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Metasearching in Boston College Libraries – a case study of user reactions

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Abstract

As the Boston College Libraries prepared to migrate to a new release of MetaLib, a metasearch and portal tool from Ex Libris, the library conducted some informal usability studies on its existing implementation. These studies combined conversations with undergraduate and graduate students about their research style and observations of students conducting searches using MetaQuest. This article reviews the main issues culled from this, focusing on student research style, asking if MetaLib, as an example of a metasearch engine, responds to this need, reviewing the existing MetaLib design issues, and finishes with pointers on where the Boston College Libraries are headed with this product.

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Why MetaQuest?

When the Boston College Libraries rolled out its integrated library system (ALEPH500) to its community of more than 9,000 undergraduates, 4,600 graduate students and 600 faculty in June 2000, early focus group feedback told us that there was a desire to go beyond this model. The ability to search multiple databases simultaneously, federated or metasearching, was a spoken desire. Technical and resource reasons prohibited the library from moving forward at that time, but it remained a high priority in our planning.

Why? Apart from responding to a user need, Boston College, like many libraries, has a substantial investment in electronic resources, with more than 300 databases and thousands of electronic journals. We felt that our delivery of them to the public warranted a re-examination. Users were not aware of the breadth of resources available to them and many titles were underutilized. On the other hand, users were often overwhelmed by the scope of available resource, so a resource discovery and management tool was needed. When Ex Libris made MetaLib available, we were interested. MetaLib is a portal software that allows for the simultaneous database searching, resource management, and access to a resource's native interface. We began working with it in July 2001 and at Boston College, MetaLib became known as MetaQuest.

There was interest, even though this was the first release of MetaLib and thus was still in early development. Our position is that products like this are always in the process of development and enhancement. It mirrors the nature of library services, also constantly evolving, as libraries and users adjust to a world of ever increasing online resources and a variety of remote services available from the desktop (a major library goal at Boston College). MetaQuest is but one example of this effort, as are quality Web pages, courseware support, remote interactive 24/7 reference service, a commitment to assessment, and an ongoing analysis of public service librarians' responsibilities. We liked the idea of tying resources together intellectually, not based on a vendor's title list, but rather via the choice of the user (naturally there are limits here, since not all titles are available for searching via



MetaQuest, but this situation continually improves, including imaginative workarounds for non-Z39.50 compliant titles). Overall, this work symbolizes the working ethos in the Boston College Libraries. This includes a willingness to experiment, to take chances with new technologies, and to work with vendors to improve a product. We seize opportunities to provide librarian and user expertise and feedback into the product development. Librarians at Boston College are charged by the library administration to be technology leaders on campus. Working with MetaQuest met all of these requirements, plus it responded to expressed user needs and our desires to expand access to resources.

A final issue was a staffing one. How would this project be internally managed? We needed to be realistic about our ability to manage the implementation. This issue resolved itself when there was a vacancy in the O'Neill Library reference department. The vacancy was redefined from a traditional reference/bibliography dichotomy to an Electronic Resources Reference Librarian, responsible for managing the public services aspects of database acquisition, as well as the project to develop MetaLib and SFX for the Boston College Libraries. In retrospect, this was the right decision, as an implementation such as this resulted in a significant staff investment. Since making this decision, the library landscape has continued to evolve to the point where the desire for this type of service is more broadly recognized and product development and installations are more expansive. Luther (2003) provides a good introduction to the metasearch environment.

Research style: how do students approach their research?

As the Boston College Libraries prepared to migrate to a newer version of MetaQuest in summer 2003, we resolved to do a new series of user studies and resource usability studies. We did this to not only prepare for the new version, but also continue supplying the vendor with product feedback and to assist us in providing appropriate reference service. A combination of conversations and observations with four

undergraduates and two graduate students resulted in much valuable public services information. These users reflected several departments and years at Boston College and conform to some established guidelines on number of usability subjects needed (Nielsen, 2000), which clearly states that five usability subjects will identify the majority of access and use issues. This study is just the beginning of our assessment work and we are continuing this analysis, but these early results provided quality feedback on research habits, detailed below, some of which are also consistent with past studies (Valentine, 1993; Thompson, 2003).

The search approach and resource desires

It will surprise few readers that the search approach to this resource is keyword based, often just a few terms, sometimes with an understanding of Boolean logic. This is not just the approach to this resource, but to database searching in general. The approach can be varied: one term, a combination, a string search of sorts. There is a commitment to this approach, with little interest or knowledge of advanced searching techniques, such as authorized subject searching or combining various index searches. Users expressed no interest in alternative search techniques. System-supplied enhancements, such as refine options and subject heading links, were generally ignored. Patrons preferred to redo a search completely and ignored tool-based navigation options in favor of browser-based navigation options. In other words, they would ignore the MetaQuest options such as Refine and Back and would click the Back option in the browser (even when it would not work!). This type of searching results in large retrieval sets from several databases. Users also frequently enter complete citations and titles as subject terms. We have recently installed Ex Libris' Citation Linker to help those patrons who have these journal citations they wish to look up.

Based on our September 2003 logs, here are examples of searches entered:

- King Lear and nature.
- Irish language.
- Deafness rock music.

- Hobgoblin.
- Love advice.
- Computer music.
- Black and Decker.
- School bullying.
- Wine Maine store.
- Buffalo Soldier.
- Sense of dance.
- Film Hollywood history studio.
- China.
- African sheet music.
- Sin and ethics.
- Giver utopia.

Students have little patience for (or knowledge of) library distinctions regarding databases and e-journals collections. They do not want to hear about aggregators and e-journal packages. The user wants these combined for searching and sees little need to separate the access. Content is supreme, especially if the content is full-text. For years, reference librarians have been telling students that journal articles are not included in the OPAC and for years students have been confused as to why; it never made sense to them. While libraries continue to hold the line and maintain this separation for a variety of philosophical, fiscal, workflow, and manpower reasons, federated search engines offer a library the opportunity to respond in some fashion. Students were more mixed in their reactions to the fact that MetaQuest returns search results database by database. Some wanted this, while others preferred that the results be combined by the system. This is still an area that we need to gather more information about, but our thoughts are that more and more users will want the results to be merged with the duplicated citations deleted.

When students search an academic electronic resource, they want a clean, basic, and simple interface. Portal studies show that users want a search option and the option for a quick search. They want to get in and out and not bogged down with interface sophistication. This is in line with the Web theories of Krug (2000), whose research shows that Web users do not want to read the screens, they tend to scan the text. Lots of text does not translate into more information transferred to the student. It could mean less. As with many things in life, it could be that less is more.

Krug (2000) also covers the issue of satisficing. In an earlier time in library history, when print indexes were frequently consulted, the question, “do I need to look in all of those volumes?” was often heard. Simply put, that was, among other things, an example of the satisficing phenomenon which, according to the *Oxford English Dictionary*, means “to decide on and pursue a course of action that will satisfy the minimum requirements necessary to achieve a particular goal.” In library research terms, satisficing means selecting those first reasonable citation(s), or not looking in all of those volumes. Students will not search databases or systems deeply or thoroughly. They prefer full-text online (and who would not?) and will hit the print key with the first articles that satisfies them. The user takes the path of least resistance. Unfortunately, students have determined that viewing more screens will not necessarily result in better choices. This becomes an issue for us when large sets are retrieved. There are system limits on how many records from separate databases can be merged with duplicates identified and not displayed. Thus, the user has several separate large sets to review and their arrangement is reverse chronological order. The thorny issue of lack of relevancy ranking is an issue that is being addressed as this technology develops. After all, in a Google world, the best results are listed first.

Knowledge of resources: how do students choose resources?

They did not read the news today

In fact, students might not read the news at any time. Earlier Boston College Web usability studies told us that nearly all users ignored the news and announcements that we faithfully posted to our Web page. Again, users have little patience with too much text. They want to get to the point immediately. One student told us, in fact, that she did not know the name of the database she used - she only knew its location on the screen (her version of screen scraping?). Students are not apt to read instructions, overviews, or help screens before using a resource. They live by the trial and error approach. Dive in, search, and then react. Help screens and

instructions are not consulted initially. The interface must be simple and intuitive.

Another reason why students choose not to read news and other instructional information on the Web site, is that they do not feel that they have the time to devote to this. Or, perhaps more honestly, they do not want to devote too much time to this activity. Students are busy with work, classes, studying, and a social and cultural life to which they must attend. Time is not on their side. They are overwhelmed by library choices presented to them and cannot keep up with the amount of resources that we present to them. Their time is too precious to allot significant time to learning database intricacies. This sense of being overwhelmed by resource choice is not just a digital library phenomenon. The leap from a small school or public library to an academic environment has always been significant. What we are perhaps seeing in academic libraries is that entering students have rarely used the physical library for research. They think electronic first and part of our challenge is to design systems and services that make it easy to incorporate a variety of formats into their research. Agosto (2002) studied how adolescents evaluated Web sites. She reviews several issues related to students' evaluation of Web sites, and the fact that students have different standards depending on their use for leisure or school work. For academic purposes, students want functional sites, with few bells and whistles. Perhaps most interesting is its discussion of how students manage their time and the fact that they separate their lives into leisure and imposed tasks (school and homework). This leads to a limitation on the amount of time devoted to the task. Again, the potential for time savings with the use of a metasearch engine is a significant plus.

Students who spoke with us demonstrated a high degree of pragmatism. They will stick with what has worked for them in the past, being somewhat loathe to experiment with other resources and approaches. They are not risk takers and will not want to spend time with a resource that might not reap dividends. This is reflected in our database usage statistics. The most heavily used titles could probably have been predicted by librarians without any usage data. Could a federated search engine help here? It was our hope that by providing an interface

with a quick search function, along with the option to set up a profile to search ten databases simultaneously that students will not perceive this as risk taking. Ideally, they can search their popular database of choice along with titles that might not have been previously consulted. Our early statistics from the new version of MetaQuest, which has a quick search of ten databases (and combines journal article databases and the Boston College catalog) indicates that the quick search is an extremely heavily used feature. A pedagogical challenge before us is to convince patrons that they too can set up their own quick search via their profile.

When it comes to choosing a resource, who is the authority in the eyes of the student? The Boston College Libraries recently completed the ARL LibQUAL+ survey: www.arl.org/libqual The LibQUAL+ instrument measures library users' perceptions of service quality and identifies gaps between desired, perceived, and minimum expectations of service. It measures users' satisfaction with library services. In response to the question, how often do you use the library Web site to find information, 5 percent of the undergraduate respondents indicated daily use. This is a sobering statistic and reflects a probability that students first search the Web for research purposes. They are not using the library Web as a resource discovery tool. In the same survey, 12.56 percent of the students polled used the physical library daily. At one time librarians commented on students who arrived on campus never having heard of a card catalog. Now, however, as stated above, it is becoming clearer that students who arrive on campus might never have used a physical library for their research. Given this data, how are students making their resource choices? Possibly, they are using the databases they learned about in high school. This makes sense, as those databases worked for them in high school, so why change? Some database usage information would support that theory, as popular titles are titles that are widely available at the high school and public library level. Perhaps the most logical reality is to recall the pragmatic nature of students. They will choose resources from course reading lists and required course reserve readings. They seek recommendations from the nearest person, their roommate, friends, or the person next to

them in the dining hall or in class. Experience tells us that plenty of peer training occurs. They will, of course, also ask their professor. Their pragmatic nature tells them that sticking to course readings and assignments, and their associated footnotes and bibliographies, is a safe path. Where is the library in this picture? It is becoming clear to us that the structures we have in place, cataloging e-resources, various Web lists, and guides to resources, plus reference and instructional services, is simply not enough. Students have always hesitated about seeking reference assistance and the current combination of remote use and a wealth of Web accessible resources tends to exacerbate this situation. We need to continue thinking about better ways to connect the user need with the appropriate resource. We need to design our systems so that they are connected to course work. At Boston College we are working on making links from WebCT courseware to library resources and, more important, e-reserve and course required resources. We are experimenting with using MetaQuest to address this, too. Deep linking to MetaQuest resources with scripts that can be plugged into syllabi, WebCT courses, professors' Web sites, and library guides are some of the potential approaches. This is in the early stages, but it is thought there is great promise here to link the technology to the sites students will search.

Students also have a somewhat traditional perspective on the potential resources a library can offer. They do not experiment with unknown titles, so their horizons are not broadened in this way. A student talked to us about going directly to a publisher's Web site for an electronic copy of a current magazine issue or contacting a corporation directly for a 10k and an annual report. The library had these resources, but students assumed we did not. It appears that the library, its Web site, and search tools are neither perceived nor consulted as discovery tools. Known item searching combined with a limited knowledge and interest in the scope of available resources is the usual state of affairs.

The context in which we find ourselves is a rather frightening picture. Students do not know what resources we have, have little interest in learning about alternative titles, do not search resources effectively, feel overwhelmed by the amount of information

available, lack the time or inclination to learn more, and assume we do not have titles and formats that we have collected for ages. Clearly, there is plenty of work to be done and libraries need to present relevant alternatives to the user for tracking down information.

MetaQuest: what does not work and what works?

A second part of our preparation for the new version of MetaQuest, was observing students as they searched. Based on our observations on student research approach and their use of our first MetaQuest installation, what are the design issues? Many of these issues have been addressed in our second installation.

Dealing with pragmatism

MetaQuest requires that the user authenticate up front. While this is not a huge issue for the user, it did not result in immediately obvious next steps for the user. We had to deal with that user pragmatism: now that I've logged in, what do I gain? While it is a goal of the product to provide personalization, the design probably best reflected the theory that "personalization cannot substitute for good design" (Nielsen, 1998). MetaQuest offers minimal true personalization. Beyond your resource profile, records can be saved to an e-shelf, alerts can be set up (in our new version), and a search history is saved. Only one resource profile can be created, an odd situation when students are involved in a variety of subject areas.

Too much text, too many steps and you are making me choose!

Students did not want to read all the text we had placed on the opening screen. There were too many steps to take before initiating a search. Options were (and are) available that do not make sense before searching, such as a choice for Search Results before a search has been initiated. The product would be well served with a higher degree of contextual options. Using the MetaQuest opening screen, students were in as difficult a position as they were on the library's list of online databases when it came to resource selection. If a student saw a database called Francis, it meant little in both environments, as

students are generally unaware of the scope of resources available, do not recognize appropriate databases by title, and the interface does not make it easy to select an appropriate database. Currently, there are no wizards to guide students step-by-step. The process of selecting and adding titles to one's profile was rather cumbersome and for personalization to occur, the literature tells us, it must be easy to accomplish. The new release of MetaLib improves these situations considerably.

The lack of an immediate search option was a major drawback (happily addressed in the newer releases of MetaLib) when it is clear that students wanted to begin searching immediately. One of our goals was also to get students to use more resources and be exposed to a greater variety of research possibilities. This was not happening with our initial design, but is changing with our most recent implementation.

There were aspects of the interface that students liked and we carried over to the new release. Having the citation available with the brief results responded to their desire for as much information as possible up front. Local programming converted the title into a link to the full record. It is our sense that clicking on the title for more information is almost intuitive with students. Students did not complain about the limited search capabilities of MetaQuest. Remember, they generally do not investigate advanced search options. Students appreciated the integration of SFX linking software, though the terminology meant nothing to them. The Boston College Libraries have subsequently switched to using the phrase "Find It" and its use is growing. The combination of service and content that SFX promises, as well as reduced number of clicks, resonated with them. To date, the most noteworthy and popular enhancement in our new MetaLib release is the quick search function. Its popularity is connected to its simplicity and the user's desire to start searching immediately.

What is so special?

Another challenge was to justify using this resource when the library was also making available multiple databases from the same vendor and making them accessible via common interface(s). Were we sending an inconsistent message to the user? Clearly, having SFX available within MetaQuest was an

enticement, as was the ability to search different databases based on one's own needs, not on business models in the information market. This is an effective marketing approach when there are sufficient databases searchable via MetaQuest. This continues to be an area of some concern to the library, as some disciplines offer a richer variety of searchable titles. Students want the service and love the concept. They took issue with aspects of the application, but were clear in their support of the concept. Students readily admitted to not searching many databases and said they would broaden their choices if they could do the searches simultaneously. This is a situation that will only improve with time as more resources and approaches to searching resources via MetaQuest become available. Our success in marketing this resource to the Art History department at Boston College is directly related to the choice of resources that are searchable.

Dealing with the results

For the time being, MetaQuest results will continue to be a problem as students continue their searching ways. I find that students deal with change in the library very easily, but they do not necessarily change their searching style or behavior. When the Boston College Libraries did some usability testing on its Web site, we discovered that nearly all students who purchased their computers through Boston College retained the default home page that came with the system. The ability to merge large results and eliminate duplicates are big issues to be addressed. The different ways in which the full-text is displayed in MetaQuest can be confusing. Although not a MetaQuest issue, the different ways in which vendors allow you to link to their full-text creates extreme frustration for the user. For example, it is not possible to link directly to the article level from Factiva or Academic Universe, two heavily used resources in our environment.

Where do we go from here?

With our second release of MetaQuest we are beginning to realize more significantly the promise we hoped for when we began this work. The quick search feature is highly popular and

the inclusion of e-journals begins to break down format boundaries that do not interest the user. We are experimenting with new ways to search non-Z39.50 databases via imaginative search and link capability. There are some public services issues associated with this option, but it is an interesting development to monitor and makes available via MetaQuest some powerful and valuable databases. Usage statistics are now available and we will begin to get more than anecdotal information about system use. As mentioned earlier, we are experimenting with deep-linking into MetaQuest resources from other parts of the library Web site.

There is still a lot of work for us to do, beginning with further refining the integration of MetaQuest into our reference and instructional activities. The library staff is more willing to promote the resource, as they see it as a more useful tool for the user. The library is having internal discussions about the decision making process for electronic products. If we are committed to MetaQuest, then we need to support a process that makes its success possible, which means, for example, placing a high priority on databases being searchable via MetaQuest. We need to continue to provide quality and constructive feedback to the vendor, be involved with and stay abreast of industry activities, such as the NISO (National Information Standards Organization) Metasearch Initiative (www.niso.org). This initiative is designed to address the lack of widely supported standards, best practices, and tools that make the metasearch environment less efficient for the system provider, the content provider, and ultimately the end-user. In the words of NISO, "To move toward industry solutions NISO is sponsoring a Metasearch Initiative to enable: metasearch service providers to offer more effective and responsive services, content providers to deliver enhanced content and protect their intellectual property, libraries to deliver services that distinguish their services from Google and other free Web services."

Metasearch tools are a powerful response to many of the user searching issues discussed: the need for resource discovery and a starting place for research, the desire to limit one's time doing research, a resistance to learning a database's searching complexities, a reluctance to change habits and learn about new resources, and a

desire for the integration of services and content (SFX). It places today's librarian in the classic librarian role of reader's advisor, a role which clearly still has value in this day, with new challenges. Today's user might visit the physical library minimally, think of Google as the place to begin, limit the amount of time they are willing to spend on such endeavors, and never ask a reference question. If we can make progress in getting students to use a wider variety of resources, either via MetaQuest or through the native interface, the work will be worth it. We also need to begin to address how faculty might make best use of MetaQuest. Some of our early thoughts are that the inclusion of e-journals will be a benefit here along with the concept of managing one's resources. Many questions need to be asked and we need to listen closely to the user in order to design services and systems that meet their needs and keep them coming back.

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