



Title

User Studies in Public Library Website Redesigns

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in
Public Library Website Redesigns

Beverly Theige

LIS 5063 Fundamental of Information Technology

Fall 2022

David Corbly

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Redesigning a website is important work. Though it might be tempting to find a nice template and get started, the best results begin with user studies. Most user studies include developing user questions, performing research, and reporting the findings. These findings are then used to guide the design process of creating a high-performing site that offers a seamless user experience (UX). Users who have good experiences will return and will attract others to the site which contributes to the long-term growth of a business (Knowles, 2018). Similarly, public libraries have much to gain from a well-designed online presence that extends their space and reflects their commitment to effectively meeting patrons' needs (Unrein, 2019). Because of their core values of access and service to all, public libraries should prioritize user experience research and include children in their user studies when redesigning their websites.

The virtual library environment must offer valuable services just as the physical library does. User studies are especially important for public libraries because they help define their broad audience and their needs. User studies also identify the most efficient way for people to find the information they are seeking. Best practices for UX research include listening first, then solving problems and testing those solutions (Knowles, 2018). The results are used to develop a user-centered, user-friendly online presence that meets the needs of the community.

Testing methods can be focused on information architecture or user interface and can utilize various technologies to both gather and display the data (Cardello, 2014). The eight most common user experience methods for website design are: socializing with your audience, user interviews, card sorting, usability testing, eye movement tracking, click heatmaps/scroll heatmaps, user recordings, and A/B testing (Knowles,

2018). Each of these will be discussed then explored as they relate to improving public library sites. User studies involving children will also be discussed and explored.

In order to know an audience, time must be spent socializing with them. Empathizing with the user is a good first step. This will give guidance through the process of creating a site that is relevant and successful as well as easy to navigate and pleasurable to use (Mortensen, 2022). Learning the audience's internet habits, their expectations, and what they want to know are also key. Conducting surveys are one way to discover what the audience is looking for and what their primary goals are when visiting a website. After developing a clear understanding of the target audience, users with less experience on the site should be recruited for user studies since they are more likely to notice problems in logic and flow (Guay, 2019). A public library's audience is as broad and diverse as its community. It includes both current customers as well as those who may never visit the physical library but might seek online information from a trusted public library website.

Researchers need to gather data to determine the weak areas of a site, and user interviews are an efficient way to find out what problems need to be addressed. "User interviews help you uncover the deep challenges and motivations of why users behave a certain way" (Knowles, 2018). Because librarians have been immersed in their work for many years, they often use library lingo without realizing it. Photos may unknowingly favor men over women which may make a user feel isolated, unheard, or unrepresented. User interviews will uncover these problems which are easily overlooked by those on the inside of an organization.

Lisa Chow and Sandra Sajonas (2020) used people-centered research methods to improve their services at Chapel Hill Public Library. They conducted interviews with both patrons and staff and discovered “a disconnect between staff and patron perception of each other and the library (Chow & Sajonas, 2020, p. 500).” Staff observed that patrons don’t ask for help so they assumed they were self-sufficient, while patrons had low expectations of the staff’s helpfulness and library services in general. The researchers summarized the problem as a “breakdown of people-to-people interactions” (Chow & Sajonas, 2020, p. 503). Their user experience research led to some practical recommendations including roving librarians who meet the customer where they are to provide service instead of requiring patrons to approach a service desk to ask for help. With so many self-service options in today’s society, this adjustment is key to providing an excellent user experience. Public libraries should make note of this finding and apply it to their own situations in order to reinforce their value and relevance in their communities. “The future of libraries is UX” (Chow & Sajonas, 2020, p. 507).

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information architecture. This data can lead to a website that is more intuitive and easier to navigate which contributes to a more positive user experience.

One academic library conducted closed card sorting research to understand how their users navigate their website. A facilitator observed the participants then queried them about their sorting choices which often led to brainstorming about the problematic areas of the site. The findings revealed that library jargon is confusing to users, and that duplicate and low-use sections of the site should be eliminated or moved to a more logical location (Guay, 2019). In their redesign process, public libraries should consider card sorting research to determine if their website's information architecture is user-friendly and barrier free.

Another academic library scheduled four rounds of usability testing to provide direction as they redesigned their website. Participants were encouraged to think aloud as they completed fifteen tasks and navigated the site. They were reminded throughout the process that the website's design and usability were being tested, not their searching abilities. Participants were then asked some preference questions to measure the website's visual appeal, gather user habits, and solicit other feedback. Usability testing led to better navigation and more understandable heading and links. The new site is simpler and more aesthetically pleasing. The authors concluded:

Rather than basing design decisions on assumptions of users' needs and information seeking behaviors, we were able to incorporate what we'd learned from the library literature and the users' behavior into our evolving designs (Becker & Yannotta, 2013, p. 16).

Valuable insights can also be found by conducting competitive usability testing. By comparing a site to a competitors' site, designers can better understand the strengths and weaknesses of the current online presence. This will save time in the long run as trivial, new features are avoided and revisions that make the greatest impact become the focus (Loranger, 2014).

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Many libraries invest in a variety of electronic resources and want to know if and how they are being used to justify funding and adjust their training and marketing of the products if needed. Direct observation and video recordings can be used to gather this data. Session recordings of both the screen and the user's face can help researchers understand where the participant's attention, successes, and challenges as they navigate a website (Knowles, 2018).

Video screen capture is another option that may be more practical and effective for user recording research. This technology digitally records human-computer interactions in a non-invasive way to capture the user's behavior while using a website. It records clicks, scrolls, and stopping which includes the time spent on a particular page and time taken to complete tasks. Researchers can then identify which actions were completed quickly and which ones were completed after a struggle. One university study found that quick, purposeful mouse movements signify a user's confidence, while aimless mouse movements indicate that the participant may be confused or frustrated (Imler & Eichelberger, 2011). Video screen capture can also be helpful in observing public library users' interactions with a website, especially as they navigate the catalog, events calendar, and databases. The unobtrusive nature of this method makes it an appealing option to gather information for the redesign process.

After users have been studied, problems have been solved, and a website has been redesigned, organizations need to test their new site against their old site to make sure the solutions they have implemented are actually helpful. This is often

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While public libraries should definitely consider these eight commonly used UX research methods as they begin their redesign process, they should also consider including children in their user studies. Relatively little research has been focused on the user experiences of children as they navigate websites. Greg Byerly made this observation:

Most children take the Internet and the Web for granted. Unfortunately, many Web designers, therefore, assume that children can use the Web effectively, and many teachers often think that their students know more about the Web than they actually do. Preteen children are increasingly expected to navigate new and unfamiliar websites and to use them to find information (2007, p. 30).

The vast majority of today's children use technology on a daily basis but still struggle with the usability of many sites. Even the parts that have been self-identified as "kid pages" are often not used as they were intended. This is because the pages have been created without studying the user: children. Observation, user recordings, interviews, and eye movement tracking are some of the effective research methods used to gather information about how kids interact with websites. The eye-tracking sessions in particular help identify if a child is thinking or confused, studying or browsing, and engaged or bored (Byerly, 2007). These types of tests can guide web designers to improve how easy it is for a child to use a site to accomplish their objective.

A study of children's website interfaces uncovered several common problems that are often overlooked when building sites for kids. A child's information processing and fine motor skill development makes it hard for them to use a mouse to manipulate small objects. A child's rudimentary spelling and typing skills make it difficult for them to compose search queries. A child's preferences for searching are not considered, leaving them only with criteria designed for and by adults. These challenges were addressed in usability tests with children and resulted in a redesigned children's digital library site that incorporated a flat, simultaneous interface (Hutchinson, Druin, & Bederson, 2007).

Children are the best resource for building websites for children. Not only do they want their opinions to be heard, they also want to be involved in change making, and their insights are both valid and valuable. In a unique, six year study involving primarily observation and interview techniques, children were invited to be technology design

partners for the International Children's Digital Library (ICDL). The children communicated that they like to choose books based on how they make them feel, for example, "I want to find all the happy books"; "I want to find all the books that are scary" (Druin, 2005, p. 30). This input helped the adult researchers understand how children like to search and what kind of information they would like to discover. The group of youngsters shared their likes and dislikes about technology which were grouped and analyzed, then used to develop new access and navigation tools (Druin, 2005). The research confirmed the value of user studies with children and was used to improve the ICDL website. The findings also gave guidance to other children's website designs.

Children are a vital part of the public library community and as such should be included in user studies for a public library website redesign. So much of today's learning takes place in the digital world, and it is unfair to ask children to navigate that world with tools that are unfit for their developmental stages. Websites that confuse and frustrate children can make them hesitant to explore further which limits their learning potential. Understanding a child's point of view guides developers in building sites that are intuitive to their needs and that support their online learning.

Published research on user studies with children is lacking, as is research on public library user studies. However, most of the related literature is transferable to a public library setting as long as the broader audience is understood. The broader audience includes older people and, while not discussed here, user studies with that population are beneficial in designing sites that narrow the digital divide. Rapid changes in technology challenge public libraries to keep up with best practices, as it is likely that the redesigning process will be ongoing.

Though it may seem like a lot of work in the beginning, user experience research saves time and money in the long run. The findings provide a foundation for making data-driven decisions to improve findability and discoverability which is far more efficient than trying to guess what the root cause of a problem is. Because modern search engines provide easy access to information, it is imperative that public libraries prioritize their online user experience to remain relevant in their communities and to remain true to their mission of providing accessible resources and services to everyone.

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