Chapter 15
Search Success at the University of Manitoba Libraries Pre- and Post-Summon Implementation

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ABSTRACT

The University of Manitoba Libraries (UML) hired an external company to perform usability testing on its website in 2008 and 2009. A component of the website testing required test participants to find particular books and articles and to identify materials on a particular specific topic using the UML's search tools. The need for a resource discovery tool was made clear when participants were not generally successful in completing these tasks. The UML released Request for Proposals (RFP) for a resource discovery tool in 2010 and shortly afterward acquired Summon™ᴵ as the successful tool. Usability testing was performed on the Summon™ resource discovery tool while it was still in beta development at UML to see if there was an improvement in search success for students. The results of the two usability studies are described in this chapter, with an emphasis on the Summon™ usability testing and suggestions for further research.

INTRODUCTION

In 2008, as a result of both anecdotal evidence and more formal feedback from the LibQual®2 survey in which the University of Manitoba Libraries (UML) participated in 2003, 2006 and 2007, a Website Usability Team was created to look critically at the website to improve clients' experience. In order to perform this task as objectively as possible, the team contracted with an external company, NeoInsight, which conducted usability tests on UML's website for two short time periods in 2008 and 2009. The external consultant was selected through a Request for Proposals (RFP) process and the UML became their first library client. The Website Usability Team was pleased to have a consultant that specialized in usability rather than libraries since the Team would provide the library expertise. Results from the testing showed that students were not only having trouble locating information on the UML's website, but they were also unsuccessful in locating library materials using the UML's array of tools including the library catalogue and various subject-specific and more general databases. In identifying this problem, the company recommended a single search tool that would incorporate all of the UML's search tools. The timing of this recommendation was fortuitous in that resource discovery tools were coming to the market. A Resource Discovery Layer Task Force was formed and after an RFP process and Summon™ was acquired and implemented in the late fall of 2009 for staff use. Usability testing was performed on the Summon™ search engine during the beta phase to test that it would improve the search experience of UML's clients. Summon™ was made available to students in May 2010 as "One Stop Search" with a search box directly on the UML's homepage, although there had been a link to One Stop Search since February. This chapter will discuss the results of both the external consultant's testing and the Summon™ usability testing.

BACKGROUND

The University of Manitoba Libraries is a doctoral-level university serving over 25,000 students and the UML's collections number over 1.8 million titles in 19 libraries including eight hospital libraries. For both the external consultants' testing and the Summon™ testing, the UML was using Sirsi-Dynix®3 Symphony®4 version 3.2 and Web2 was the web catalogue interface. The UML also uses SFX®5 as its OpenURL resolver which is called "GetIt@UML" on the UML site. The Libraries provide access to over 300 separate databases in a variety of subjects which support its programs and at the time of website testing databases were made available using a home-grown system. This system provided alphabetic and subject lists and also provided information about the database including a summary, number of concurrent users, whether it was SFX®-compliant and more. During the Summon™ testing, the Libraries had migrated the home grown system to a Drupal system which gave the same information as the home-grown system but in a different format. Although none of these Libraries' systems were looked at comprehensively in either test, the systems and their abilities were certainly factors in the usability testing of the Libraries' website and of Summon™.

As part of the usability testing process and investigation into resource discovery tools the Website Usability Team and then the Resource Discovery Layer Task Force examined the literature available in the area. Since the focus of this chapter is usability testing, only the relevant literature on usability testing will be discussed. Most definitions of usability are based on either the International Organization for Standardization definition or Nielson (Bevan, 2006; Nielsen, 1993, 2000; Y. Chen, Germain, & Rorissa, 2009). Usability is often associated with five dimensions: learnability, efficiency, memorability, errors, and satisfaction (Nielsen, 1993). The best definition of usability for our purposes was found in a 2001

article by McGillis and Toms as "the extent to which a product can be used by specified users to achieve designated goals with effectiveness, efficiency, and satisfaction in a specified context of use" (McGillis & Toms, 2001). Convenience is also an important factor in usability in the library context and has been found to be "the primary criteria used for making choices during the information-seeking process" (Connaway, Dickey, & Radford, 2011, p. 188).
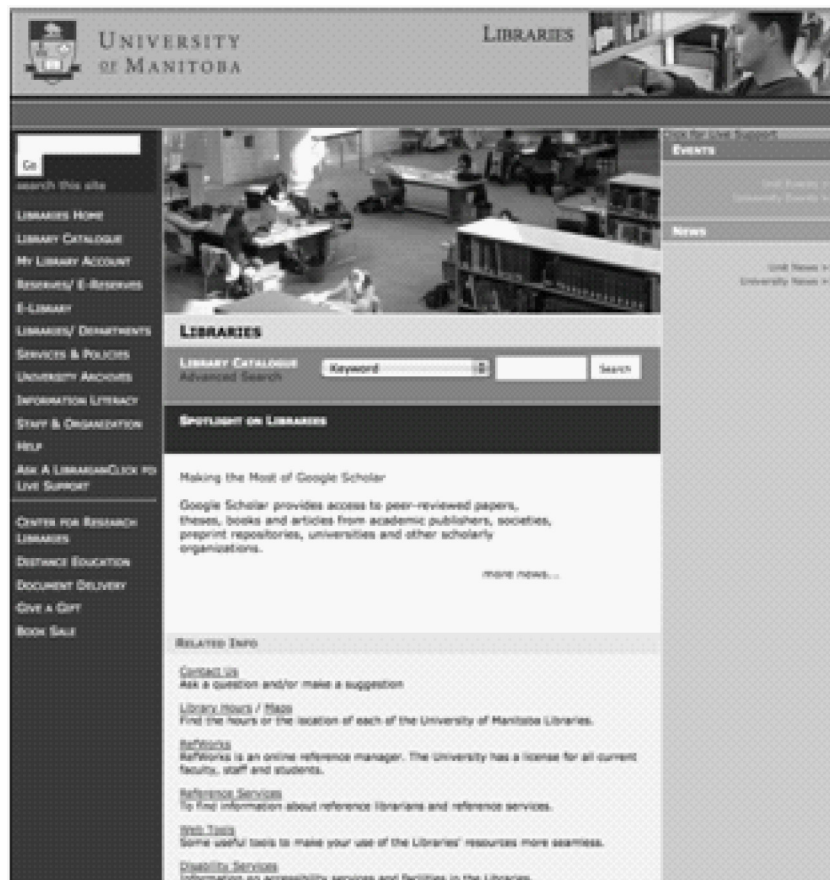
Although a great deal has been written about usability testing on academic library websites, there is little that has been written about usability testing on search tools for academic libraries, and very little about resource discovery tools (Y.-H. Chen, Germain, & Yang, 2009, p. 954; Y. Chen, Germain, et al., 2009; Nathan & Yeow, 2008; Somerville & Brar, 2009; Teague-Rector, Ballard, & Pauley, 2011). There is a small body of literature about usability testing on metasearch engines which offered a basis for Summon™ usability testing at UML. A study at Hunter College Libraries was interested in determining how well gateway pages helped students at a number of information seeking tasks and found that there were a number of recommendations that could be implemented (Finder, Dent, & Lym, 2006). At the Oregon State University Libraries, Jung et al. compared a metasearch engine, LibraryFind, to Google Scholar and found that:

Our study reinforced that college undergraduates use what is familiar. Consequently, a new academic metasearch system needs to meld familiarity while capitalizing on the varying experience levels of users; however, if the metasearch interface is as familiar as that of a Web search engine, undergraduates expect it to deliver Web search engine performance and features, especially speed and relevance ranking… Participants' prior experience using an academic search system affects their expectations for and satisfaction with using a new system. (Jung et al., 2008, p. 388).

Another study completed at Texas A&M University found that, when prompted, users were quick to pick up on new navigation features and began to incorporate them into their search strategies (Ponsford & vanDuinkerken, 2007, p. 176). From the available literature, it appears that although users prefer to use familiar tools and have expectations of the tools based on whether they are similar to other tools, they will learn and adapt to new tools when the features of the tools are pointed out to them.

The most similar tool available to Summon™ at the time UML performed usability testing was WorldCat®6 Local. At the time, only one article was written about usability testing on WorldCat® Local from the University of Washington Libraries. The authors found that users "were generally successful finding materials" (Ward, Shadle, & Mofield, 2008, p. 18). However, problems were identified with book reviews appearing higher in the results than the book itself and with detailed record screens which were confusing to users. A second round of testing was underway with some of the problems identified in the first round addressed, but results were still being analyzed at the time of writing (Ward et al., 2008). Usability testing of MetaLib®7 using a think out-loud protocol was useful in providing recommendations to designers, including improving login, navigation and terminology (George, 2008). Usability testing for e-resource discovery at both Memorial University Libraries and Bowling Green State University conclude that well-designed pages are not enough and implementing a one search box for all of the library's content is crucial to helping students (Gibson, Goddard, & Gordon, 2009; Fry & Rich, 2011). This conclusion is not universal, after usability testing at Moraine Valley Community College librarians have decided against the "googlization" of the library's web site (Swanson & Green, 2011). Most library usability testing is done in-house, although there are advantages to consulting usability experts since most librarians are still gaining expertise in the area of usability

Figure 1. UML home page, pre-testing

testing and an external expert may provide an unbiased viewpoint (Tolliver et al., 2005).

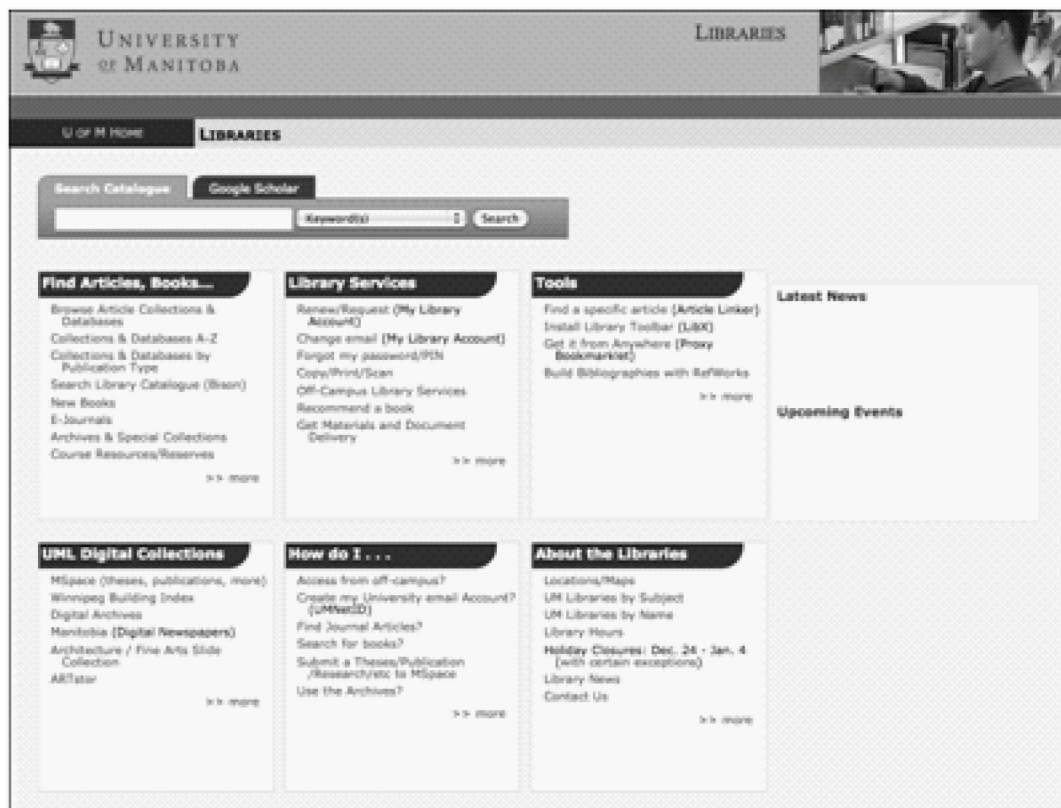## EXTERNAL CONSULTANT'S TESTING

Test Methodology

As a result of an RFP process in 2007, the external consultancy firm was hired to examine and test the University of Manitoba Libraries website. The initial contract was extended for a second year and eventually encompassed an expert review, a comparative analysis and four rounds of usability testing. In total 36 participants were recruited and asked to undertake a series of tasks using various features of our website.

The participants were recruited through campus-wide advertising to reflect a variety of disciplines; various experiences using the Libraries' website, from daily to never; and a balance of gender. Six participants were faculty, all others were students, two of the students used screen readers and two were distance education students. The various aspects of the website were modified for each round of testing with participants rating both the before and after versions. Although the changes were incremental and included changes throughout the website, as an example of the level of change, the initial and final versions of the UML homepage are shown in Figure 1 and 2.

Figure 2. UML home page, post-testing

Each participant was given six tasks. The first task was the user's own task based on current research or an assignment. There were three research tasks, an administrative task, and a skills development task. (See Appendix 1 for the complete list of tasks). The one hour sessions were conducted by the external consultants working with the participants remotely using Morae®[8] (Techsmith®[9]) software to observe and record their actions. Participants used their own computer or a university computer. Some members of the Web Usability Team and other UML staff were able to observe the sessions. As well, the sessions were recorded for future analysis and summaries were created for staff discussion.

After each task, participants were asked for feedback and ratings, and for ideas on improvements. In addition:

Task performance was measured;

Task completion was recorded, including whether or not hints were given (which varied with the task and the participant) and time on task;

Participants rated how satisfied they were with how the website supported each task;

Participants rated the site overall, the current site and the modified site.

Test Results

Participants ranked their success as satisfactory. As seen in Figure 3, overall satisfaction and satisfaction in all but two of the tasks was above 50%.

Between the initial round of testing and the final round in the first year, task completion (see Figures 4 and 5) was made easier for some specific tasks (e.g. the Admin task) and completing a specific task was usually successful. Finding a
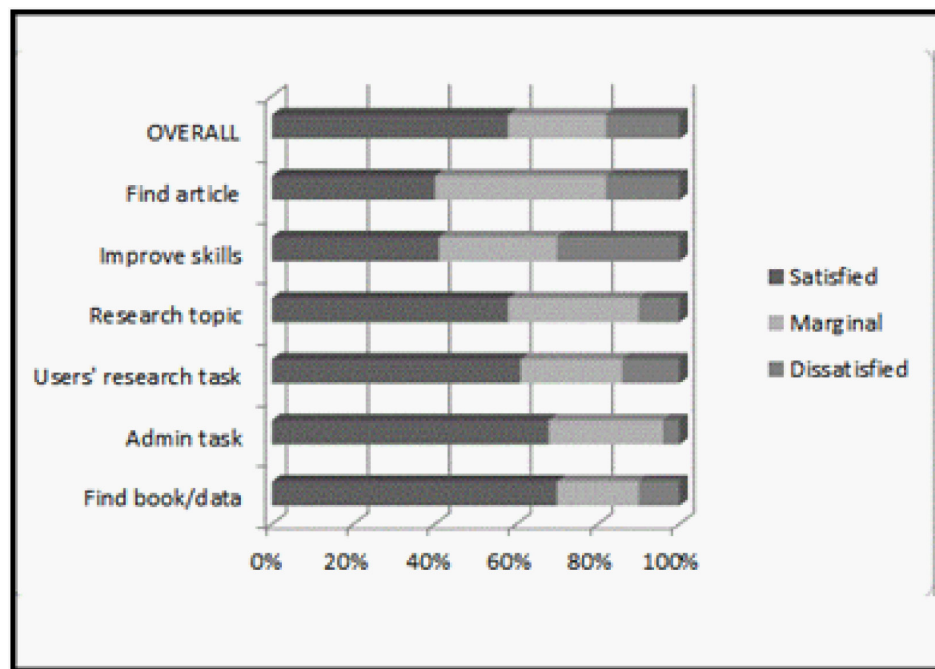
Figure 3. Task satisfaction

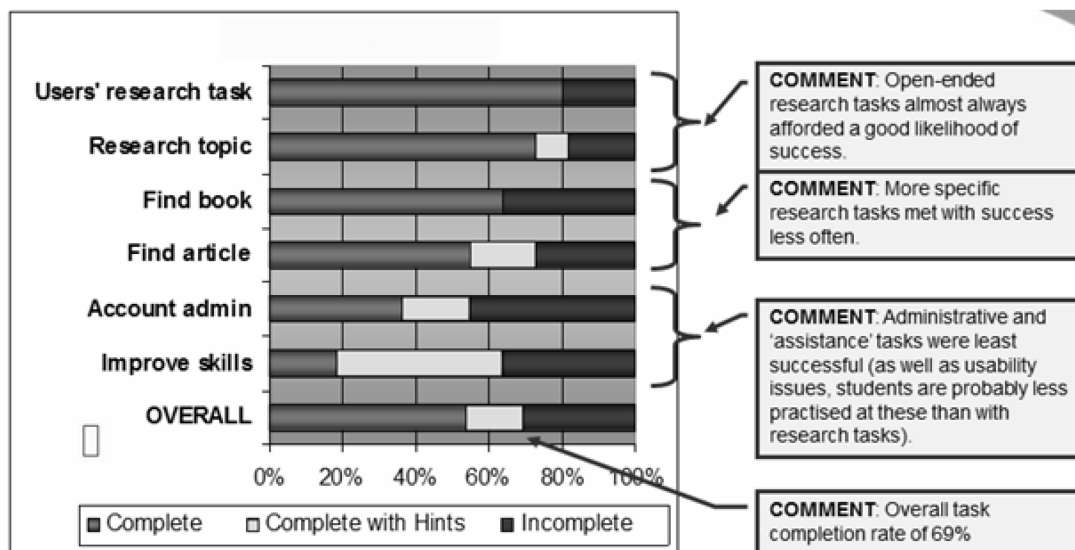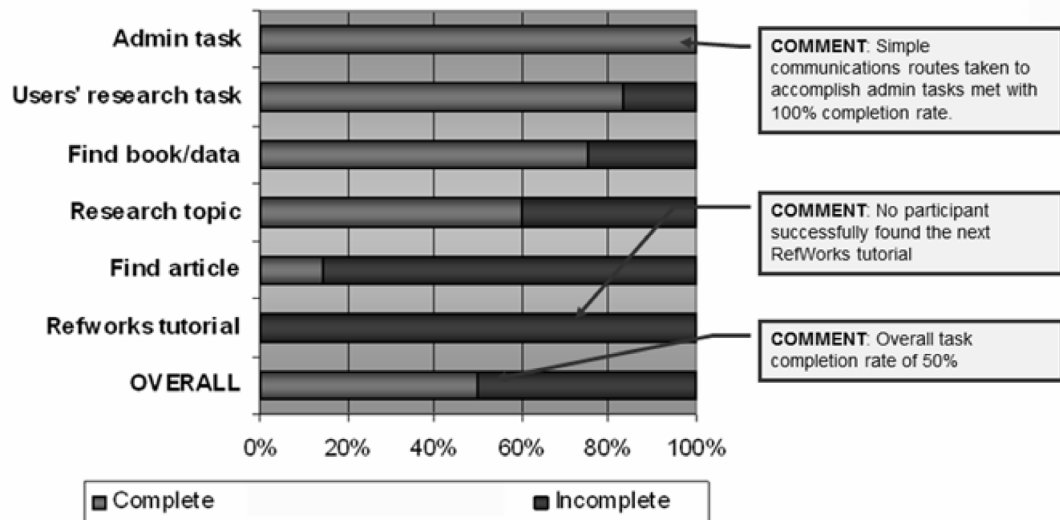
Figure 4. Task completion, round 1

Figure 5. Task completion, round 3

Discussion of Results

Overall, participants ranked their success much better than observations by the testers and librarians would have ranked it.

In spite of the perceived success, the investigators found that some types of search task were especially frustrating:

- Open-ended 'topic' search tasks always met with some success
- A more specific search – find a book – met with less success
- The most specific search – for an article – met with the least success

Participants were most frustrated where they knew *exactly* what they were looking for, but could not find it because they did not know which database it would be found in.

A primary recommendation of the consultant's final report was:

Hide database complexity: The proliferation of resources is increasingly becoming a barrier to successful search and the adoption of sophisticated research strategies

We highly recommend hiding as much as possible of the database complexity behind a simple, Google-like search box. Provide a 'meta-search' that allows people to specify what they are looking for, without having to specify where it is.

Other recommendations are continuing to be implemented at UML but the truth of this recommendation was painfully obvious to the Website Usability Team who had observed the testing. The NeoInsight report was followed up with a search for and implementation of our choice of discovery tool: Summon™ by Serials Solutions®.

SUMMON™ TESTING

Test Methodology

Summon™ is a resource discovery tool which incorporates metadata from the Library catalogue, locally produced databases, free digital reposi-

journal article and researching the assigned topic, however, remained difficult and frustrating.

tories and the Libraries' subscription databases (when available). Using a single, unified index, metadata is searchable through a single search box returning a quick browse list. Library clients can browse the list or narrow their results through facets available on the left-hand side of the screen. Facets include content type, subject terms, publication date, and library. The UML acquired Summon™ based on an RFP process where Summon™ was the only product that was ready for market and which met the Libraries' criteria. The primary criteria included a unified search index, faceted browsing, de-duplication, relevancy ranking and other sort options, the ability to refine by full-text only and peer-review, alternative word suggestions and spell-checking and known-item searching.

After Summon™ was implemented and ready for beta-testing at UML, staff partnered with Summon™ to carry out the usability testing on the UML's beta Summon™ site. Summon™ supplied funding for a research assistant, Morae software and Amazon gift certificates for test participants. The research assistant organized the participants and was a silent observer to all of the testing that took place.

Recruitment occurred through advertising on the UML's website, mentions by librarians in any instruction classes they were teaching and in-person recruitment at the coffee shop located in the main Arts & Humanities library at UML. Recruitment was not statistically reflective of the student body of the University of Manitoba Libraries. The aim was to perform informal testing by gathering a number of undergraduate students with a research assignment from a class they were currently taking who were willing to test the new Libraries' search tool. Each of the nine students completed research for an assignment for their class, so each session's participant had different objectives when using Summon™ (Appendix 3). Because the testing took place at the end of term, recruitment was not easy and the nine students who

took part were from a larger group who initially expressed interest.

The students who took part in the testing had assignments to research in Music, Sociology, Management, Microbiology, Psychology, Political Science, English Literature, and Architecture. Four of the students were doing research for first-year level courses, one for a second-year level course, two for third-year level courses and two for fourth-year level courses. The student's years of university were not part of the information gathered; rather, the focus was on the research they were doing for a specific course which may or may not have been part of their major area of study. The search experience of the students was also not determined ahead of time. However, through conversations during the testing it was determined that it varied and included one student who worked in the libraries and claimed a good knowledge of searching and a first year student who had very little experience with the UML and its search tools.

Testing itself took place in one hour sessions with the student using his or her own computer or a computer in the University or the Library. The researcher and the research assistant viewed the search remotely at separate locations through the Morae® software which allowed them to view the participant's computer screen and actions on the screen (typing, mousing, etc.). The research assistant, the researcher and the participant all used computers in their own locations. The researcher and the participant communicated through a telephone and the sessions were recorded through Morae® which captured the participant's screen and actions and the conversation between the researcher and the participant. Each participant had previously completed a background questionnaire including information on their research assignments and each session began with a reiteration of the parameters of the study and the student's agreement to take part in it. Permission to carry out this research was obtained from the University

of Manitoba's Research Ethics Board before testing took place as it was for the website usability.

Because each of the participants was researching a different topic, the sessions were not conducted in exactly the same way. Sessions were all begun the same way and a series of questions were asked each participant at the end of the session (available in Appendix 4), but the sessions themselves were not uniform and the researcher did offer the participants some help with their topic or with their search when they were stymied by the topic. Although this was mainly outside the parameters of the usability study, participants were occasionally prompted to look in a particular place when they were attempting to do something that could be done quite easily with Summon™ or when they were simply missing a piece of information that could help them. For example, a participant wondering how he could exclude book reviews from his results might be prompted "What is all that information on the left-hand side of the screen?" Whenever this was done, it was noted and will be commented upon in the results.

Test Results

Data for the tests was recorded through the Morae® software, in notes taken when viewing the sessions and collected in a spreadsheet.

Interface Design

Eight of the participants liked the design of the Summon™ interface with one describing it as "nice and clean (Figure 6 shows the interface at the time of testing). Only one participant commented that she didn't really like the colors and how the page looked. Two participants pointed out that something needs to be done to make the facets and choices for refining clearer, either by bolding or making the colors brighter. One participant commented that he thought that the single search box was a little too simple but that he ended up impressed with the product.

Figure 6. Summon™ results screen

Facets and Sorting

Only one of the participants found the facets available on the left-hand side of the screen without being prompted by the researcher. None of the participants clicked on the "more options" link at the bottom of the facets, even when this would have made their search more successful. When prompted, one participant commented in the post-search interview that "all the useful stuff is under more options! I can't say that I would have ever, ever clicked on that!"

Once participants were prompted by the researcher to look at the facets on the left-hand side of the screen, they readily narrowed the search by choosing one of the options at the top (limit to fulltext online, limit to scholarly articles, exclude newspapers). Two of the participants did not look any further down the left-hand side than that, although one of them was prompted four times by the researcher. Others went on to limit by content type, but only four participants went on to limit by subject, and only two used the date facet. One of the participants looked at the subject facet and instead of clicking on it to include or exclude it from the search results, went and added the term they wanted to the search box.

All of the participants found the sorting option at the right-hand side of the screen and only one had to be prompted to look there. Three of the participants immediately noticed the sorting option and were able to sort by the most recent materials, but one who was trying to find recent articles needed to be prompted to see it.

The search participants who came across book reviews had difficulties with them as did the participants in the University of Washington usability tests. One participant felt that the icon should be different for book reviews than for journal articles so that it would be easy to pick them out of the search results. The researcher pointed out to the participants who commented on book reviews that they could exclude them on the Advanced search screen.

Save Search Refinements

Three of the test participants used the facets and search refinements but also used different terms in their research and had problems because whenever they entered a new search, they lost their search refinements. Although there is a radio button right underneath the search box (see figure 6) which allows a user to keep their search refinements, none of the participants noticed this option on their own, and all three were confused by some of the results that were returned on the results screens. One participant suggested that once a search has been refined, this radio button should automatically be checked so that all subsequent searches will be refined in the same way however this also poses problems if users are searching for more than one assignment or research project.

Saving and Exporting

Because the testing occurred when Summon™ was still in beta at UML, not all features worked for all of the participants. For example, the fulltext linking was not working properly for half of the participants and the links to the UML's catalogue didn't work for any of them either. These problems were explained as being a result of the system still being in beta test mode to the participants and the researcher suggested that they add the items they were interested in to their folder and email the results to be located at a later time. This option was entirely acceptable to the majority of the participants although two repeatedly clicked on links and tried to link from Summon™ to the Libraries' resources although the linking was not functional. These features were mentioned as very valuable to the test participants in the post-search interview, but it is unclear whether participants would have discovered them on their own.

Figure 7. Summon™ advanced search screen

Advanced Search

Four participants clicked on the Advanced search screen including one participant who began her search on the Advanced search screen. Two of the participants chose the advanced search screen when looking for a specific item, and one commented that it looked very different from what he was used to seeing, with different terms instead of Author, etc. (see figure 7). The participant who began her search on the Advanced search screen was used to starting her research with books, and then examining the bibliographies of those books for more materials, so generally started any research in the library catalogue. Participants who used the advanced search screen tended to read the entire screen and try to enter as much information in as possible, including choosing the limits available at the bottom of the screen.

Post-Search Interview

In response to a post-search interview all of the participants rated their search experience as successful. All of the participants located material that was useful to the assignment they had brought to the search session and two commented that they had found material that they hadn't been able to find before using the "old" search tools. When asked what they found most useful, most mentioned the ability to put materials in a folder and email them to themselves at the end of the search, and the ability to view the abstract right in the resource discovery tool itself. Participants also discussed the fact that it consolidated searching and one found the inclusion of newspaper articles very useful.

Discussion of Results

The major problem encountered during Summon™ testing was the participants' failure to notice the facets on the left-hand side of the search screen. In fact, two participants commented that something needs to be done to make the facets and choices for refining clearer, either by bolding or making the colors brighter. The placement of the facets on the left-hand side of the screen seems to have misled students into thinking that the information found there isn't important. The participants search behavior tended to be similar to what was experienced during the original website testing, although because most of the UML's materials are included in Summon™ the search was more successful. Students tended to enter general terms and then refine their searches by adding new terms or similar terms to the search box. Their focus was entirely on the search results and anything else on the screen, including the facets on the left-hand side, was ignored. In order to narrow the search, the participants uniformly returned to the search box and added more keywords to the search in order to narrow it and would then return to scrolling through search results, with one participant willing to scroll through up to five pages before trying to redefine the search. Interestingly, the most inexperienced searcher was the one that went directly to the facets to narrow his search, which suggests that perhaps the participants ignored the left hand facets based on their experiences with UML's previous systems, again reinforcing the observations made by the researchers at Oregon State University Libraries. Further testing at UML and in other institutions would determine whether this was a result of UML clients' expectations of our locally implemented systems or a more general misconception.

It was also surprising to note that during the actual search process, none of the participants commented on the fact that they were able to search for more than one type of material, and it appeared that all of them took it for granted that many content types were included. This reinforces the findings at Oregon State University Libraries that researchers have expectations of search based on how the search engine appears: if it looks like a web search engine, they expect it to perform like a web search engine.

In response to the question posed during the post-search interview "Were you able to find the types of materials you wanted?" all of the participants replied "yes". During their searching, most of the participants needed to be prompted to limit by the content type facet, yet the ability to limit to one type of material or to exclude a type of material was something that was mentioned by four participants as one of the most valuable features of Summon™.

On the whole, the response to the Summon™ resource discovery tool was very positive. Out of the nine participants, seven were very enthusiastic about different features of Summon™. The two remaining participants were more reticent and compared it to other search engines that they were obviously very familiar with, perhaps indicating that for students who are more advanced in their studies and familiar with subject-specific databases, Summon™ is superfluous, but again reinforcing the findings from Oregon State University.

For the participants who were very positive about Summon™, comments included:

"That is classy! That right there… the smartest thing I've ever seen!"

"It's clearer than the normal library search thing."

"I was kind of skeptical because you open the page and it's only one line [the search box] but it's nice and simple… it worked really well, I'm impressed!"

"Very helpful, I found exactly what I needed and didn't have to go to outside sources except to get full text."

Findings

The website usability testing determined that the Libraries' clients were not able to find the materials they needed and resulted in the purchase of Summon™. The Summon™ testing determined that students' abilities to find materials improved but there were problems with Summon's™ usability at UML:

- Facets need to be made more prominent;
- The fact that articles were book reviews need to be made more obvious, whether through the use of an icon or bolder text;
- The means of saving of search refinements for subsequent searches needs to be clearer.

There were also some implications for liaison librarians in showing UML clients the Summon™ search interface, which was called One Stop Search at UML:

- Facets would need to be pointed out, along with a description of how the facets would work;
- Students using Advanced Search should learn to only enter information that would be important in the search.

The results of the Summon™ testing were shared directly with Summon™ who were partners in the testing. Results were also shared with the One Stop Search Rollout Task Force which was charged with promoting One Stop Search and ensuring that both staff and students understood its advantages and limitations. The Task Force used the information to ensure that liaison librarians would know that identifying the facets on the left-hand side of the screen was an issue for students and could use that information when showing Summon™ to students and faculty.

Other libraries implementing a resource discovery tool would be wise to wait until the tool is working fully with the library catalogue and other systems before testing. Since the full text linking and linking to the catalogue were not working for many of the participants, the researcher could not determine how students would react when Summon™ returned them to the catalogue or to the full text.

The use of Morae® and recording the sessions was extremely useful. It allowed UML staff to go back over the sessions and find where problems occurred and to really look at what the participants were doing rather than trying to capture everything during the session itself. Having the researcher and participant in remote locations was also beneficial since the participant was in a place he or she felt comfortable and could use the system the way they normally would without someone in the room. The researcher and observer felt that they were getting a very true picture of the participant's use of the system and this is born out in the Morae® recordings.

FUTURE RESEARCH DIRECTIONS

The first year student who was the least experienced searcher was the one who found the facet searching on his own and seemed to adapt fastest to using the features available in Summon™. Because the other participants have been accustomed to certain search strategies and results (although these varied widely between the participants) they were less likely to look at the whole screen and focused mainly on the results of the search, supporting the Oregon State researchers' findings that searchers bring to a new search tool expectations based on their past experiences. It would be beneficial to perform further testing with students who did not have pre-conceived notions of how to do research at the UML, and one area for further research would be to continue the usability testing with first year students who have no experience of the "old" systems, second year students who began their University careers when Summon™ was the main search engine on the UML's webpage,

and "older" students who were initially trained on the "old" systems.

Another area of research would be to see how search behavior changes with clients of different library systems who are used to different "old" systems; the UML uses SirsiDynix®; determining how clients from libraries with different ILS systems search Summon™. Since Summon™ is not highly customizable, the search experience across Summon™ libraries should be fairly homogenous, but further research would determine if this was true, or if the results varied in different types of institutions and with different types of students.

Based on the UML experience of usability testing using both consultants and in-house expertise, the consultants were very helpful in convincing librarians that a radical change in our approach to web-site design and information discovery was necessary. A further area of research is determining whether using external usability consultants provides different conclusions than in-house usability testing.

CONCLUSION

Although search success is not yet perfected at UML, Summon™ has at least resulted in more successful searches for UML's clients based on these usability results. In contrast to the original testing which found that only 60% of participants found research materials they were looking for, all of the participants in the Summon™ searching found materials that they could use in their research.

The finding by the external consultant that UML's clients expect to find all materials by performing a single search in one database was confirmed by the assumption that participants in the Summon™ testing made that all content types were included in the search. Librarians have long believed that Google is changing students' search expectations and the UML's experience testing Summon™ supports this belief. The emergence

of many resource discovery tools to the library market and the uptake on these tools by libraries also shows that this belief is also supported in many libraries. As library clients become more accustomed to these tools and as the vendors continue to improve the relevance and recall of these tools, they may provide the search solution libraries have been searching for.

Serials Solutions® has continued to develop their product and has added features like referrer databases and the ability for libraries to choose colors and layouts which complement their library website design. Although some of the features that users in the UML usability study suggested have not been implemented, it is hoped that some of these might incorporated into the Summon™ services as the system becomes more sophisticated. It can also be hoped that the metadata that vendors and publishers submit to Summon™ will become more accurate and sophisticated allowing greater user satisfaction and search recall and relevancy.

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KEY TERMS AND DEFINITIONS

ARL: Association of Research Libraries. ARL supplies a survey tool for its member libraries to track user satisfaction with library services called LibQual.

Beta-Testing: Final testing before a product is released to the public.

Expert Review: A review by website usability experts intended to identify likely problems users will encounter without having to go to the expense of involving users in testing.

Facet: A component of the search which can be used to narrow the search.

Morae (Techsmith) Software: Software for web user experience testing that records conversation and screen activity.

Recall/Search Recall: The fraction of the total available documents that are relevant to the search and are successfully retrieved.

RFP/Request for Proposal: A set of requirements for a product or service submitted to vendors asking for proposals for products or services that will fulfill those requirements.

Search Success: The degree to which a search of a particular product is successful in terms of usefulness to the searcher.

Summon: A resource discovery tool made available through Serials Solutions.

Task Performance: A measure of how effective test participants were in performing the task assigned.

ENDNOTES

[1] Summon is owned by ProQuest LLC.

[2] LibQual is a registered trademark of Association of Research Libraries.

[3] SirsiDynix is a registered trademark of SirsiDynix Corporations.

[4] Symphony is a registered trademark of SirsiDynix Corporations.

[5] SFX is a registered trademark of ExLibris Ltd.

[6] WorldCat is a registered trademark of OCLC.

[7] MetaLib is a registered trademark of Ex Libris Ltd.

[8] Morae is a registered trademark of TechSmith Corporations.

[9] TechSmith is a registered trademark of TechSmith Corporations.

APPENDIX A. TASKS & POST-INTERVIEW QUESTIONS (EXTERNAL CONSULTANT TESTING)

A. Tasks

Each participant brought a research assignment to the session which he or she was working on for a course. This was always the first task to be carried out.

Other tasks included:

1. Find a specific book and request it be delivered to a library near them or find data on a topic (e.g. how many MRI scanners are there in Canada?)
2. Find an article given the reference to the article
3. Finding research material on a specific topic
4. Determining when and where a tutorial on RefWorks was being offered
5. Recommend to the libraries that they purchase a specific book

The research tasks were tailored to the discipline of the participants.

B. Post-Interview Questions

1. Given your experiences today, could you tell me how easy or difficult to use you think the website we've been looking at is? I'll send the response scale to your chat window.
2. Based on the information you've seen today, what were the two things you like most about the website?
3. What were the two things you like least about the website?
4. Are there any other suggestions you would like to make which would help the UML website better support your needs?

APPENDIX B. BACKGROUND QUESTIONNAIRE FOR EXTERNAL CONSULTANT TESTING

A. Confirm:

1. 1st year undergrad, 2nd or 3rd year undergrad, post-graduate, faculty
2. Arts, Sciences, Medicine
3. Library website usage approximate: once a week, once a day, more than once a day
4. Can you tell me where you usually access the University of Manitoba Libraries website from?
   a. From a library computer
   b. From Residence
   c. From home
   d. From a laptop connected to the wireless network

    e.   Other
5.   Could you tell me how easy or difficult to use you think the current UML website is?
    a.   Very easy to use
    b.   Easy to use
    c.   Neither easy nor difficult to use
    d.   Difficult to use
    e.   Very difficult to use

APPENDIX C. TASKS & POST-INTERVIEW QUESTIONS (SUMMON™ TESTING)

A. Tasks

Each participant brought a research assignment to the session which he or she was working on for a course. Other tasks included:

1.   Find articles on Canada's role in the early part of the Cold War
2.   Find resources on midwifery in Canada
3.   Find an article on physical activity, health or wellness
4.   Find articles on microbiological research
5.   Find information on reunification of Germany
6.   Find journal articles on architecture of the Pantheon
7.   Find information on variations of the Ellesmere and Hengwert manuscripts
8.   Find peer-reviewed articles on aggression
9.   Find information on Pakistan and India and the Non-Proliferation Treaty

B. Post-Interview Questions

1.   Did you feel that your search was successful?
2.   What would make you more successful?
3.   What was the most valuable part of the search tool?
4.   Were you able to locate the right types of information?
5.   What was your general impression?
6.   Was there something you really liked?
7.   Was there something you really disliked?
8.   Is there anything else you'd like to tell me?

APPENDIX D. BACKGROUND QUESTIONNAIRE FOR SUMMON™ TESTING PARTICIPANTS

A. Please give us some information about you:

1. Your name
2. Your telephone number
3. Your email address

B. Please pick a course for which you have a research assignment due:

1. What is the area of study for the course?
2. What level is the course?
3. What is the assignment and the research required (give topic as provided by professor if possible)?
4. At what point in the research process are you?
5. When is your project due