

## E-learning and Usability Testing

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### Overview and Definition

Usability testing has become a common practice within academic libraries, especially within the realms of website design, research guides, and space design. However, usability testing of e-learning materials created by libraries is less explored. While library professionals aren't typically designing the Learning Management System (LMS) that our institutions use, we do have the ability to test the content we create on that LMS. Concepts related to "usability" show up online and in the literature with different names: usability testing, user experience, or UX. Ultimately, usability testing is about getting to know users and their needs, collecting feedback about how they use something, and then using that feedback to better design for those identified needs (Nielsen 2012). Rather than designing an online module or tutorial and hoping or even assuming that the experience of navigating it is effective and satisfying, incorporating usability testing allows the designer to confidently complete a design. Usability testing is a fantastic tool for providing effective designs for users. This article will explore usability testing of e-learning in libraries.

### Why Do You Need to Know?

Often when creating online learning content, library workers don't know if their design and presentation are actually effective or useful. While we do our best to meet the learning goals for the material,

sometimes we publish our tutorials, modules, or courses and then hope for the best. This experimental approach is sometimes necessary due to time and capacity constraints, but is ultimately flawed. Incorporating learner feedback through usability testing before publishing can help online learning designers align more closely with course goals. Often, the conversation around UX in libraries revolves around website redesigns, space redesigns, or even research guide redesigns. To those new to the concept of usability testing, this seemingly limited application can make the practice feel daunting, and may discourage adoption by e-learning and instruction librarians. Although it may seem intimidating at first, mixing in UX methods with other evaluation methods can be a way to raise the bar for your library's e-learning and really meet the needs of your learners.

### Current Applications in Libraries and Higher Education

Usability testing can be applied to a variety of projects, and academic libraries are embracing the practice in many ways. The existing literature on libraries and usability testing overwhelmingly focuses upon library website redesign and research guides, and can be helpful in orienting oneself with the concept of usability testing. Many of these articles discuss using multiple methods of usability testing, including [card sorting](#), [task scenarios](#), [heuristic studies](#), focus groups, and surveys, or explore means of gathering valuable feedback that influences the interface design of the library website. These reports can be especially valuable to an e-learning designer who is not working within the constraints of an LMS, but is building their own learning object with full control over the design.

A review of the literature around usability and tutorials (the term "tutorials" is far more fruitful when searching than "e-learning" or "online

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learning”) in library journals reveals case studies from California State University Stanislaus (Held & Gil-Trejo 2016), University of Illinois Chicago (Lantz et al. 2017), and Georgia State University (Leslie 2017). These case studies employ the practice in a variety of ways, but all depict librarian-led projects that incorporated usability testing of instructive tutorials during the design process. At the 2019 LOEX Conference, librarians from Virginia Tech presented and led the workshop "Keep Calm and Cairn On: Improving Learning Objects with Guided Feedback through Usability Testing" about usability testing for the design of library learning objects. Their workshop materials, including example scripts and forms and presentation slides are available freely on the [LOEX 2019 website](#).

### ***Case Study: University of Michigan, Ann Arbor***

The University of Michigan Library has long been using usability testing and other UX methods to inform the design of websites, signs, research guides, and to test the accessibility of various online tools. While asking for informal feedback from colleagues is common, applying more formal usability testing to online instruction and digital learning objects is a relatively new practice. In 2019, a team of Library Operations staff developed an online module intended to train students and full-time staff to collect daily statistics around the library.

After creating a first draft of the course in the Canvas LMS, the team developed a testing protocol to gather feedback from full-time staff. The protocol was based on learning outcomes and sought to gather feedback on the organization and clarity of content, use of media and quizzes, as well as an overall impression of the course. Full-time staff were asked to take the course and use the Discussion Board function to respond to prompt questions. This asynchronous pseudo-usability test gathered comments from eight different staff members.

Next, the team conducted in-person usability tests in the form of two focus groups with a total of four student workers across sessions. The goal was to gain insights on how best to use the LMS from the student perspective as well as to observe how people with a range of experiences with data collection (the content of the course) interacted

with the modules. For that reason, the team recruited student workers, because they regularly use Canvas for their coursework. While some of the students had been previously trained on data collection in different ways, others had not received any training. This convenience sample of participants could also be compensated with their regular wages with permission from their supervisors.

To start the focus groups, the team introduced themselves, explained why they were leading this session, and thanked the students for participating. Prior to the feedback sessions, students were instructed to review the course. Half of the group had reviewed the course, the other half had not. For five to ten minutes, the first group was prompted to review the online course and the second group was prompted to go look over the course for the first time. The team started with preliminary background questions to build rapport and then followed up with evaluative questions where participants were prompted to click around the course on a shared monitor, narrating how they navigated the course ([see interview script](#)).

Feedback from both sessions was integrated into a second draft of the course and included things like:

- Adjusting the voice of the content to be more conversational
- Adding more quizzes that were shorter and intermixed as well as adding feedback when a person chose the wrong answer to emphasize the quiz's role as a teaching tool rather than punitive
- Ensuring that visuals which referenced content were on the same page as that content
- Changing the order and labeling of certain content
- Integrating additional Canvas functionality

## **Potential Hurdles**

User experience studies and usability testing are highly flexible methods that can be adjusted to match local evaluation goals. The process can be as simple or as complicated as needed. Those new to usability testing may feel apprehensive about knowing where to begin. A simple focus group session like the one presented in the University of

Michigan Library case study requires minimal resources. For this focus group, the team needed:

- People
  - Student workers to take the online module and answer questions
  - Team members to ask questions, observe student workers, and take notes
- Consent
  - Students agreed to take part in the study
- Incentives
  - Student workers were paid an extra hour and were bought lunch for participating in the study
- Hardware
  - Computer screens for student workers to interact with the module

For more complex usability testing sessions, other factors must be considered, such as:

- Software
  - Are you recording a user's screen, mouse, or eyes? Consider screencasting or eye tracking software.
- Hardware
  - Do you want to record what students are saying while they move through an online module or learning object? A microphone or audio recorder should be used to capture the user's comments.

Even in a fairly simple usability testing session, the following factors are important to consider when getting started.

- Consent
  - Start by getting verbal consent. If the data gathered is for in-library use only, verbal agreement is sufficient. If the data will be used in any publications, reach out to your Institutional Review Board for approval first.
- Incentives
  - Snacks and coffee are often heralded as the best way to motivate students to participate in usability studies. Consider potential dietary restrictions. If possible, offer students incentives like gift cards to local shops or to an in-library cafe.

- People
  - Running usability tests can be done as a team of one, but having at least one other person to help take notes is best.
  - A small group of four to six participants can provide sufficient data to start identifying trends in responses. This number provides enough information to make a follow-up design decision before you potentially test again.

## Conclusion

Instruction librarians are likely implementing informal usability studies without necessarily realizing they are doing so. For example, asking colleagues and students for feedback on lesson plans or digital learning objects is an informal method of user experience assessment. Formalizing usability studies allows for better tracking of response data, and thus, better design. Creating formal workflows enables enhanced collaboration with colleagues and also makes sharing out findings an easier process both internally and with the profession at large. We also have the opportunity to join the greater conversation around user experience and usability studies within libraries, higher education, and within the corporate sector. Embracing formal usability studies allows designers of online learning materials in libraries to create learning objects more confidently, which ultimately leads to effective, usable, and satisfying learning objects for our patrons.

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