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How Do Undergraduates Research? A User Experience Experience

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Introduction: Inspiration for the Research

In 2010, the Oregon Tech Library moved to a new campus-wide content management system. This change, and the popularization of products such as LibGuides and Library a la Carte, inspired Oregon Tech librarians to develop new subject guides. As a means of participating in the new system and of saving money, the library created a subject guide format to be used on the web content management system, Sitefinity. The guide format was designed by a committee with librarian and library staff input, but without assistance from students—the target audience. As a result, the guides that were developed tended to be text heavy and riddled with library jargon that did not make sense to students. In addition, the guides were difficult to edit, resulting in dated content and frequent broken links. While instruction librarians would push relevant guides in their classes, they never caught on among students.

The challenges that Oregon Tech librarians encountered mirror difficulties that librarians and students have had with subject guides at other libraries. Reeb and Gibbons (2004) point to research conducted at a variety of institutions (Duke University, University of Rochester, Wright State University, and MIT among others) that found students had difficulty locating and using subject guides. These findings were reemphasized by Ouellette (2011) whose student interviews confirmed that they “[students] do not use subject guides, or at least not unless it is a last resort” (p. 442). In addition, Ouellette (2011) noted that students avoided complicated subject guide tasks and tabs in an effort to streamline their search experience and access the materials quickly. Students expressed a preference for guides that had, “clean and easy to use designs” (p. 444) and found cluttered guides confusing and difficult to use. The importance of ease of use is supported by Jackson and Stacy-Bates



(2016) who note that students are used to relevancy rankings in search results and might expect similar structures, focused on simplicity in subject guides.

By 2014, Oregon Tech librarians were aware of problems with their subject guides and had begun to consider technology and formatting changes to make the guides more accessible. Two librarians attended usability courses (through Library Juice Academy and Acquia) and decided to employ usability research methods to design a guide format that would better meet student needs.

Methodology: Types of Studies Used

A variety of methods were used over the course of about a year providing diverse data and the opportunity to collect data from different student participants. The librarians began by holding three focus groups on two different campuses with a total of 13 student volunteer participants. The focus groups began with a series of prompts to encourage a discussion. These prompts were general to the research process. The librarians took notes and followed up, when necessary.

Librarians then took the initial data from the focus groups and created a mockup of a new guide. The new subject guide mockup and the existing version were shown to three classes in an A/B test. Despite displaying the same content, more than 50 students voted, and only one indicated a preference for the guide developed in 2010. One librarian took notes on the comments students provided about the tests.

Using the information from the focus groups, A/B tests, and a librarian led card sort, as well as campus and library statistics, a group of three librarians developed a persona, or representation of the library website's average user. The persona student was a junior level transfer student who was mostly taking classes at the 300 level or above in their discipline, but still had the occasional general education or lower level course to complete. The persona student commuted to campus and was most interested in the library when they had a specific assignment and wanted to be able to do things online. A small group of librarians then began to evaluate the library's subject guides from the perspective of the persona and developed a new study guide format.

Limitations and Issues

The library's initial timeline allowed for a two year testing period. Due to an upgrade of Sitefinity in 2013 and the resulting changes, as well as library staff changes, focus groups did not begin until the second planned year. This pushed back the research timeline and limited the scope of the research. Oregon Tech Library's usability research also faced limitations due to small sample sizes and limited staffing.

Due to staff and financial concerns the library was limited to a single librarian who moderated and took notes at each session. In addition, some students were unwilling to provide the consent necessary to record the focus group discussion. Both of these challenges may have limited the librarians' ability to effectively capture all of the information presented during the focus groups.

Budget constraints also prevented the library from offering incentives for participation. Although snacks were provided, two focus groups had only two people attend. The third focus group was attended by an entire communications class as part of a class assignment. A



fourth session was scheduled, but no one attended. While this small sample size may have limited test results, it provided an adequate starting point for initial subject guide changes.

Results: What We Found and How Information Was Applied

The proposed new study guide format was directly informed by the usability testing results. Some of the major themes of the findings were:¹

- Desires for easily discoverable, fast content
- Videos to learn how to use resources and do research
- An understanding of bias, but difficulty in identifying it
- An understanding of authority, but not on how to determine it

The first two themes shape the top half of the new subject guides. The first item on the subject guides is a top resources box. This is a list of three to five electronic resources most relevant to the subject at hand. By dividing the resource list, librarians can better assist students who are looking for a quick way to find sources for an assignment while still providing the research guidance necessary for more in-depth research. In the second part of the subject pages, users find videos on how to use the top resources or how to build searches and other related topics. Students report using videos to meet a variety of information needs because videos are "easier to understand and more entertaining."

The latter two themes have been used to create videos and other learning aids, as well as helping librarians focus instruction sessions. Student focus group participants regularly mentioned struggling to differentiate between opinion and fact and to identify credible sources when conducting research. In addition, all guides adopted short, focused text to explain resources without losing student attention.

The A/B tests were overwhelmingly in favor of the top resources and video layout. Most commenters liked the graphic layout and videos in the new guide's format. The one commenter who liked the original guide better was a nontraditional student returning to school and had previously used similar text finding aids.

In addition to reevaluating the subject guide format, a committee of librarians also completed an electronic card sort of the entire website with the previously developed persona in mind. This led to the deletion of more than 50 pages. One major change was to have the list of electronic resources on the same page as the subject guides. This provides one path to get to the majority of electronic resources students will need to use and faster navigation. In addition to the page reduction, many pages were also streamlined, and legacy content was hidden from public view or deleted.

Finally, the library opted to move subject guides onto a new platform. Sitefinity is still the university content management system. While it does have many features, it is not accessible to all librarians creating content for subject guides. The library had previously purchased SubjectsPlus, an open source subject guide management system and transitioned subject guides onto this platform as a part of the reformatting.

New Subject Guides

The final design of the new subject guides that the Oregon Tech library launched in 2015 was very close to the B (or new) version used in the A/B tests. It includes the top resources and videos sections that were mentioned previously. Components that were added to the



¹ See appendix for comments affecting these findings

original design include a FAQ section, where content creators select from a collection of FAQs and a subject contact. This is all on the first screen (or above the fold) on a traditional laptop or desktop. Content for below the fold, or where a traditional screen user would need to scroll down, is flexible based on the subject but may include narrowing topics, further resources, and/or more videos. A compromise between the committee and staff was to allow more freedom in content development and layout below the fold. All guides also include a last edited date in the bottom right corner for staff tracking purposes.

With staff development and assistance from IT students, SubjectsPlus was developed to host the new guides. All content creators were given accounts and the responsibility to create and edit their own guides. When building new guides, content creators follow the guidelines listed above as well as a detailed handbook for using the software. In addition, a tracking spreadsheet helps to ensure updated content by listing ideas for new guides and the last time changes were made to existing guides. Unfortunately, the success of tracking depends on its continued use by the content creators which has been an issue in the year since it was created.

Librarians continue to direct students to the subject guides during reference transactions and instruction sessions. Development of class specific guides and topic guides has also helped to tailor content to the needs of the population. Class guides often stem from specific assignments and embedded librarian experiences in online classes. Topic guides help to address issues such as bias and authority that would not otherwise be the main subject of a subject or class guide. It is important to note that these classifications are more for the benefit of the staff than the students.

Conclusion: UX Research is Never-ending!

A final and ongoing challenge is the need for staff, as well as user buy-in. While the main audience of the subject guides and the website is the student population, staff also use the site. By sharing usability findings and subsequent site changes with staff on a regular basis, librarians were able to help them understand the reasons behind those changes and deal with the inevitable push back. Working with the university community by providing redirects from old guides and content to the new pages, as well as sharing usability study results has allowed the library to lessen the impact of and provide context for the website and subject guide changes. Sharing the library's work more broadly also opened access to campus grants for additional research.

Usability studies, assessment, and web development should not be one time endeavors. As follow up to the changes made in 2015, we completed four CI interviews (cognitive interviews) with a set of 10 tasks in Spring of 2016. At the time of this writing, these are still under review. Oregon Tech will also participate in the MISO survey (Measuring Information Service Outcomes, <http://www.misosurvey.org/>) in early 2017. To avoid assessment and survey fatigue, the library plans on delaying additional usability studies until after the survey. Ideally, a targeted survey or heat mapping will be the next step. Changing tactics, tasks, and asking questions in new ways will help uncover further needs for changes. 



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Additional Resources

Presentation at Empirical Librarians Conference, North Carolina, 2/29/2016:
<http://tinyurl.com/hl4qrvp>

Oregon Tech Subject Guides: <http://www.library.oit.edu/sp/subjects/index.php>

Appendix: Focus Group Notes

These are researcher notes that have been compiled from ad-hoc notes taken during both focus groups. In the process of transcribing notes, both researchers began to structure their observations of the discussion thematically to begin to identify themes. While semi-structured, the notes below are still in a rough form before the application of thorough analysis.

Compiled Focus Group Notes

Not going to research forever. I have a basic idea of what I want to say and then go find sources to support it or maybe change things

Think about what it used to be before the internet; Not that they had better tools. Need “how to use” or [to know] what is there to educate self on tools that exist.

ON WHERE TO SEARCH:

Find something you like, then research.

I assess what I know then go to general sources, like Wikipedia to start.

Wikipedia is a good source for background knowledge.

Some of the [Wikipedia] pages have a lot of sources at the bottom. Shop for sources. If you have to pay [hit a paywall] go to the library.

Use Google Scholar to find articles. Check the abstracts in Scholar then do a library search. Use library to request articles (only done this once).

I’ve never used Google Scholar

Wikipedia gives you an overview



[Wikipedia] gives you a broad list of places to start with all the references
The sections [on Wikipedia] are easy to navigate
Google Scholar gives you every scientific article out there. The abstract gives you back-ground knowledge

ON VIDEOS:

[there are] videos for everything
YouTube is good for when you can't concentrate
I used YouTube to fix my laptop
I used YouTube to hack into my iPod
I use keywords to search YouTube

Look for less bias when trying to find how to do something. (gave an example that msdn website will only tell you how to use Microsoft, not necessarily the best product for what your are trying to do)

ON AUTHORITY:

More now I have to screen everything on the computer. I have found fake things, then taken them downstairs (indicates common areas of campus) and been told it is a fake.
Found fake things
A lot of checks need to happen
Especially in medical
Fraud
Like the anti vaccine stuff
I use google advanced search to eliminate .com
[It would be good to] have a chart

