

UX work in Libraries: How (and Why) to Do It

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ABSTRACT

The application of UX expertise is beneficial in all the areas and aspects of library services and products. All what a librarian needs is an understanding of those principles and some tools with which to practice them. The goal of this chapter, therefore, is to provide a guide for librarians, whether they are specifically in charge of UX work at their library or aspire to integrate UX into their work on other library services and products. This chapter provides some theoretical background on the traditional goal of library user satisfaction and introduces UX as an approach that benefits libraries and their users. It gives an overview of popular UX methodologies and describes real-life UX in libraries through the stories from three librarians in their respective institutions: the New York Public Library, New York University, and University of California, Riverside.

Keywords: User Experience, UX in Libraries, in-house UX tools, User Satisfaction, Personas, Usability Testing, Ethnography, Interviews, UX Methods, Analytics, Participatory Design, Empathy

INTRODUCTION

It is often assumed that libraries, like museums, are guarded strongholds of knowledge and history, kept alive (albeit cloistered) by specialized staff whose primary aim is to protect, preserve, and only occasionally reveal the valuable artifacts. It is true that many research libraries and specialized collections must protect fragile materials by requiring visiting scholars to wear gloves or employing low lighting—and only after proving their need to expose the artifact with a letter of introduction. But the modern library—and indeed any library—remains relevant when

the knowledge it preserves is absorbed and disseminated by new readers. For the library, access to knowledge is its reason to exist.

So how to provide sufficient access to a modern readership that rapidly grows in number, alters in composition and variety of needs, and increasingly expects instant admittance? It's a boon to the mission of libraries that the web and other forms of digital information access have been successfully introduced. Digitization of finding aids and materials means faster access and more widespread availability. But digitization also means a certain level of technical sophistication on the part of both patrons and librarians. So the question becomes: how can librarians, who are not necessarily trained in computer science or software programming, make sure that digital tools are not a further impediment to access?

The answer, perhaps ironically, comes from a concept most often associated with software interface design: user experience (or UX). The emergence of publications such as *Weave Journal of Library User Experience*, conferences such as *Designing for Digital and User Experience in Libraries*, and the establishment of graduate degrees in Information Experience Design at library schools such as Pratt Institute all support the notion that UX is a serious element of modern librarianship. The more that access to information is digitized, the more important it is that the modern library provide the best tools for browsing and searching. Having a good user interface for digital library tools is like having a friendly, knowledgeable, trained reference librarian—both are crucial to serving patron needs.

The application of UX expertise is beneficial in all the areas and aspects of library services and products, not just electronic interfaces; UX principles can also be applied to the design of physical space. All you need is an understanding of those principles and some tools with which to practice them. The goal of this chapter, therefore, is to provide a guide for librarians, whether they are specifically in charge of UX work at their library or aspire to integrate UX into their work on other library services and products.

The first part of this chapter provides some theoretical background on the traditional goal of library user satisfaction. It will then introduce UX as an approach that benefits libraries and their users, and give an overview of popular UX methodologies. In the second part, three librarians will describe real-life examples of UX work at their respective institutions: the New York Public Library, New York University, and University of California, Riverside. These stories will demonstrate not only different ways UX is being used today to make a difference in library patron experience, but also how aspiring UX librarians can make a difference at their own libraries.

PART 1: THEORETICAL BACKGROUND

Library User Satisfaction

The concept of library user satisfaction cannot be traced to a point in time. Around 1928, Ranganathan, the great Indian library theorist, enunciated The Five Laws of Library

Science¹. These laws have been taught to library students worldwide. Reflecting on Ranganathan library laws, Leiter (2003, 413) argues that they “provide a paradigm of how libraries function, how they grow and serve, how they live, and so provide for us a framework through which to examine our professional lives and our libraries.” While this paradigm is meant to advise the management of the library, two of the rules are directly related to the patron’s satisfaction, mainly that, 1: every reader his or her book and 2: save the time of the reader. These two laws underscore the importance of providing the patron with the materials they need as a basic right, and facilitating access to them. However, to achieve this goal, the librarian needs to know the users well enough to be able to know what they read, what time the library resources should be available, how to arrange the collection, and how to design the website for the user to be able to access it easily. Nevertheless, knowing what the users read depends on the users approaching the librarian with requests for acquisition, which leaves a huge gap when the needs are latent and not expressed.

Research on how to evaluate the products and services in traditional librarianship usually imitates Shannon’s Mathematical Theory of Communication (Shannon, 2001), where library services adjust based on the feedback received after the communication process culminated. In other words, the librarian designs products and services for the patrons, then evaluates after service/product delivery to adjust based on the satisfaction of the patron.

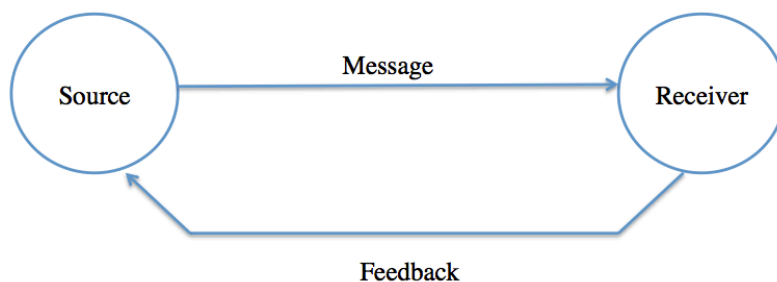


Figure 1. Adapted from Shannon’s Mathematical Theory of Communication Model

Satisfaction surveys and evaluation instruments were adapted from marketing research and practices not only to gauge library users’ satisfaction but also to justify their contributions to the achievement of their parent organizations’ goals. Thus, services evaluations are carried out to quantify the benefits of the library products and services to users and justify continued funding (Cullen and Calvert, 1993).

Service quality according to Grönroos (1984) is of three dimensions: the technical quality of the outcome, the functional quality of the service, and the company’s corporate image. Grönroos

¹ 1. Books are for use2. Every reader his or her book3. Every book its reader4. Save the time of the reader5. The library is a growing organism

(1984) differentiated between the quality associated with the process of service delivery and the quality associated with the outcome of service, judged by the consumer after the service is performed.

One of the early models of quality evaluation is ServQUAL, developed by Parasuraman, Zeithaml, and Berry (1985). SERVQUAL has been considered one of the important tools of service quality evaluation in marketing research and practice, and has been used by many researchers across various fields of services, including information systems (Pitt, Watson, and Kavan, 1995). Based on ServQUAL, LibQUAL was developed by the Association of Research Libraries (ARL) (Cook, 2001; Thompson, Cook, and Kyriallidou, 2006; Heath, 2011). Similar surveys since developed include the SCONUL Satisfaction Survey (Payne and Conyers, 2005; Bainton, 2001) and Counting Opinions LibSat survey (Nie, 2009; McCulley, 2010). However, these tools have been criticized for the lack of a clear link between satisfaction and perceived service quality (Duffy and Ketchand, 1998). In addition, the substantial administrative costs exceed the budget of many libraries, especially those attached to small colleges (Angell, 2013). This has pushed many libraries to either develop their own evaluation tools (Hossain, 2016) or use free software developed by the open source movement (Angell, 2013).

The relationship between the library and the user has evolved over time. In the early years of the 20th century, a great library that aimed at satisfying its user took pride in the size and quality of its collection, including rare and newly printed books, as well as the quantity and quality of its scholar librarians. Buckland (1975) argues that intellectual access to information is a major preoccupation of librarians, and that physical access needs to accompany intellectual access. Lancaster (1978) also sees library evaluation as an evaluation of user satisfaction, which can be checked at three possible levels: 1: effectiveness evaluation; 2: cost-effectiveness evaluation; and 3: cost-benefit evaluation. Traditional methods of inquiry such as surveys, interviews and focus groups were also used for library evaluation but never to know the users and design for the process of providing access to the resources.

The relationship between the user and the library has developed over time. Librarians strove to make the patron happy, while nowadays UX librarians want the user to be happy. Forrest (2009) describes such relationship. At the early stage, the relationship was a transaction between patrons and the library-as-books-warehouse, where the librarian's role was to control transactions. As the library started providing services, the patron became a client and the librarian an assistant. More recently, the user has become considered a guest, while the library is a collaborator delivering an experience. The library's success is measured by impacts such as fostering student learning success, supporting faculty productivity, enhancing institutional reputations, and so on. Therefore, the known concept of patron satisfaction is user satisfaction in UX practices, where experience is what matters most.

UX in Libraries

User experience emerged from the Human Computer-Interaction domain. UX has recently inspired many librarianship practices in terms of best practices and user satisfaction, mainly through the practice of empathy, which can make library services and products usable, useful, and desirable. Here we present an overview of user experience benefits and methods.

UX Overview

The concept of UX can be traced to Don Norman and his seminal book, *The Design of Everyday Things* (Norman, 1988). In the book, the phrase “user-centered design” introduced the very important idea of designing with the user in mind and taking his or her perspective into account. While there is no consensus about the nature and scope of UX (Law et al., 2009), an agreement has been made about what determines UX; namely, the user’s internal state (i.e., emotion), the user’s past experiences, the user’s goals and needs, and the user’s external context (Lallemand, Gronier, and Koenig, 2015).

Hassenzahl (2008, 12) defines UX as “a momentary, primarily evaluative feeling (good-bad) while interacting with a product or service.” Kuniavsky (2010) provided a more detailed definition. For him UX is “the totality of end users’ perceptions as they interact with a product or service. These perceptions include effectiveness (how good is the result?), efficiency (how fast or cheap is it?), emotional satisfaction (how good does it feel?), and the quality of the relationship with the entity that created the product or service (what expectations does it create for subsequent interactions?).”

Thus, UX relies on understanding user needs, behaviors and attitudes through empathic methods.

The term empathy is central to any UX work. Bell (2014, 370) argues: “In the absence of empathic design, there is a disconnect between what the designer intended and how the user experiences the system.” In the psychological literature, empathy is beyond perspective-taking. Perspective-taking and empathy may overlap (Galinsky et al., 2008). However, there is a fine line that differentiates between the two concepts. Perspective-taking is defined as the process of taking an alternate point of view and thus is associated with a cognitive skill. It does not necessarily lead to feelings of empathy, which are associated with an emotional capacity, which may be made after the perspective-taking process has concluded (Davis, 1983).

The UX designer, by being empathetic, needs to recognize not only users’ thoughts, but also their emotions. Being empathetic leads to a better understanding of users’ needs, pain points, and attitudes.

Benefits of Using UX in Libraries

The traditional satisfaction model sought feedback after service delivery and mostly took pride of the collection and staff members. UX, however, aims at transforming the essence of the library from book warehouses to places where people want to come and hang out, and librarians from bookkeepers to life transformers. Users nowadays can have access to materials in bookstores and

can download them from the Internet from the comfort of home. In short, accessing books and information resources in the library no longer satisfy the users. Users need the library to have access to equipment and staff expertise. They want that which is not available elsewhere. UX helps you know about what the users know and need without having to guess.

UX work benefits the library services and products, the institution, and the patrons in the following ways:

- **Product and services benefits:** UX work advises on what products and services are solicited, and when and how they will be used. UX research helps decide what choices can be taken in terms of acquiring products and services.
- **Institution Benefits:** UX work helps increase the value of the library in the eyes of the patrons. When the importance of the library becomes clear to the community, justifying why a library should exist and be funded is no longer needed.
- **Patrons' Benefits:** when patrons' expectations are met, they are satisfied and happy. Performing UX research helps reveal the real needs and wants of the users that can direct the deployment of library resources.

Recent researchers revealed that a good user experience makes the users not only satisfied, but also happy (Kuniavsky, 2003; Desmet and Hassenzahl, 2012; Hassenzahl et al., 2013). Bell (2015) posits that libraries can provide a happy experience as they contribute to community members' positive feelings. The library delivers a wide range of services, such as lending materials, providing equipment, providing space for meetings, in-person research consultations, or lectures.

Librarians who care about the experience of their users need to be completely engaged. They need to design library interfaces as well as physical spaces, and intentionally design them as happy environments. They need to involve the users and place them in the center of their design process. Designers who do not think of the users are biased, since patrons do not necessarily think the way designers do.

Areas where UX can be applied

UX can be applied not only to electric interfaces such as Electronic Resources Management Systems (ERMS) (Fagan et al., 2012), library homepages (Stephan, Cheng, and Young, 2006), virtual reference services (Nilsen and Ross, 2006), and mobile library websites (Pendell and Bowman, 2012), but also space arrangement such as the location of the help desk and shelves, signage and wayfinding, and so on.

Services: Engaging with a library's service should not be a complicated, time consuming process. Users need to be able to check out and return materials without having to worry about the wait time. When a service is provided quickly and easily by approachable staff members, and the less confused and more satisfied is the user.

Signage and Wayfinding: The library can be intimidating if there is a lack of appropriate tools to map its features. Indoor library mapping tools such as StackMap and Capira, or in-house developed tools and signage, can help users navigate the physical space and reduce directional questions. These tools can help users know the number of floors in the library, the stacks, workstations and printing facilities and bathrooms' locations. Signage also needs to convey the identity of the library and establish a visual consistency.

Library Space Ergonomics: The arrangement of the library features is highly important. Such arrangement needs to be designed with the objective of making the space comfortable. Avoiding clutter in all the library spaces and placing the services desk at the entrance will make the users feel welcome.

Whether they hold positions dedicated to UX or are involved in the management and the development of libraries, librarians need to equip themselves with UX expertise. Every librarian can apply UX design thinking by considering how their decisions impact the experience of the users. Applying UX practices does not necessarily require a special degree, and librarians can start with simple yet effective fixes. In the following section we will detail some UX methods that will help you start employing UX work in your library.

A Guide to UX Work in Libraries: Approaches, Methods and Tools

Before describing some approaches and methods used in UX research, it is beneficial to review the five steps of UX research developed by Erin Sanders and illustrated below in the Research Learning Spiral².

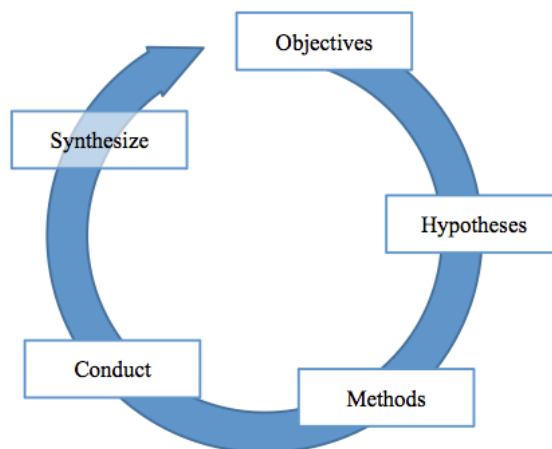


Figure 2. Research Learning Spiral

² <http://uxdesign.smashingmagazine.com/2013/09/23/5-step-process-conducting-user-research/>

These steps are reflected in the following questions related to library UX research:

- Objectives: What are the knowledge gaps about our library users we need to fill?
- Hypotheses: What do we think we understand about our library users?
- Methods: What methods should we select based on our library resources?
- Conduct: Collect data through the selected methods.
- Synthesize: Analyze the results and fill in the gaps, verify the hypotheses, deduce implication and future research ideas.

In the same regard, conducting research and developing products and services can take two process approaches: Waterfall and Agile.

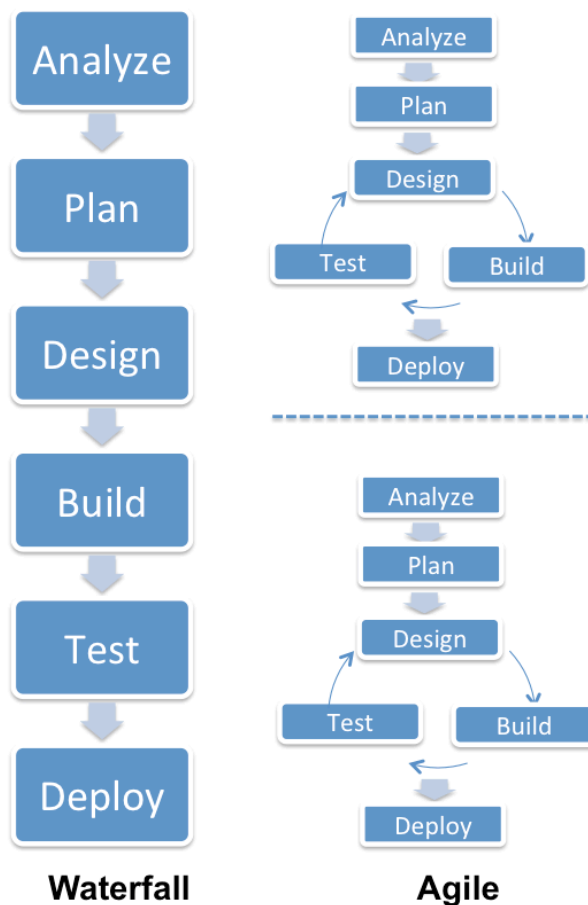


Figure 3. Waterfall vs. Agile approaches

Waterfall is a linear approach to product development wherein the stages of development are successive, and each finishes before the following begins. These stages are: Analyze, plan, design, build, test, deliver. Agile, on the other hand, is an iterative approach wherein teams collaborate for the rapid delivery of the end product. The following table represents the advantages and disadvantages of both.

	Advantages	Disadvantages
<i>Waterfall</i>	<ul style="list-style-type: none"> - Stakeholders and developers agree on the final product or service - Progress is easily measurable - Team members can be involved or work independently 	<ul style="list-style-type: none"> - Difficulty in gathering all the necessary data before the beginning of the following step - Stakeholders may not be satisfied by the end product
<i>Agile</i>	<ul style="list-style-type: none"> - Stakeholders are involved as they get the chance to view the end result earlier and make changes - Possibility to iterate based on an early version of the product - More focused on the user 	<ul style="list-style-type: none"> - Might be time consuming for the stakeholders - Needs more dedication by all team members - Frequent adjustment of the prototype might delay the delivery of the final product

Table 1. Agile and waterfall advantages and disadvantages

The UX librarian needs to choose an approach based on the resources available, as well as the kind of product or service being developed. In some cases a hybrid approach can work better if the research is well planned.

UX Approaches

Both qualitative and quantitative approaches benefit user experience research in libraries. However, choosing an approach depends on the kind of information you are seeking, and your overall research goals. A qualitative research method would involve usability testing, interviews, user groups, and ethnography. Qualitative methods can help elicit answers as to why and how to address a certain issue. Quantitative methods, such as surveys and analytics, are appropriate for discretely measuring certain elements.

e.g.

Quantitative research question: How often do users use advanced search?
Qualitative question: How do users navigate the advanced research interface?

Here we present popular UX methods used to better understand the users and improve the usability and usefulness of the products and services. Some of these methods are qualitative (such as ethnography, usability testing, and interviews) and others are quantitative (such as surveys and analytics)

Methods

Prior to selecting a method, clear goals and objectives need to be set. Such goals will define the specific approach, method and procedure, and will help you stay relevant.

Surveys

Surveys are another traditional method that can be used for learning about the users' preferences, attitudes, and views of a specific element of library products and services. Surveys are useful for collecting quantitative data. As a method, it is less time consuming and can reach a larger number of patrons. Most online survey platforms can provide some analysis of the gathered data (i.e., Google forms, Survey Monkey, Qualtrics etc.).

The length of the survey can determine the response and completion rates, as many people avoid long surveys. Hence, it is advisable to keep the survey brief, simple, and to vary the type of questions (i.e., multiple choice, semi-open, and open ended questions) to keep participants interested until the end of the survey.

Interviews

Interviewing is a traditional method used across disciplines to learn about a participant's attitudes and perspective. In UX research, it is typically used in the early stages of the product development cycle to become familiar with the needs of the users. Interviews can also supplement surveys. They can be used prior to surveys to refine the questions or used after surveys to help explain the results of the survey. While in-person interviews allow you to capture verbal and nonverbal cues (such as facial expressions, emotions, and body language) interviews can be conducted in-person, online, or over the phone.

Prior to conducting an interview it is necessary to plan well for it. A written script with the questions can help manage the relevance and time of the interview. Informed consent paperwork needs to be prepared to document that participants agreed to be interviewed and get participants' permission to record the session. At least one trial run of the interview can be conducted to test the questions and the flow of the interview session.

The interview is ideally conducted by an interviewer and a note-taker. While the interviewer is asking questions and guiding the interview, the note-taker can record notes of the answers as well as the interviewee's facial expressions and intonation. If a note taker is not available, recording audio and/or video might be a good idea if the interviewee consents.

At the beginning of the interview, the interviewer needs to explain the purpose and objectives of the interview, and how the data will be used without leading the participants and biasing the results. Ideally an hour is enough. It's a good idea to schedule a break between interviews in order to make notes while everything is still fresh in your mind.

There are some caveats to be aware of:

- The interviewee cannot always remember details about previous experiences, so they may not be able to remember what made their experience positive or negative.
- The interviewer might prime the interviewee and risk prescribing the direction of their answers.
- The way users say they do things might be very different from the way they actually do things (Nielsen, 2001).

In short, participants should not be asked about what they think about a design and how do they use it, but rather about their impressions and attitudes such as issues that they have encountered while using the system.

If the interview method is conducted correctly and triangulated with other methods, it can be very beneficial, especially for exploratory purposes.

Examples of interview questions:

- 1- how difficult or easy you find using the advanced search interface?*
- 2- where do you usually find resources for you classwork?*
- 3- what do you usually do in the library?*

Ethnographic Studies

Ethnography is a traditional method of understanding the norms and goals of particular social settings (Fisher, 2007; Latour and Woolgar, 1979). It is one of the most commonly used methods used in qualitative research. Ethnography often relies on implanting an observer or participant-observer in the context of the study (Fleischmann and Wallace, 2005). The ethnographer delves deeply into behaviors and strives to identify not only patterns but also the variability of the patterns and outliers. The fact that ethnography is immersive and more interpretative can make it time-consuming, but very informative.

While there are no guidelines of how to use ethnography in libraries, the general practice of ethnography is applicable. The ethnographer is not supposed to enter the field with an empty mind but rather with an open mind (Fetterman, 2010). Thus the librarian practicing ethnography should be reflexive as he or she considers users' behaviors; in other words, the librarian should not put aside his or her background and his or her cultivated ideas about the users, but rather consider those ideas while trying to understand the users' and being empathetic towards them.

A good tool to consider while doing ethnography in your library is the AEIOU Framework. This framework is a heuristic that helps collecting and coding data.

AEIOU stands for five components (Hanington and Martin, 2012): Activity, Environment, Interaction, Object, and User.

- Activities (goal-directed sets of actions): what do patrons often research?
- Environments (the arena in which activities take place): how is the space used in the library?
- Interactions (between a person and someone or something else): what are the interactions that usually happen between the librarians and the patrons?
- Objects (building blocks of the environment): what are workstations in the reading room used for?
- Users (the people whose behaviors, preferences, and needs are being observed): who are the users and what are their objectives?

An example of a way to solicit ethnographic data is to have patrons write a love letter or a break up letter (Hanington and Martin, 2012), or tell stories (Quesenbery and Brooks, 2010) about their use of the library can help you get valuable insights about the users' satisfaction, needs, and pain points.

Personas

A user persona is a fictional representation of an archetypical user. Personas are meant to be as realistic and representative as possible to the key segments of the actual users. Three to four personas are considered to be a fair number. The goal is not represent individual needs, but rather a segment of the audience that has common needs, goals and behaviors.

Personas inform the design of the system in a systematic way throughout the design process; designers can consider different needs, goals, and capabilities at every stage of the design cycle and layer (ideation, information architecture, design, flow, and content).

The personas need to be based on user research to be reliable and truly reflect the needs, goals and behavior patterns of the audience. The user study needs to answer the question of: who are the users? Why they are using our system? What are their behaviors? At this step, employing surveys and/or interviews of actual users can help to get users' demographic information, needs, and preferences. The results are then condensed and classified into themes, patterns, and groups, which are then refined into three to five segments with identified characteristics. Finally, developing a description (background, motivations, and expectations) to the personas is makes the persona a realistic representation.

Evaluating and reiterating the personas can help improve the representation of the users' segments.

Usability Testing

Usability testing is defined on Usability.gov as “evaluating a product or service by testing it with representative users.” It enables the designers to uncover issues pertaining to a specific aspect of the design. Conducting usability testing is not a complicated task. It requires only good preparation, a few participants, and an efficient iteration. The power of usability testing compared to other forms of inquiry is that it allows the designer to know how the patrons actually use the system. This offers more accurate and detailed information on users’ use rather than when patrons say or think how they use the system (Nielsen, 2001).

The librarian or team in charge of the usability testing needs to have clear objectives. Specify what aspects of the design need to be tested and the focus of the test, for instance: the advanced search in a library’s website. A script of the test that includes tasks in the form of scenarios needs to be developed as well as the flow of the multiple tasks if any. For instance:

1. Using the simple search interface:

Find the first book in the *Harry Potter* series.

(After task completion, take the user to the advanced search interface)

2. Using the advanced search interface:

You’ve learned about a newer edition of this book. How would you find it?

3. Do you have any observations? Which of these tasks did you find quick and easy and which was difficult?

Krug (2009) argues for including initial questions dedicated to set the tone and put users at ease, as well as reminding the users that you are testing the site and not them.

Usability testing is meant to collect detailed data about the use of a system. Thus, a handful of users that represent the population of patrons is enough to run the test. While Krug recommends three (Krug, 2009), Nielsen recommends five (Nielsen, 2012). Nielsen (2001) argues that testing with more users yields marginally fewer insights and thus time can be saved by conducting more tests, rather than finding more testers (Nielsen, 2012). Recruiting participants could be easier when incentives are offered. These may include but are not limited to cash, gift cards, book bags, etc. The testing location and equipment are also important to prepare. While a lab may not be within the reach of many librarians, a quiet space with a table, chairs and a networked computer are the minimum.

During the test, participants are guided through the script and are asked to perform the tasks while the librarian is observing. While there is free software that can record the flow of the task performance, if recoding is not possible, taking notes is also a prudent idea. Interesting behaviors such as points of confusion need to be documented (Krug, 2009).

Debriefing right after the test is highly encouraged. The testers should make an inventory of the issues uncovered by testing and list them according to their importance. Krug (2009) suggests prioritizing in terms of what they will address or fix first. Changes are introduced as suggested by the test, and then iterative improvements are made. It is important to evaluate the success of the introduced changes by keeping a record of the tasks completed successfully while iterating (Nielsen, 2001).

Participatory Design

Participatory design (or more recently, “Co-Design”) (Szebeko and Tan, 2010) involves untrained end-users or stakeholders working jointly with researchers and designers to create artifacts (i.e., sketches, wireframes, and prototypes) that lead directly to the end product. Users can be involved in all the stages of design, starting from ideation, to prototyping, testing, and re-iterating.

The benefits of involving the stakeholders in the design process are diverse. First, stakeholders can provide an ongoing evaluation of the design. Second, the final product is not prescribed to the users but rather is a result of a collaborative work. Finally, the continuous feedback from a diverse group of stakeholders strengthens the design of the product.

The participatory design team can be very powerful if stakeholders are carefully selected and reflect the segments of the library audience.

Analytics

Content analysis, either as a manual or computer-assisted method, can be a very useful in learning about the users (Cheng et al., 2010; Fleischmann et al., 2009) and overcoming some data collection limitations. Koepfler and Fleischmann (2012) described this method as non-invasive, since it allows reaching users who may not be interested in usability testing or surveys. It also mitigates issues of social desirability that often emerge in interview and survey techniques, as some users may be afraid of critiquing and showing disagreement.

Through data analytics, the frequency of some services and products’ use can be calculated and faults with some library features can be uncovered. For instance, a space that is rarely used may reveal an issue with signage or a page that is never visited may indicate a broken link.

PART 2: EXAMPLES OF LIBRARIES PRACTICING UX AND DEVELOPING IN-HOUSE TOOLS

UX at New York Public Library (NYPL)

In 2007, I was the first UX Designer hired into the NYPL web team, who are responsible for the content, design, and coding of the Library’s main web presences (especially NYPL.org). At the

time, the department was transitioning from a “webmaster” model (where the few team members were generalists who did everything from editing HTML pages to restarting the server) to a more distributed model of both specific and general expertise. “User experience” and “UX” were new terms, and neither well defined nor well understood. But the introduction of a UX role meant a way to prioritize patron needs at the level of resource creation. If we had a UX Designer, then we were committing to designing experiences that were directly connected to the behaviors of our users.

The existing members of the web team transitioned naturally into project manager roles, since they had institutional and architectural knowledge. New roles added to the team included developers and content producers. As the UX Designer, I was connected to the structural design, the information architecture, the interaction design, and the graphic treatment of the site. I worked with members of my own department and also with the Communications department, which housed content creators and graphic designers.

My responsibilities included wireframing, some graphic design (translating the NYPL brand into the web context), and presentation-layer coding. Having those skills on the team allowed for us to better distinguish between content and UI work; I focused on layout and interaction, and my colleagues focused on managing the rapidly expanding amount of information available via the main site.

As the web team grew, so did the UX team it contained. At one time, the UX team was four roles: a product manager, a user analyst, a front-end/Drupal developer, and myself. The four of us both specialized in and also shared parts of the design process. The introduction of an analyst role established a tangible connection between the practice of UX design and our patron response to its results: site analytics. The UX Analyst was responsible for reporting on key performance indicators of site health as well as running user tests. Everything we designed was informed by research, and every new design was measured with user surveys and usage statistics.

This UX team was active throughout the launch of an entirely Drupal-based, CMS-driven site in 2009. After the launch, the UX analysis work was incorporated into a higher-level role (the UX Analyst was promoted to a managerial role on the site), but those skills came into play again when the team hired an Information Architect in 2013. Our IA’s responsibilities included planning site structures, developing content strategy, and running user tests, while I worked on UX design and code. Together we created prototypes to be tested, incorporated test results into my designs, and otherwise iterated on each other’s work.

Ultimately, NYPL’s web team consisted of the following roles:

- Content producers
- UX Designer
- Information Architect
- Front-end developers
- Drupal and other back-end developers

The strength of this structure was our connection to each other, and to groups of content producers in the Library. The skills that we each contributed to the team included:

- Project management
- Content strategy
- Writing/editing
- User research
- User flow/interaction design
- Graphic design
- Wireframing
- Rapid prototyping
- Web development
- CMS/asset management

Within the team we had all the skills necessary to maintain and grow a content-driven website. Our department could easily have become a small web design agency. It was crucial to have the right team in place not only to do modern UX work, but to convince the administration of the value of this work. Without making this major organizational transition, UX as a practice for NYPL may not have become so significant, so well-disseminated within the organization, or so successful.

It is significant to note that many of the team members, developers included, have library science degrees. The establishment of UX in the NYPL web team coincided with the expansion of information science in graduate programs. It makes sense, since information design informs any profession concerned with the discovery and absorption of knowledge. But it is worth pointing out that this education path had not been solidly codified at the time of the creation of NYPL's UX practice; perhaps the two paths found each other serendipitously.

Approaches, Methods, & Tools

The formation of the contemporary NYPL web team was an evolution, which necessarily involved the step-by-step addition of parts of the UX process.

Wireframing

When I first began collaborating with the Communications team on the design of the website, the design methodology was far more analogous to waterfall than Agile. That means that finished, high-fidelity, non-interactive designs were developed and presented to stakeholders for review. Problems arose when stakeholders focused on the graphic treatment of the content rather than on the content itself. It was therefore difficult to get agreement on the content strategy, which should inform the design.

I noticed that wireframes were not part of the design process, not even as an internal tool for the designers. So I decided to use a small project (an exhibition site) as a test. Along with the project

manager, I scheduled regular meetings for everyone on the project: the stakeholders, the designer, the developer, and the content producer were all there. During the kickoff meeting, everyone heard from the stakeholders about their content needs at the same time. Based on this conversation, I developed a first draft of the site in low-fidelity wireframes. At every subsequent meeting, I would show the wireframes on the big screen of the meeting room, and guide everyone through the gradual design (which increased in fidelity at each iteration). After every meeting, everyone received a PDF of that wireframe version.

As a result, the design process was no longer a guessing game but a conversation—and because it was a conversation, everyone was able to learn from each other. The entire group developed the content and the design together, aided in seeing how content related to the user’s experience of it by the wireframes. Wireframing allowed interactivity and user flow to be developed without the constraint of final graphic design. Because wireframes illustrate what content will look like in context, everyone was able to comment from their particular perspective (for example, developers cautioned against a design that was challenging to build in the CMS). Finally, those various perspectives learned to have empathy for each other. The stakeholders in particular were welcomed for the first time into a process that demystified design and web development.

Online User Testing

At the time (around 2009), sophisticated web apps for running specific user tests (such as Optimal Workshop or Usability Hub) didn’t exist. So we created our own. Our UX Analyst had some knowledge of Ruby on Rails, and was inspired by another project³ (based on Jared Spool’s “Five Second Test” idea) to build an in-house tool for serving quick, single-question user tests. Because he had “rolled it himself,” he called it Infomaki.

We hypothesized that visitors to the site might be more inclined to take a test if they knew it would only take a minute of their time. So we designed the tests to be very simple preference or click tests. For example, we wanted to test the labeling of the topmost items in the site’s global navigation: did users understand where to go to find what they needed? We mocked up a few variations of the global navigation, exported flat images of the mockups, loaded the images into Infomaki’s test manager admin, and published the test. Visitors to the home page were invited to “answer a single question” via a text link at the top of the page. The test asked where they would click in the mockup to find a specific piece of information, and recorded their click. The final screen of the test thanked the user and invited them to take another test (if any other tests were running at the time).

Infomaki allowed us to test variations quickly, and also hone our understanding of patrons’ behavior patterns and expectations. We often got a couple hundred responses within 48 hours of a test being published. Also, patrons tended to take all the tests that were available at any given time. Many patrons reported that taking all the tests was fun!

Infomaki was most effective at collecting a large number of responses to very specific questions in a short timeframe. As long as the test was small in scope, we could use Infomaki to gauge

³ <http://fivesecondtest.com/>

patron response and then iterate our design based on the results. But this tool also helped illustrate the importance of UX practices to the Library's leadership. Low-fidelity wireframes and the ability to test them quickly proved that UX wasn't difficult to incorporate into design workflow.

(Infomaki's developer, Michael Lascarides, has written about the project in the Code4Lib Journal⁴.)

A/B Testing

In 2010, we added another UX tool to our arsenal: multivariate testing. This was the next logical step after testing small pieces of UI design on their own; now, how would they perform in the context of the rest of the site?

We used Optimizely to run our A/B tests, largely because it's easy for non-coders to use. Neither I nor the Information Architect at the time wrote JavaScript, so Optimizely's interface made it easy for us to set up the variations without a developer's assistance. Like Infomaki, Optimizely allowed us to launch tests and get results quickly. We found it especially useful whenever there was a difference of opinion regarding how patrons might engage with a design. High-level stakeholders tended to respond positively to a case made for a design change if we could show data proving "real" users engaging during a "real" visit to the site.

Prototyping & Live User Testing

During my years as the Library's UX Designer, I learned that if someone can see and/or touch an idea, then it becomes real. I learned that prototypes were crucial not only for user testing, but also for gaining project approval.

I also found that the creation of prototypes was helpful during periods of time when we weren't able to launch new designs (for example, during a major CMS migration). I couldn't kick off new projects for development, but I could explore and test new designs.

I started by building simple HTML/CSS/Jquery prototypes and hosting them on my internal "sandbox." Many early iterations of global navigation patterns and page layouts were created this way, and tested among the team. It had a similar effect as did my first wireframes: both team members and interested parties had the opportunity to affect the developing design, and the project benefitted from early, widespread approval.

This practice of prototyping in code led to creation of NYPL's first rapid prototyping system. The website suffered from design inconsistency, and I had long wanted to find a way to correct that. I wanted whatever style guide or pattern library I created to be code-based, and therefore something that could change and grow easily, as well as be shared with outside developers. As a small team, we didn't have a lot of internal resources, so re-use and multi-use of a single tool is important. So I took the code I'd been using for my prototypes and rewrote it using Harry Roberts' InuitCSS⁵ as the framework. I worked with our Communications department to make

⁴ <http://journal.code4lib.org/articles/2099>

⁵ <https://github.com/inuitcss>

sure the styling matched our branding, and with our front-end developers to incorporate our existing JQuery plugins. The first iteration took about three months altogether to build. I called it “NYPL Base” because it would be the basis for all our web designs.

We put NYPL Base to the test during the redesign of our Locations section. First we built designs for user testing (which we did in-person in the branches, guerilla-style), and then we incorporated the code into our release. While this resource made prototyping much easier, we did find that the amount of styling variation necessary for a good prototyping system was unnecessary for production code. Future plans for NYPL Base included using a build automation tool (such as gulp or grunt) to produce two “flavors” for prototyping and for production.

The Locations redesign was the culmination of all the UX tools we’d amassed: wireframes, user tests, analytics, and prototypes. We completely redesigned one of the most frequently used sections of the site based on analytics and qualitative data, to overwhelmingly positive effect. This project also led us to expand our skills, include more user persona research, and consider content strategy techniques (such as content creation research and content auditing). Today’s web team is the result of effective research and development; by trying new techniques in real projects and slowly adding to our toolset, we built a UX practice that strengthened the team’s capabilities and changed the institution’s design culture

UX at New York University Libraries

Our UX department was founded in 2013, and, like others I’ve spoken to who lead a library UX department, there is no blueprint for building teams, creating strategies, and getting buy-in for the work we do.

Because of this, we can develop our strategies without having to deviate from any norms, or feel pressure to conform to those norms. At the same time, knowing how successful departments have modeled themselves can be helpful in creating a roadmap. Fortunately, most UX teams are not only innovative and agile by nature, but are also able to adapt as needed, and develop new strategies if existing ones aren’t proving successful. Since the NYU Libraries UX department was created, our approach has changed, as has our focus.

Background & History

The User Experience (UX) department at NYU Libraries⁶ was created in 2013 when it became clear that our users’ needs (both in the physical environment of our libraries and across digital interfaces) required a dedicated group focused on exploring those needs.

⁶ <https://library.nyu.edu/departments/user-experience/>

For a number of reasons, the department was conceived as the first “virtual department.” This translated to a department of one (me), with a small dedicated percentage of time (10%) by relevant staff (a Digital Library Technology Services (DLTS) designer, and graphic designer). The department was created, and remains within, Public Services, which also includes the following departments:

- Access, Delivery, & Resource Sharing Services
- Avery Fisher Center for Music & Media
- Business & Government Information Services
- Dibner Library Public Services
- Instructional, Undergraduate & Global Services
- Reference Services

Our responsibilities were as follows:

- Provide leadership and vision for addressing user needs across the libraries.
- Apply best practices of user-centered design to develop interfaces that address user needs and behaviors, promote our brand, and reflect our philosophy of outreach and service.
- Ensure interfaces are functional, efficient, and intuitive.
- Provide systematic mechanisms to gather feedback and suggestions from staff and users in order to improve the user experience (training sessions, online surveys, workshops).
- Identify and promote the use of new and innovative technologies.
- Routinely evaluate UX procedures and methods to ensure the most effective and efficient processes are being utilized to improve interfaces.
- Develop and promote a content strategy to create consistency amongst local and global library interfaces.
- Manage projects, and work towards standard integration of UX processes in projects with interfaces in domains of responsibility.

This is a tall order for a department of any size, let alone a department of one! Luckily, soon after the department was formed, I was able to recruit six UX-focused library school interns. With their help, I was able to test methods and models and processes, which was helpful in shaping the department and learning what worked and did not within our larger organization.

This work was valuable, not only because we were able to test, shape and solidify UX methods, but also because it helped refine the scope and frame the shaping of the department within the larger organization. Because the UX department reports to a different group than our Web Development team, our partnership is situational rather than structural. Therefore, unless organization development time was dedicated to a project, no development progress would be allotted to user-centered changes.

While shifting our focus to organizational priorities with development time allotted made the most sense in terms of being able to improve experiences for our users, it took some time to

integrate UX methods and strategies into existing workflows. Fortunately, once we were able to build UX methods and research into the scope of a few projects, adding our department as project members and stakeholders on other projects and working groups became standard.

Methods & Approaches

Our UX department explores many different models and methods, and is constantly testing new strategies to improve and extend our work, create better workflows, garner stakeholder buy-in, and work efficiently and effectively.

Some of the overarching research we've done which has proven useful is our work on personas. By culling Ask a Librarian chat transcripts, a colleague and I were able to gather and synthesize user feedback, creating personas from the data clusters (Tempelman-Kluit & Pearce, 2014). Because we have a number of different audiences, using personas to map out our users' journeys and think through their particular needs, has been highly effective. User stories and scenarios based on the needs and behaviors of our personas helped inform much of our recent website redesign work. We've also used the Ask a Librarian chat transcripts to identify common pain points for users, which in turn helps us prioritize work. In knowing the main areas of frustration, we are able to make data-informed arguments about how work should be weighted.

Our approach to usability testing includes a strategy that allows us to collect qualitative feedback while also gaining stakeholder buy-in. We set up the tester and testee in the department's UX lab, and stream the test live to stakeholders in a conference room. Everyone watching integrates their observations using Stickies.io, a post-it note app that allows teams to create and cluster post-it notes on a shared virtual board. We've also experimented with Tomer Sharon's rainbow spreadsheet (Sharon, 2013), a collaborative observer spreadsheet. By having stakeholders observe and take part in adding observer notes, the impact has been greater and has tended to lead to design changes which may not be made without the way we promoted the methods of methods include usability testing. For example, when we performed formal usability testing on our rooms application, an in-house tool built for users to sign up for group study rooms, we invited the developers to observe. Very quickly, they were able to understand the frustration users were having with areas of the system. We were then able to work together as a team to come up with shared solutions.

We also regularly employ guerilla usability testing, which is quicker and requires less overhead. Through trial and error, we've solidified a process that works well within our environment. We set up a table in the atrium of Bobst Library, and create forms that collect data based on user interaction (via hotspots), which we deploy on an iPad. As our users visit the library, we ask if they'll answer a few quick questions in exchange for an energy bar. Because we are the main branch NYU Library (with over 11,000 visitors a day), within an hour we're usually able to get feedback from over 60 of our users.

Another regular UX method we employ is the heuristic evaluation. These evaluations have largely been done for stand-alone collections, though as we've solidified our department, we've received increasingly more requests to evaluate stand-alone interfaces based on grants, or professors creating sites for classes. Because of our workload and small team size, we only take on a few of these projects a year. In order to select the appropriate projects, we've created a form for potential partners, asking them if their teams are able to enact changes we recommend. Because our goal is to help users, our aim is to work on projects in which the work we do can result in actionable interface changes.

We also partner with colleagues in the NYU UX community. As our department developed, we received more and more enquiries about our work from the larger NYU community. Though there are no other formal UX teams at NYU, there are many others interested in pursuing this work, and learning more about it. We've cultivated a community of those of our colleagues who are interested in UX, and regularly host webinars, talks, and lunch and learns.

Our department places a high value on professional development. As a team, we regularly schedule and watch webinars, and have hosted speakers to discuss various UX methods and ideas. We also try to regularly post link roundups, which encourage us to read and post about a particular UX topic.

Our department remains small. Besides me (Head of UX), we have a UX Researcher & Strategist, a part-time quantitative UX analyst, and a part-time content strategist. Despite the size of our team and the newness of our department, we've managed to synthesize into a tight collaborative group with complementary skills. By iterating our department as we do our UX work, we've defined ourselves in the organization as a group whose expertise and input is critical to projects with a user focus.

UX at the University of California Riverside Library

The University of California, Riverside (UCR) Library created their User Experience (UX) Design Unit in 2014 as part of a cluster of positions hired to make the Library's cyber infrastructure the most robust, forward-thinking, and secure on campus. The unit currently consists of solely myself as both User Experience Designer and Web Developer for the library's internal and external websites and applications. A long-term plan for expansion was written into the 2020 Library Strategic Plan and as of 2017, a Digital Initiatives Project Manager is in recruitment.

The UX unit reports directly to the Associate University Librarian for the Digital Library, who also oversees the Cyberinfrastructure, Metadata Services, and Preservation departments. I work closely with both the Cyberinfrastructure Department and the Web Development Management Committee.

The Cyberinfrastructure Department is responsible for maintaining and upgrading the library's networks, public and staff computers, data security, hardware, software. All web development is done in consultation with Cyberinfrastructure. The department was restructured in 2014 and has entirely new staff consisting of the following positions:

- Manager of Cyberinfrastructure
- Infrastructure Systems Engineer
- Client Systems Engineer
- Client Support Engineer
- Lead Software Developer

The Web Development Management Committee has been in existence for more than a decade, and has representatives from across the library who have a vested interest in the websites and web applications the library manages. The committee meets monthly to review active projects, consider proposals, review analytics and assessments, and plan enhancements. Though the membership changes, the following positions are typically present:

- Web Developer/UX Designer (Chair)
- Archivist
- Reference Librarian (2)
- Director of Teaching and Learning
- Head of Access Services
- Manager of Cyberinfrastructure
- Software Developer

This departmental and committee level collaborative model is integral to making my job possible in lieu of other positions in my unit. The input and coordination from colleagues allows me to focus on getting the work at hand done. As the User Experience Designer, my job so far has been threefold: to move the library website from a 15+ year old home-grown content management system (CMS) to Drupal 7, a sustainable open source CMS; to re-imagine how we engage with our users and market our services online and in-person; and to develop the unit and embed UX principles into all aspects of the library's work.

Relaunching the Library Website

In 2014, the new University Librarian, Steven Mandeville-Gamble, hired Chapter Three (a design consultant firm) to help move the library website to a new CMS. At that time, the site was powered by a homegrown CMS and application framework called Centaur. Centaur had been built over time and influenced by the webmaster model in which anything requested was built without a strategy for security, sustainability, purpose, or impact. 57 (of around 100) employees had editing access to the website, and by 2014 the site had ballooned to over 2,000 pages which suffered from stale design, inconsistent writing style, out-of-date content, and broken functionality. The original developers of Centaur moved on from UCR, and the new

Cyberinfrastructure team had no documentation on how the site was built or how to use it. A complete overhaul was in order. As I had just been hired and was learning the lay of the land at UCR Library, the consultants were particularly useful in auditing old content, gaining stakeholder support for the changes to come, and convincing my colleagues of the need to give up their editing rights in pursuit of a unified, clean, and accurate branding of our library and services. As project manager for the content and design of the site, I worked with a committee of 18 colleagues (representing almost every department in the library and the campus Computing & Communications department) to agree upon a site map, wireframes, content editing guidelines, interaction design, and enhancement strategy. Though we wanted to avoid the pitfalls of “design by committee,” we felt that it was important to get stakeholder buy-in at all points in the process. Having all voices at the table gave us a shared understanding of our entire organization and its unifying goals (though it did greatly extend the project’s timeline). While the project’s concrete deliverable was a new website, the larger goal was to change our institution to be more adaptable, responsive, professional, and user-centric.

Approaches, Methods, & Tools

By 2014, many practices in user experience design were tried, assessed, and well-documented. After reviewing relevant contemporary literature, and with the guidance of our design consultants, we took the following path, iterating along the way:

- Surveys
- Content Review & Card Sorting
- Persona Development
- Site Mapping
- Wireframing & Design
- Content Editing
- Development & Internal QA Testing
- Beta Launch
- Usability Studies
- Assessment
- Enhancement Planning

We used a variety of products (both free and paid, open and closed-source) to do this work, but the products used are less important than the UX methods we pursued. Where private enterprise products were used, I try to note free and open alternatives.

Research & Content Auditing

At the beginning of the website redesign, we conducted a 10-question user satisfaction survey on SurveyMonkey (any survey tool will work). We posted it on social media and the website itself, and had volunteers with iPads out in front of each library location soliciting responses. We also

raffled gift cards for coffee shops to increase response rate, with a total of 1,500 users surveyed (90% students and 10% faculty). I used DataWrapper, an open source data visualization tool, to easily present results to the team. The survey helped uncover the major pain points for our users. We then conducted a series of meetings with the committee and design consultants to review the content of the then-current site and usage statistics. With over 2,000 pages and 18 committee members, this process was arduous and took the form of a series of card sorting exercises. We took the names and URLs of all pages on the site and wrote them on cards. We then tried to sort the content into a new sitemap, re-writing on different color cards to show hierarchy. As we discussed each card, we reviewed the webpage content. Through this we found many issues: duplicate pages updated erratically, content that should be separated into multiple pages, content that did not match the page headers or URLs, and content that was assumed deleted but actually just un-linked, so that it still surfaced in search results.

A tentative sitemap, largely repurposing current content, was developed in Omnigraffle (purchased software for Mac) from the card sorting exercise. While we used Omnigraffle, site mapping can be done in many tools, including using post-it notes on a wall and photographing it! To develop tone for editing and new content, we defined personas of the users we wanted to engage. As a quickly-growing research institution, we were, and are, interested in developing relationships with new faculty and graduate students in addition to providing general research services to undergraduates. Looking at circulation statistics by patron type, we were also able to see the activity of the community and outside researchers.

Breakdown of Personas

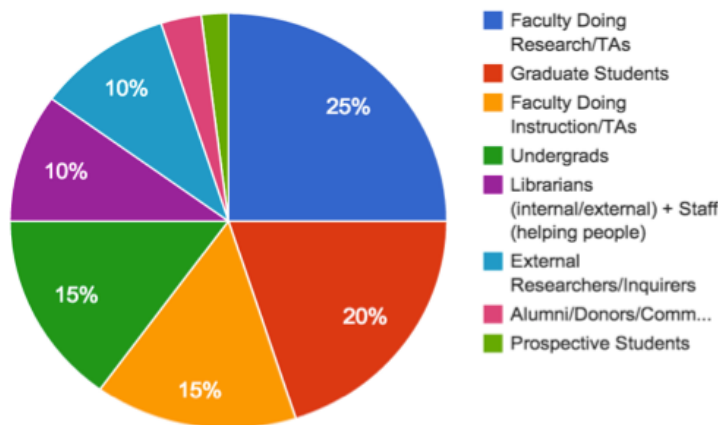


Figure 4. Breakdown of personas

Our personas helped refine the sitemap, set tone for content, and determine what new content should be created to highlight our services to desired users. A handy visualization of the personas was made with DataWrapper and added into our project document. We continue to use these personas to prioritize enhancements and determine news items on the website.

Design & Development

With an agreed upon site map, we moved into the wireframing phase. We ended up developing almost 50 wireframes of different content types and landing pages. We loaded the images into our Content Management Tracker, a content commenting system developed in house with PHP and Laravel, taking design comments from the team and redesigning over four rounds. With each round, we added in additional graphic design and branding elements to get a more complete picture of how the site would eventually look. Chapter Three then began software development while I set to the task of working with content owners to move our content into the new model. This was the longest part of our process, and involved cutting 57 editors down to 12 through shifting content responsibilities, negotiating content removal through data- and persona-driven research, and developing the UCR Library voice and style through a series of “Writing for the Web” workshops. The Content Management Tracker was then used by content owners to load in their page content alongside the design files, so that I could easily load content when the site was ready.

Beta Launch

In December of 2015, we launched the beta site to all library staff, requesting that everyone test interactions and forms, review content for typos and style errors, and provide general feedback. We also held all-staff meetings to explain the impetus behind the redesign and our new user-centric approach. Following this we had a beta launch period of four months, in which users could test the new website and provide feedback. We received more than 150 comments and questions, which I personally answered. During this time, our temporary developer added and redesigned features as need arose. This waterfall methodology, while not ideal, was a stop-gap solution while our Lead Software Developer position was being recruited. The site went into production on June 15, 2016.

Continuing Enhancements

Since launch, we have done a few small-scale or “guerrilla” usability tests. As a one-woman shop, I necessarily have to keep the tests lightweight and reproducible by colleagues. I have worked with librarians to do usability tests at graduate student coffee socials where the librarians ask students to complete three to five tasks and record videos with their phones of the students’ attempts. The videos are then sent back to me for analysis, which I then visualize in Datawrapper. I also observe instruction sessions whenever possible. These analyses, along with the public comments and in conjunction with Google Analytics, are then reviewed by the Web Development Management Team and slated for enhancement releases by our Lead Software Developer, who is moving us toward an Agile methodology. We plan to increase our responsiveness and expand our UX toolkit with the addition of the Digital Initiatives Project Manager soon. A Communications Specialist is now on staff, which allows the content ownership to live in another department so that I may focus more on layout and interaction design in future iterations. The Communications

Unit has also developed a comprehensive style guide which is referenced every time content is published, helping solidify our brand.

In reviewing and reporting on the Website Redesign Project, I would have liked to engage with user groups more through A/B testing, more deeply focused usability tests, and a more active feedback and enhancement loop. Given the minimal resources at hand, however, we have been successful in creating a user-centered website and framework for other projects. As our team expands and roles are defined and developed, UCR Library will be better poised to provide continually enhancing services to our users.

Engaging with Our Users Online & In-Person

A major goal of the Library is to service our various users more directly, and two immediate needs came out of the website redesign: our faculty needed a system to easily put materials on course reserves quarter after quarter, and students needed to easily access our study spaces.

Working with faculty, Research & Instruction, and Access Services staff, we created an in-house application with PHP and Laravel for putting materials up for course reserves. This system authenticates via CAS, allows faculty to transfer materials into new quarters, and provides digital asset management. To build this, we gathered functional requirements, wireframed layouts, solicited feedback, conducted a beta launch, and set schedules for enhancements. Faculty engagement has been key to this endeavor, building upon the foundational relationships developed by our subject specialists. Release 1.2 was just launched, and we plan on enhancing quarterly, as needed.

For students, we purchased DIBS room reservation software, eliminating the need to check keys in and out at circulation desks and allowing students to book rooms up to two weeks in advance online. The software allows us to see how often rooms are booked, how many people are in each room at a time, and who the “power users” are. This then informs the Facilities team for repair and furniture ordering schedules, and decreases lines at circulation desks.

The ability to purchase enterprise software has been a major supplement to our limited staffing and we have developed a system for reviewing and comparing products to find the best fit. We have used trial packages to test with users which system they prefer before purchasing. While we always consider users in our software decisions, sometimes campus priorities trump our users’ needs. For example, our campus printing service is both cumbersome (unclear and complicated instructions for use) and exclusionary (change is not allowed, patrons must have a campus ID card to use them, etc.) but we are required to use this system as per campus license.

In addition to taking advantage of faculty relationships and interactions at circulation desks, reference desks, and study spaces, I have an open-door policy to my office, which is situated at the corner of a high traffic corridor. Curious students provide ample feedback, suggest new projects, and have even offered to create a user testing group on campus!

Developing UX Practices & Embedding Them Library-Wide

User experience design principles can (and should!) be applied to all library services. The last two years have been a series of experiments in what established UX practices work well in the UCR Library environment. Many of the techniques, such as wireframing, user personas, and conducting post-launch usability studies, have become integral to my daily work. Others have been less successful. For example, a survey to test user discovery of our Water Resources Collections and Archives received a grand total of zero responses over three months. What is crucial at this phase in developing our unit is to be able to quickly move across methods and be willing to try new things while we build expertise in our expanding team.

All library staff have been encouraged to build a culture of user-centric assessment and enhancement through professional development opportunities, including cross-training, seminars, and conferences. Ongoing projects include applying UX principles to our physical spaces by assessing our wayfinding and marketing signage, placement of our service desks and equipment, and digital signage marketing. I consider myself a service point for all other library departments, and strive to be available for any projects with potential user interaction. The Research & Instruction Division has formed partnerships with the Instructional Technology group on campus and will soon conduct a comprehensive analysis and reform of library instruction sessions, with my help as needed. Our team is small but scrappy, so engaging with our library and campus colleagues amplifies our reach and helps cement UX principles library-wide.

CONCLUSION

The practice of UX research and user-centered design is a natural fit for libraries. It supports the goal of librarianship to help patrons find the right material quickly, efficiently, and enjoyably. Satisfied users will return to the designs that please them; so too will satisfied patrons return to use their library.

Because UX work prescribes continuous evaluation and improvement, librarians who use UX methods can demonstrate to their returning patrons that their satisfaction is a priority. The data that results from user testing and collecting analytics is also crucial to a librarian's responsibility to prove the worth of the services and materials that their library provides. During a time in the evolution of libraries when physical space is a premium, and digital space is expanding and transforming quickly, librarians can employ UX to make sure both kinds of library spaces are as valuable and valued as possible.

Fortunately for the often-underfunded librarian, UX tools are easy to acquire, and many of them inexpensive or free. UX practitioners tend to share their ideas and methods freely, and online publications such as UX Movement⁷ and UX Magazine⁸ provide good starting places. No single

⁷ <http://uxmovement.com/>

⁸ <http://uxmag.com/>

methodology or suite of tools is required, which is part of the benefit of UX to libraries; the methods and tools available can be combined in whichever way will best suit each particular library's needs. The most important thing a practitioner can do is to try something, adjust as needed, and build upon successes.

It's a daunting task that Ranganathan sets for librarians with his five laws of library science. Essentially, librarians need to please all of the people all of the time. But while Ranganathan's laws give librarians our mission, the five steps of UX research tell us what we need to know in order to fulfill that mission. If we seek to know the reader, we can point the way to his or her useful book for use, save that reader some time, and make sure the growing library keeps the happy reader coming back.

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