

# How do you follow Google? Providing a High Quality Library Search Experience"

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### Problem statement:

The Ithaka report (Housewright & Schonfeld, 2008) describes clearly how the importance of the role of the library as a gateway for locating information has fallen over time. Library expenditure keep going up, but earlier explosive growth in usage statistics has stopped.

Helle Lauridsen, formerly head of electronic resources at the State and University Library in Aarhus, now European Marketing manager for Serials Solutions will discuss using personal experience as well as the latest research, how this process can be reversed through diligent attendance to usage patterns and statistics as well as rethinking the access to the library resources. (Lauridsen, 2005)

There is an ever widening value gap between expenditure and usage (Tenopir, Madrid 2009), if not usage patterns are closely monitored and acted upon large amount of money can be spent on "just in case material". Although usage statistics from content vendors are widely available, it is extremely challenging for libraries to assess the usage and cost of journals, databases, and vendors. But with Counter compliant statistics becoming standard, advanced tools now exist to meet the challenge and fine tune the collections to what is actually needed.

However, to get the true value from the library collections they have to be used and used extensively by all the library's intended users and right now doing research via the library can be complicated.

There are many steps involved. For starters, unlike internet searching, you need to know what to search; you need to choose between the library catalogue and one of a myriad of access points to federated search, databases, A-Z list etc. The process is confusing, clumsy, and slow while the experience of internet search sites such as Google is simple, easy, and fast. Even if researchers know that the library has the best resources and are aware that using Google bypasses valuable content, it is irresistibly easy and fast. Often convenience wins and thus the library gets bypassed and their valuable resources go undiscovered, unused, and underutilized. (Law, 2009)

To secure the library's role in the research process it needs to be a compelling starting place for research and to be as simple, easy and fast as Google. (law, 2008)

This paper seeks to examine the state of current research practices, the search tools and options that are available for academic researchers at all levels, and discusses the typical academic search experience, which often stands in stark contrast to the researcher's expectations. The significance of the disjunction between experience and expectation goes well beyond simple disappointment. Our research shows that this gap between what researchers need from the library and what they get drives compensatory research behaviors that exclude the library altogether.

We examine the differences between the library's physical and virtual presentations on campus, the need for new academic search tools that facilitate high quality search experiences, reveal relevant, timely research and restore the library's prominence among academic researchers at all levels.

### The State of Current Research Practices

For years ProQuest, under the leadership of John Law has been engaged in a significant examination of current research practices among academic researchers at all levels. We wanted to determine how researchers locate library content using the available search tools, and how effective their search methods are at discovering appropriate, relevant academic research.

We surveyed users' primary electronic research behaviors and observed first-hand student researchers as they conducted library research. Our observations spanned more than 60 90-minute

sessions at seven major universities, and included researchers from all academic levels, including novice researchers at the undergraduate level, more experienced researchers at the Master's and PhD levels, and faculty researchers.

Our observations took place in libraries, dorm rooms, offices, and in the subjects' homes. Using a specialized software client loaded onto the subject's computer, we recorded their research sessions for later evaluation. The subjects were aware that their research sessions were being recorded, but were unaware of our ProQuest affiliation.

Our research shows that the academic researcher confronts a variety of obstacles when conducting academic research. Even simple challenges can become insurmountable barriers to accessing quality academic research. Many students opt to research at home or in places other than the library. While they may understand that their institution has access to particular electronic resources, they may not understand that they can access these materials only by authenticating through a library proxy or by using other credentials supplied to authorize users.

Without having full access to the library's electronic resources, the research experience is quickly frustrated. Students may be presented with abstracts in place of full-text articles, or may have no apparent access to electronic resources that the library has paid handsomely for.

Navigating the complex and often directionless slew of electronic resources poses its own set of challenges that more often than not frustrate student research. The typical library search experience includes a start page that consists of links to electronic library resources. For the knowledgeable searcher, this approach may work, but the novice has no way to discern among the hundreds of links which of them will produce the most fruitful results. They readily fall back on known brands or search products that are inappropriate for the task, even when highly specialized, subject-specific resources are readily available. (Law, 2008; Law, 2009)

### **The Tools Available to Today's Academic Researcher**

When we examine the available library search resources, it is easy to see why searchers are so easily frustrated. Library patrons use one of four main resources to discover and access the library's resources: the physical card catalog; the library's electronic resources search page; federated search tools and Google or Google Scholar.

Most students enter the library with at least a basic familiarity of the library catalogue. Within the modern library, however, the library catalogue identifies only a fraction of the library's holdings, that is it identifies the book and journal titles in the library. The importance of the use of the library catalogue is rapidly diminishing (Housewright & Schonfeld, 2008)

When we shift our focus to the electronic resources available in the library, we see hundreds or even thousands of electronic resources that are delivered by different vendors on different platforms. Each resource has its own query structure, descriptors and presentation. The electronic resources have no overall organization, provide for little consistency in their use, and the uninformed researcher has little chance of discovering the most appropriate resources, unless a more knowledgeable person explicitly directs him or her to them.

While a federated search approach offers solutions to some of these challenges, it introduces new issues that can complicate the search and discovery process. Federated search enables a user to post a search query to a number of electronic resources simultaneously. Federated search offers the potential of searching many electronic resources at once, using common search criteria.

This may increase the apparent efficiency of the search process, and aid in the discovery of new resources, but federated searches also take a long time. Each electronic resource is structured independently, and each search query must be formulated to meet the requirements of each resource. When results are returned, the federated search mechanism has little opportunity to order the results according to relevance. There is no guarantee that the most relevant resources will end up at the top of the search results.

As a fallback, many researchers turn to Google or Google Scholar to help them discover relevant resources. The Google interface is familiar, exquisitely simple, and after a protracted struggle with the library's electronic resources, it may seem rather enticing. What could be easier than a single search box and just two buttons, either of which will produce search results. The catch? The search does not cover more than a fraction of the library's resources and often lead to dead ends and "impossible to get" material

Our research showed that 71 percent of our respondents would be highly likely or very likely start their research with a search tool that returned more credible search results than Google. An even greater number – 72.9 percent would likely choose a starting tool that provided more relevant resources than Google, and 71 percent of respondents would choose a starting tool that enabled them to narrow their search results to only those resources that offered full text viewing. Clearly, the desire among academic researchers is exceptionally high for credible, relevant results that can be refined to show only full-text resources. (Law, 2008)

### **The Student Search Experience**

However, upon entering the library's website home page, researchers enter the bewildering maze of electronic databases, journals, periodicals and scholarly works. They often respond by trying the first search box they encounter, typically the library catalog. Realizing this represents largely only the items on the shelf in the library, they may explore among the hundreds of links of databases and A-Z journal title lists listed on the library's electronic resource page, hoping to encounter a viable tool.

If their perusal of e-resources identifies no immediately relevant resources, academic researchers will opt for the library resources they're most familiar with. Many researchers are unaware that search products are largely specialized, and will use a single resource for a wide variety of search tasks (Sandberg Madsen & Søndergård, 2005). Ironically, even these misguided search efforts that rely on inappropriate resources often yield a better overall experience than a general Internet search would.

Our observational research demonstrated that while a Google search may produce one or two viable research references over a 90-minute research session, using a library database – even one that was inappropriate for the subject matter being researched – virtually always produced a number of viable resources. Although the best, most relevant resources may remain obscure for the novice researcher, there is at least some reward in choosing the library's academic search tools over a general search tool like Google.

When time is a factor, or the student has little confidence in identifying the right resources for the research task, the student researcher increasingly opts out to Google. Google becomes the de facto search choice, not because its content is better than what the library offers, but because the content is so much more accessible than that available via the library.

### **What Do Student Users Expect From Academic Research Tools?**

It is easy to see why the student research experience is frustrating, and why students are increasingly opting out of the library altogether in favor of content that is held in lesser regard. The expedience of Google searching can't be ignored. Speed and other characteristics of a Google search give rise to user expectations when it comes to their academic search experiences.

Researchers want to replicate the Google experience in academic searching, but the experience has to be, in a word, better. Simplicity is high on the student's list of expectations. Google's intuitive and uncluttered search interface makes the search inviting and easy.

Ease of use is expected, but getting highly relevant search results from disparate resources are also exceptionally important. Google's ranked search results attempt to provide this, but the academic researcher also needs a way to reduce the search results to only those resources that are the most promising in light of the researcher's topic. Academic research requires sophisticated capabilities for refining the search, user options for quickly narrowing search results to reveal only the most pertinent research.

Speed is an important factor in meeting researcher expectations. Federated searches can take anywhere from 15 to 90 seconds to return search results in contrast to Google, which produces results in just tenths of a second. Slower performance simply isn't acceptable to today's researchers.

Full-text capabilities are a must. Academic researchers expect to have access to the full text of articles, journals and other published works. Without full text access, there's little point in even looking at the resource. Academic researchers, especially those at the novice level, may be unaware that the library has purchased full-text access to its electronic holdings. While library workstations remain authenticated to the resources, remote users may have to access the resource through the library's proxy server. Therein lies the problem. Users may be unaware of their need to authenticate through the library to access the resource, or the steps required to authenticate.

In many ways, the Google experience has set a high bar for user search expectations. Making the library's electronic resources truly usable goes well beyond helping students navigate the links page,

or even determining the correct resources to use for a particular type of search. Better navigation, although helpful, will not resolve the problem.

### **How Well Does the Library Address Student Expectations?**

Research published in August 2008 by Ithaka (Housewright & Schonfeld, 2008) shows that the perception of the academic library is changing rapidly among its constituent users, and while the institution is still viewed favorably among researchers, the library is seen as less relevant to the research process today than it has been traditionally, and most users along a broad spectrum of disciplines believe the library will continue to decline in relevance in the coming years.

The research, initially collected in 2006, postulated that the library played three major roles: purchaser, archive and gateway. While librarians found the gateway role of libraries to be among its most important functions, researchers in disciplines across the board found the library's gateway role to be in decline. Less than 40% of the library's most ardent supporters expect to rely on the library significantly for information access in the next five years.

The Ithaka report indicates that the decline in the library's gateway role may be due, in part, to a growing lack of awareness of the library's role in providing access to electronic resources, and the growing ability to access the library's electronic resources from remote locations. One telling component of the Ithaka research shows that faculty researchers in 2006 were less likely to start their research in the library building or by using the library's online catalog than they were in 2003, and were more likely to start their research using a general Internet search tool like Google or a specialized research resource.

### **The Library's Online Presence**

Higher education institutions are spending tens of millions of dollars to construct, remodel and rehabilitate their library buildings. This has secured the library's role as place with students frequenting the library to meet for class projects, to study, to check email. In *Studying Students: The Undergraduate Research Project at the University of Rochester*, (Foster & Gibbons, 2008) Nancy Fried Foster and Susan Gibbons discovered that students' ideal library designs would be flexible, comfortable, technologically advanced and staffed with knowledgeable support personnel. Much has been made of the report as it relates to the brick-and-mortar design of the physical library facility. However, investments in the library building do little to impact the library's role in the research process.

Student and faculty researchers primarily conduct their research online, and indicate that they expect to rely more heavily on remote access to electronic library resources in the next five years. And yet, ironically, nothing comparing to this level of investment is being made to improve the library's online presence, even though the number of researchers and the volume of research may increase substantially in the next five years. According to the Ithaka report, transformational changes within research disciplines are likely to happen quietly as tools and technologies improve. Those tools that enable researchers to work more effectively will be adopted rapidly, albeit quietly. According to the authors, libraries can wait for the tools to emerge – perhaps outside of the library – or libraries can help drive the development of tools that will enhance their role in academic research.

Researchers have already shown that they will turn to non-library resources to conduct their academic searches. This trend could spell real trouble for libraries that are unprepared to deal with the researchers who expect a high-quality online research experience. Without search tools that offer simple, clear, fast and relevant results that reflect the library's entire collection, the library risks exclusion from the academic research process, except as the business unit that pays for access to electronic resources. Even in this limited role, few researchers recognize that libraries pay to provide "free" access to their vast collection of electronic resources for their user community. (Inger & Gardner, 2008)

### **The Need for New Academic Search Tools**

It is very clear that the library's struggle to remain relevant to the research process depends upon its ability to improve the academic user's search experience and recognizes the library's role in academic research. If the library's gateway role is to be preserved, the library must be able to provide a search experience that rivals that of Google but does a better job of supporting scholarly research and reveals the strength and depth of the library's entire collection. The highest priorities should be placed on finding search tools that promote the easy discovery, access and full use of the library's electronic resources. In addition, libraries must be prepared to provide tools that improve the research

workflow...the efficiency of user searches, the relevancy-ranked quality of search results, and the ease with which information can be located.

Of equal importance to the library's position is the promotion of information literacy. Researchers must be able to recognize the fitness of the search tools they use with regard to the research tasks they're performing, the substance and relevance of the research materials, and the ability to navigate the corpus of library resources. By providing simple, refinable, rapid search tools that expose the library's entire collection, and by characterizing the search results of disparate academic resources according to relevance, the library can expose its full portfolio of research materials and at the same time increase the information literacy of the population it serves. In this way, the researcher who begins at the library (online) can be guaranteed a research experience that rivals Google in the desirable characteristics of speed, simplicity, completeness and relevance, while providing seamless access to the most current, highest-quality and most trustworthy academic resources available.

Our focus group research conducted among academic librarians indicated that librarians believe that more robust discovery tools will position them to perform higher-level work within the library, specifically helping students and faculty perform highly refined searches. In addition, they believe that stronger search tools will allow them to assist new and experienced researchers develop better information literacy skills, better search skills and become more aware of the library's full collection. Rather than posing a threat to the traditional role of the librarian, capable discovery tools would provide a welcomed enhancement to the library environment.

Our focus group participants defined "capable" as tools that would access the largest number of content databases, making access to content as easy as possible, the ability to refine searches by content availability within the library's collection, and the ability to customize the tools' operation through the use of open platform technology.

Our research confirmed that librarians want tools that can help users locate content independently within the library's collection. Also important is finding ways to reduce the amount of time it takes researchers to locate relevant content. Similarly, librarians wanted tools that were easy to teach and use, and that would assist the library staff in helping patrons improve their literacy skills.

The ideal academic search experience will expose the library's complete collection of traditional and electronic content. Without it, the library's content goes significantly underutilized. With it, the ROI in collections will substantially increase. Only by making the entirety of the collection accessible via a discovery layer can the library guarantee comprehensive search results. Moreover, the ideal search experience will support the discovery of sophisticated research portals, and enhance the searcher's knowledge of appropriate location tools and information sources.

### **Moving Toward a Unified Search Experience in Academic Libraries**

The ability of researchers to access the library's content is not simply a convenience, but rather, a necessity if the academic library is to preserve and enhance its role as an information gateway for current and future generations of academic researchers.

On the basis of the ProQuest research project mentioned above SerialsSolutions (which is a subsidiary of ProQuest) and ProQuest have developed a unified search service Summon.

In January 2009 Summon was beta launched at American Libraries Associations Midwinter conference in Denver.

Summon aims to gather all materials in a library's collection for searching, including the library catalog, e-journals, databases, institutional repositories, and digital library collections. Unlike federated search systems, it will search preharvested indexes of content with weighting applied to aid relevance ranking. (Tenopir, 2009)

It right away received very positive feedback (Hadro, 2009)as even the early beta version with "only" 300,000,000 articles & 70,000 publications was lightening fast and very simple to use, one of the comments came from

*"I have seen the future of how libraries will provide access to information, resources, and collections. It's called "Summon" by Serial Solutions and it can become equally important as Google in everyone's everyday information seeking and use."*

- Michael Eisenberg, Dean Emeritus & Professor, University of Washington, Information School

Summon is at present being Beta tested at 7 universities, 4 in the US, and extensive usability tests are taken place in cooperation with the librarians and users at the partner sites. So far the feedback has been positive, and we can share some preliminary results to share from the Dartmouth user study. Students were recruited students to participate in this ethnographic/observational pre-open beta study to provide valuable user feedback. Some of the findings include:

1. Users were impressed/delighted with the speed
2. Most students readily found relevant search results meeting their research needs
3. The preview pane displaying abstracts was very popular but the magnifying glass icon to locate it was not readily discovered
4. Users would like to see more Google-like options in advanced search

More content is being loaded daily as well as more and more publishers sign on to provide a full range of content.

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