertise is extremely important in making Western Libraries more accessible, so as a thank you for your participation we will be sending you a 25$ gift card for Amazon. These gift cards will be sent out by email once this testing cycle is complete (around October 23).

4. I want to emphasize that we are only testing the modules today and NOT you; there is nothing you can do wrong in this test and we really want to learn about any difficulties you may have when you are interacting with the modules and your recommendations about how they could be made better. Please don't be shy about pointing out problems with how these modules work; finding out that information is the whole purpose of the testing.

5. Please try to think aloud as we go through the test. It might seem like a funny thing to do at first, but by hearing you express any thoughts, comments, questions, or concerns you have about the tool you're interacting with right in the moment it will really help us understand your experience using it. Also, could you please share your screen during the session?

6. And to double check, do you consent to participate in this test today?

7. Do you have any questions at this point? If not, feel free to ask any questions as we move through the test.