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Article Discovery Working Group Final Report

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University of Michigan Library
Article Discovery Working Group
Final Report

The Article Discovery Working Group [ADWG] evaluated Search Tools, Google Scholar, and Summon. We analyzed personas to help us understand the article discovery needs of our users, gave our own expert reviews of the three systems, and conducted a broad survey of the University of Michigan community to evaluate our user's sense of the relative importance of particular functions and features. A summary of our findings is given here; see the full report for detailed explanations:

- Based on over 900 responses to our survey, there is broad interest in article discovery and improving our current tools to accomplish respondents' paramount goals of finding the most relevant and useful content and saving time.

- Web-Scale Discovery Tools provide far more of our respondents' top-rated article search features than does Search Tools or Google Scholar.

- Summon, as the only web-scale discovery tool on the market, has the first-mover advantage and is the ADWG's strong recommendation to use as the library's default discovery environment.

- Summon opens up expanded possibilities for integrating articles into browse pages, research guides, and CTools; some of the possibilities could be achieved, albeit less efficiently, with the tools we have on hand.

Submitted January 29, 2010, by the Article Discovery Working Group:
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Permanent URL for this report: http://www.lib.umich.edu/files/adwg/final-report.pdf

See also the supplement: http://www.lib.umich.edu/files/adwg/supplement.pdf

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Introduction

The Article Discovery Working Group was "charged to undertake a comparison of Search Tools, Google Scholar and Summon to explore the possibility of offering an alternative to Search Tools as the primary gateway for finding journal articles." The group was given three main objectives (see Appendix 1 for the full charge and committee membership):

- Engage a broad spectrum of University Library users in the evaluation and planning process;

- Explore the feasibility of using one or more of these tools with strategies that augment that information with resources exclusively available through Search Tools (cf. current development work in Web Systems on 'project lefty');[1]

- Present to the Library Dean's Group recommendations on both a primary strategy for the Library's web gateway and strategies that incorporate the best of Search Tools in areas such as subject guides or mechanisms for more advanced users.

Although different library users approach academic research in very different ways, recent studies suggest that even for non-expert users, scholarly databases are among the most-used[2] and valued library resources; even more than the library catalog.

These same studies, however, report a significant level of frustration when navigating library portals to get to the full text of scholarly journal articles. Confusing and badly designed portals, slow federated search engines, and "silos" can make for a negative user experience.

Not surprisingly, users expect and demand the same ease of use that they experience on freely available websites such as Google or Amazon.com. Library users express that they want to find current, reliable, and pertinent scholarly information quickly and consistently through a simple search box interface. Academic libraries face the challenge of providing the tools users expect or having them turn instead to Google or Wikipedia.

Initially, federated search was seen as an answer to this challenge. Federated search engines, such as MLibrary's Search Tools (MetaLib from Ex Libris, http://searchtools.lib.umich.edu), pass an initial query to multiple databases and compile the results in a single list. In theory, users only have to deal with one interface with one search box to get to a single list of results.

In reality, the problems have outweighed the benefits. Because these tools are searching a number of different databases in real time and then de-duping and combining results, they can be very slow. Other issues include flawed relevance ranking, inflexible database options, limited

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[1] See "Project Lefty: More Bang for the Search Query," *Computers in Libraries*, April 2010. http://www.infotoday.com/cilmag/apr10/Varnum.shtml

[2] Head A.J., and Eisenberg M.B. Lessons Learned: How College Students Seek Information in the Digital Age. The Information School, University of Washington, 2009. Web.

Head, Alison J. "Information Literacy from the Trenches: How do Humanities and Social Science Majors Conduct Academic Research?" College & Research Libraries 69.5 (2008): p. 427. Print.

use of subject specific terms, and confusing interfaces. The speed of response remains the major roadblock as more users expect Google-like response times.

The main challenge to meeting this emerging user expectation has been the lack of cooperation and coordination among journal producers. In the past 12-18 months, content providers and abstracting/indexing services have begun to change their business model, enabling (in Marshall Breeding's term) "web-scale discovery services." (Several consortia reached agreements with publishers, notably Scholars' Portal in Ontario, which achieve similar goals.)

This new class of tool avoids the pitfalls of federated search as used in most academic libraries. Examples of this class of tool include Google Scholar and Serials Solutions Summon. These search engines pre-index metadata or even full-text documents from various sources such as the library catalog, subscription journal databases, and digitized collections.

Approach

The Article Discovery Working Group took a three-step approach toward addressing our charge. We first adapted a set of personas to help us understand the broad categories of article discovery users within our community. We then undertook a comparative study of Search Tools, Google Scholar, and Summon. Finally, we conducted a broad survey to understand which article discovery features are most important to the University of Michigan community.

Persona Analysis

We began with an exploration of personas to help us understand and model groups of potential users of article discovery tools based on real user data. We borrowed heavily from work done at other institutions, particularly Johns Hopkins University, in understanding the goals and needs of a variety of campus community members as they relate to article discovery.

We consulted a discovery tool user research study conducted by Johns Hopkins University to understand more about discovery needs across a variety of user types and lay a solid foundation for our evaluation and recommendation process. The Johns Hopkins University user study[3] was done to create data-driven personas to guide their own discovery tool selection and implementation. Interviews with 78 diverse Johns Hopkins University affiliates were completed in the spring of 2008. After analyzing the data and grouping common behaviors, goals and context of interviewees, the research team synthesized six user archetypes, or, personas:

- **Joan**, Staff Researcher in the Applied Physics Lab
- **Donald**, Associate Professor in the Business School
- **Candace**, Graduate Student in Musicology
- **Ryan**, Undergraduate Student in Political Science
- **Anthony**, Professor in Biomedical Engineering
- **Asha**, Undergraduate Student in English

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[3] Report at https://wiki.library.jhu.edu/x/IHg. Poster on the project at http://bit.ly/2waVux.

It is important to note that even though the personas are distributed amongst academic demographics, a persona does not represent that demographic. For example, Asha does not represent all undergraduate students in the humanities. Rather, a persona represents common goals, needs and behavior patterns that may likely be found across demographics.

We analyzed the six personas looking for regular discovery tasks that they were performing, the goals and attitudes driving these tasks and needs of a discovery tool that would support these goals and tasks. We grouped together goals shared by multiple personas to see the most common goals and corresponding needs of the personas. Some of the most common goals included:

- Use the most relevant and useful content
- Save time
- Ensure use of quality content from reputable sources
- Use reliable, trustworthy and familiar sources

Different personas often expressed different needs to fulfill a common goal. For example, to find and use the most relevant and useful articles, Joan needs recommendations and reviews from colleagues and other scientists whereas Anthony needs advanced search features such as limiters, filters, fielded searching and classification schema. Understanding the various needs of different users in accomplishing similar goals laid the foundation for us to make data-driven decisions on what features to consider in comparing discovery tools. See Appendix 2 for our full persona-based needs analysis.

Review Matrix

Based on this persona analysis, we created a set of features that individuals who are seeking articles through a library tool would find important. In our review matrix, we used this feature set to rank the three tools specifically mentioned in our charge (Search Tools, Google Scholar, and Summon).

To increase the evaluative utility of the user personas, the committee distilled the goals implicit in the personas into a list of concrete features and tasks that could serve as a basis for the comparison and evaluation of the article discovery tools. This process generated a list of 44 features and tasks, which became the criteria we used to evaluate the individual tools. To start the evaluation process, each committee member ran objective searches in the tools to determine whether the features were present and the tasks could be completed. The resulting data was compiled in a Review Matrix (see Appendix 3), with the features and tasks grouped relationally, into conceptual families. When there were disagreements in interpreting the available data, the group discussed until a consensus was reached. The consensus statements for each feature and task can be found in the 'Conclusions' column of the review matrix.

User Survey

After ranking the tools as a group, we incorporated user data from the UM community through use of an online survey. The goal of the user survey was to help us prioritize the feature set we

were using to rank various discovery tools so we could best reflect the preferences of our users in making a recommendation. See Appendix 4 for the full survey.

We conducted an online survey through Qualtrics. While the review matrix we developed was comprehensive, the 44 characteristics it embodied were far too many to include in a user survey. Many of the characteristics were items only a librarian would consider, and we wanted the user survey to focus narrowly on end-user needs. Therefore, we consolidated the items from the review matrix into 12 common user behaviors in two broad areas:

Searching

- I can find articles from the top journals in my subject area.

- I can perform advanced searches (options are available to search in multiple fields at the same time like year, author, title, keyword).

- My search results lists both relevant books and useful journal articles.

- I can limit my search so I only get articles from scholarly (peer-reviewed) journals.

- I can get articles from multiple databases with one search, and know which databases the results are coming from.

- I can easily find other topics and articles related to my original search.

- I can easily narrow down my search results by clicking on different links (such as year or subject).

Working with Search Results

- I can get to the full text of an article in one mouse click.

- I can save a search so I can go back and see new items.

- I can use it from my smart phone (or other mobile device).

- I can easily save and share citations of articles I find.

- I can export citations into citation management tools like RefWorks, EndNote, or Zotero.

The survey asked users to rate the importance of the 12 features, each with 5 choices ranging from "Not at all important" to "Very Important" (1-5 scale). We included a sixth "I don't know what this is" option in case users taking the survey had not encountered a specific feature we asked about. We also asked users to identify their status at the university, their primary affiliation, and describe their experience using library resources. We provided two open-ended questions, whose responses are not fully analyzed here.

After creating and editing the survey ourselves, we consulted the library's Usability Group for suggestions to make the survey more user-friendly. The survey was also shared with the Library Web Team for its members' input.

We distributed the survey in several ways. A link to the survey was posted as a news item on the library's Gateway page. A link was also added to the central section of the library website's footer, so it appeared on every library web page. We also targeted our users directly by sending

an email to all University Library subject specialists requesting that they individually forward the invitation to participate in the survey to their liaison departments. We made special effort mid-survey to publicize the survey among the medical campus community when we recognized that the survey was drawing a disproportionately small response rate from that important section of campus.

In addition, we made print copies of the survey and administered them in person to a small number of selected users with whom we conducted brief face-to-face interviews afterward, asking them to elaborate on their survey responses and their habits and preferences with regard to article discovery. We took notes during these interviews that we compiled to give us a clearer picture of how users interpreted the survey, and to make sure that we had some verbatim comments from users to evaluate (since we were unsure how many users would provide optional written comments via the online survey—though in the end, hundreds of the online survey respondents did make written comments). After conducting these in-person surveys, we entered the responses into the online survey ourselves so they would be included in the overall tabulation of results.

The survey was open to acquire responses for approximately 10 days. We received a total 974 responses, 904 of which included answers to every question. See Tables 1 and 2 below for respondent breakdowns by affiliation and status, respectively.

A few notes about the survey data:

- After the survey was distributed, we discovered that a few central campus schools (Public Policy and Kinesiology) were accidentally omitted from the list of affiliations. We amended the survey in progress and also specified we were interested in the respondent's primary affiliation, so that those with several campus affiliations would know which we were most interested in.

- While we considered the School of Nursing to be part of the "UMHS, Pharmacy, Dentistry, or Public Health" cluster, we did not say so explicitly. Many School of Nursing respondents wrote in their affiliation in the "Other" category; these represent the overwhelming majority of "Other" responses.

- At the end of the survey, we edited a number of answers so their affiliation was correctly identified instead of being in the "other" category. Some of those who answered "other" took the survey before we added additional answers (see above bullet), and others mistakenly thought their school was not listed as an option. Making this minor change ensured that our results would better reflect the reality of the survey responses.
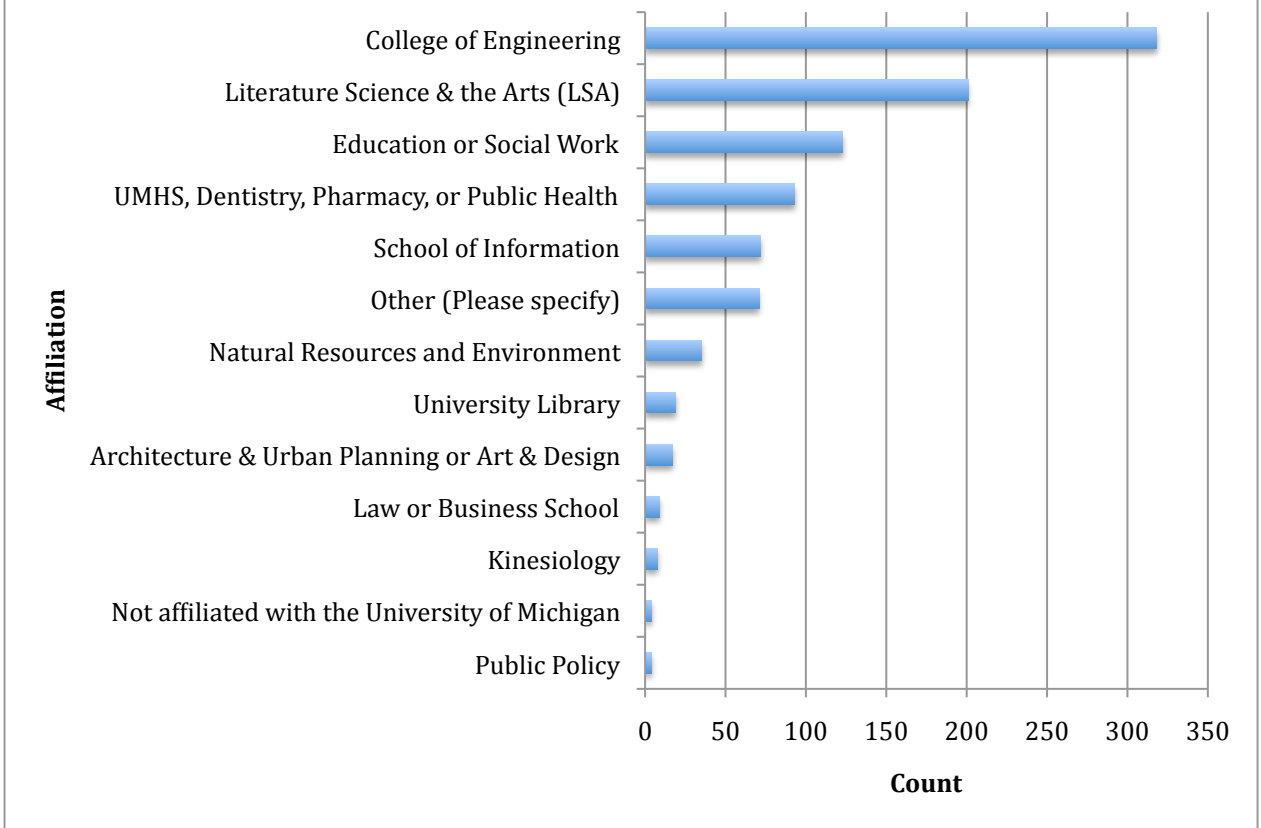
Survey Respondent Affiliations

Affiliation	Count
College of Engineering	~320
Literature Science & the Arts (LSA)	~195
Education or Social Work	~120
UMHS, Dentistry, Pharmacy, or Public Health	~90
School of Information	~72
Other (Please specify)	~70
Natural Resources and Environment	~38
University Library	~22
Architecture & Urban Planning or Art & Design	~20
Law or Business School	~12
Kinesiology	~10
Not affiliated with the University of Michigan	~6
Public Policy	~6

Table 1. Distribution of survey respondents by affiliation (974 total respondents)

Survey Respondent Campus Status

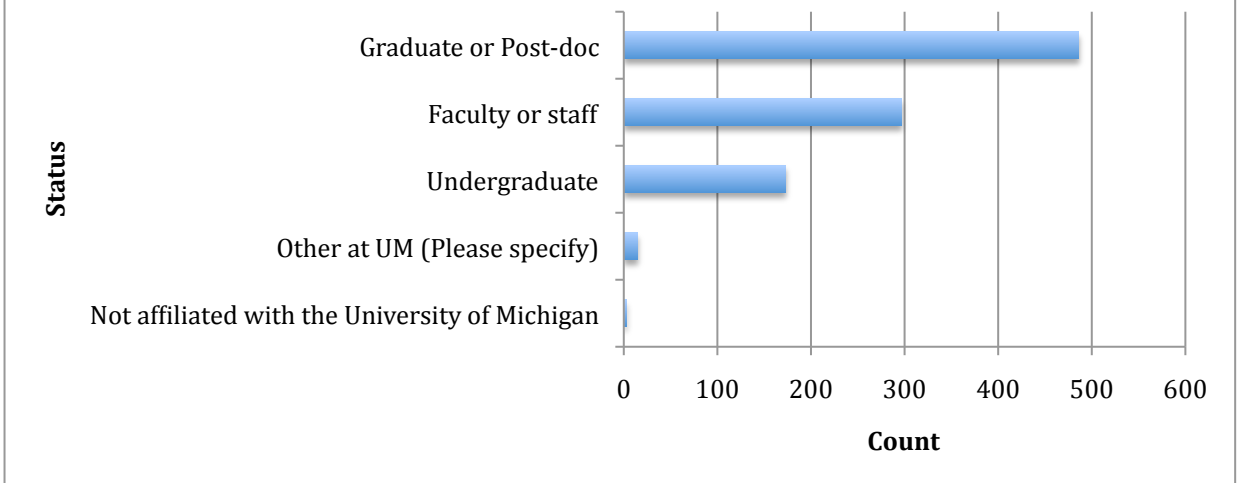| Status	Count
Graduate or Post-doc	~485
Faculty or staff	~300
Undergraduate	~175
Other at UM (Please specify)	~12
Not affiliated with the University of Michigan	~4

Table 2. Distribution of survey respondents by campus status (974 total respondents)

Discussion of Survey Results

With over 900 responses (depending on the question) to our survey coming from a wide variety of people within the University community, it is clear that campus members have a strong interest and, in some cases, strong opinions, in the area of article discovery. The survey results show us the article discovery features respondents find most important as well as differences in these preferences amongst various user groups. Graph 1 on the following page reveals the overall, undergraduate student, graduate student and post-doc as well as faculty and staff preferences of all 12 features we asked about, sorted by the overall average importance rating.
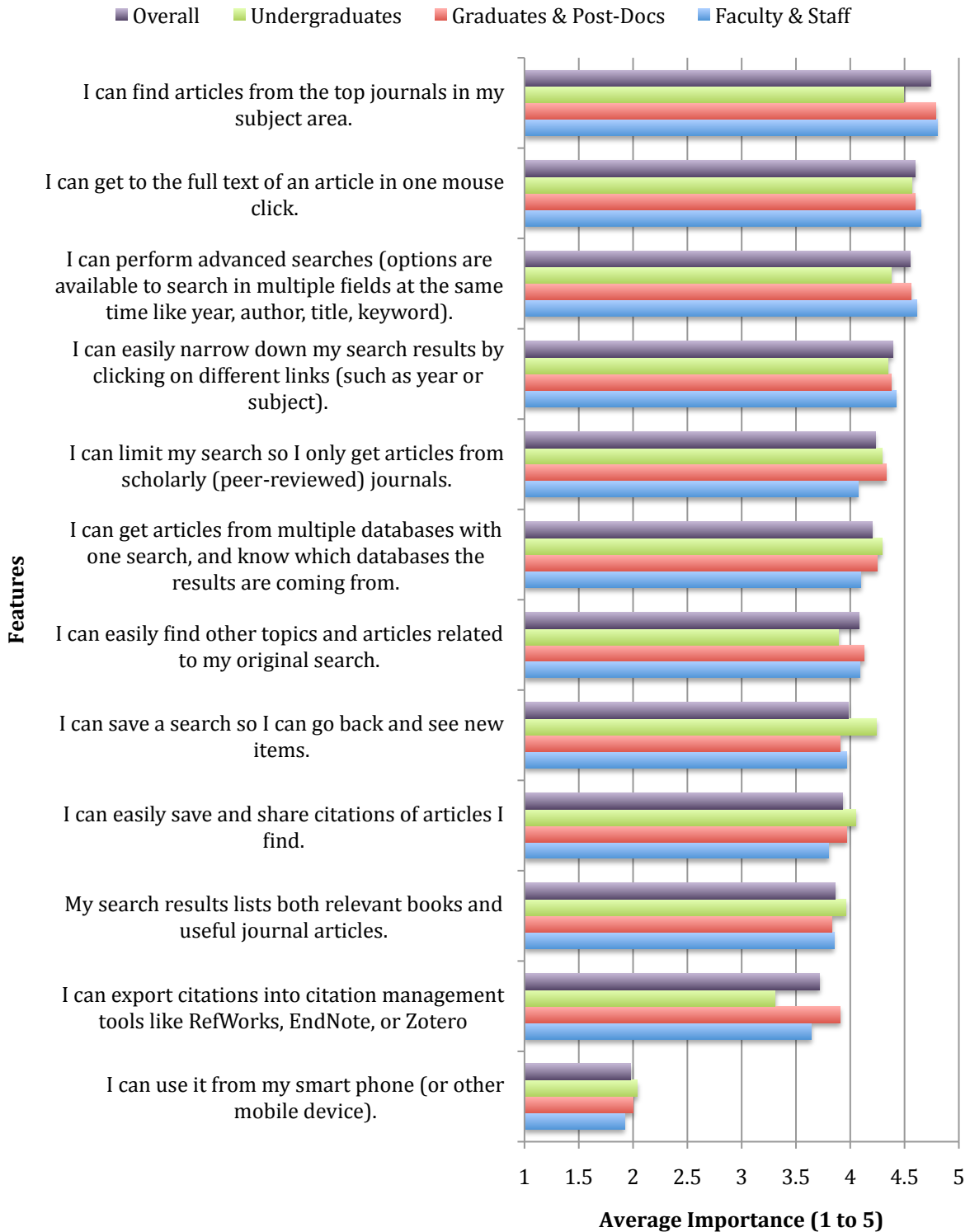
As we can see from the little variations in rating features across user groups in Graph 1 (following page), there is general agreement in discovery tool feature preferences between our three major user groups. Graph 1 also highlights the fact that a majority of these features are at least important, if not very important. The top seven features are rated above a four, or, "important." One respondent left the comment, "Please Make This!" in response to the open-ended question at the end of the survey, hinting that the user would like a tool that can do everything that we asked about.

Overall, the top five most important features are:

1. I can find articles from the top journals in my subject area. (4.74 overall)
2. I can get to the full text of an article in one mouse click. (4.60 overall)
3. I can perform advanced searches (options are available to search in multiple fields at the same time like year, author, title, keyword). (4.55 overall)
4. I can easily narrow down my search results by clicking on different links (such as year or subject). (4.39 overall)
5. I can limit my search so I only get articles from scholarly (peer-reviewed) journals. (4.23 overall)

Highly rated features hint at the higher-level goals of finding relevant and useful content and saving time that we saw in our persona-based needs analysis and that we have seen throughout research in this area. Content quality is king for most respondents with features such as finding articles from the top journals in my subject area, using advanced search options and being able to narrow or filter results easily scoring very high for all user groups. Saving time by getting access to full text of an article in one mouse click was rated second for all user groups except undergraduate students who rated this the most important feature of an article discovery tool. Undergraduate students also showed a special interest in saving searches as well as saving and sharing citations in comparison to the other user groups. Graduate students and post-docs showed a much higher interest in exporting citations to citation management software in comparison to the other user groups.

Discovery Tool Feature Preferences

■ Overall   ■ Undergraduates   ■ Graduates & Post-Docs   ■ Faculty & Staff

Features

- I can find articles from the top journals in my subject area.
- I can get to the full text of an article in one mouse click.
- I can perform advanced searches (options are available to search in multiple fields at the same time like year, author, title, keyword).
- I can easily narrow down my search results by clicking on different links (such as year or subject).
- I can limit my search so I only get articles from scholarly (peer-reviewed) journals.
- I can get articles from multiple databases with one search, and know which databases the results are coming from.
- I can easily find other topics and articles related to my original search.
- I can save a search so I can go back and see new items.
- I can easily save and share citations of articles I find.
- My search results lists both relevant books and useful journal articles.
- I can export citations into citation management tools like RefWorks, EndNote, or Zotero
- I can use it from my smart phone (or other mobile device).

Average Importance (1 to 5)

1   1.5   2   2.5   3   3.5   4   4.5   5

Graph 1. Discovery tool feature preferences overall and for major user groups (900+ respondents)

In general, knowing the specific database the article citation came from was less important (overall rating of 4.20) for users than knowing the journal itself. During the in-person interviews, however, we realized that this question was confusing and does not provide conclusive evidence. We asked users to place an importance ranking on the statement, "I can get articles from multiple databases with one search, and know which databases the results are coming from." We intended to learn how much users care about the database a particular hit comes from. Upon questioning several of our interviewees, it was clear that some of them ranked the statement as "very important" because they wanted to search multiple databases but they did not care which database the journal came from – they wanted the source to be reputable, but were not concerned with the specific source. While this question may not have been as precise as intended, from our in-person interviews we understand that users do not necessarily care where an article came from as long as the tool they are using is searching the top journals in their field.

The three least important features were:

1. I can use it from my smart phone (or other mobile device). (1.98 overall)
2. I can export citations into citation management tools like RefWorks, EndNote, or Zotero. (3.72 overall)
3. My search results lists both relevant books and useful journal articles. (3.86 overall)

An interesting, unexpected, finding is that only a small portion of the respondents thought that the feature "I can use it from my smart phone (or other mobile device)" was important. The majority stated that it is "Not at all important" and the average of the responses was 1.98 out of 5. Through our in-person interviews, we surmise that most users either do not have smart phones or do not conduct article research through that mechanism. We further believe that the phrase "article research" may have excluded, in some user's minds, a quick look-up of a citation, as opposed to conducting a major research project.

The responses to the two open-ended questions were also informative. The first asked, "What online resources do you most frequently use to find journal articles?" We received 883 responses to this question, many listing multiple resources. The most common starting points identified by respondents (in descending order) were various Google products (web, book, and scholar) with over 300 responses; Medline, PubMed, MedSearch, etc., with about 170; JSTOR with slightly more than 100; Mirlyn with slightly fewer than 100[4]; ISI with 52, and Search Tools with 43.

The second open-ended question asked simply, "Do you have any other comments or suggestions about what is important to you in an article search tool?" Some responses were directly germane to the survey; see Appendix 5 for a sampling. Others ranged broadly from the specific question we asked. Further analysis is needed and the Article Discovery Working Group will share these responses with the Web Team and the Usability Group.

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[4] Because Mirlyn, the library's OPAC, is not a tool that provides article-level research, we are somewhat puzzled by the frequency of this response. However, based on surveys conducted by the Web Team, we recognize that many users conflate "Mirlyn" and "the library website."

Discovery Tool Ranking

Using the discovery tool feature preferences of our survey respondents along with the discovery tool feature analysis in our review matrix, we were able to rank the three discovery tools. Our survey results tell us what features users prefer most. Broadly speaking, survey respondents supported our initial persona-based needs analysis. Features ranked as most important allow users to meet goals of finding the most relevant and useful content and saving time. Table 3 below summarizes our discovery tool comparison based on our review matrix and the top five most important features for survey respondents.

Goal	Feature	Summon	Search Tools	Google Scholar
Find useful and relevant content	I can find articles from the top journals in my subject area	●	●	?
Save time	I can get to the full text of an article in one mouse click	●	●	●
Find useful and relevant content	I can perform advanced searches (options are available to search in multiple fields at the same time like year, author, title, keyword)	●	◉	◉
Find useful and relevant content	I can easily narrow down my search results by clicking on different links (such as year or subject)	●	◉	○
Find useful and relevant content	I can limit my search so I only get articles from scholarly (peer-reviewed) journals	●	○	○
	● Full Support ◉ Partial Support ○ No Support ? Uncertain			

Table 3. Comparison of discovery tools based on top five features

The top five most important discovery tool features are all fully supported by Summon. Search Tools follows in capabilities our users are looking for and Google Scholar comes in last.

Google Scholar, in some ways, combines the worst of Search Tools with next-generation discovery. While it was the most frequently identified resource in the user survey for starting research, it does not, as we discovered during our evaluation of it in the review matrix, provide many of the functions and features available in Search Tools and Summon. For example, it is not customizable, so would not be able to be flexibly integrated into the current University Library website and adapted to its features (such as MTagger). Moreover, it does not allow for emailing results, texting citations to mobile devices, or limiting searches to items available in a particular library. While it can excel at known-item searching, it does not suggest related topics based on user queries. Furthermore, Google has no particular motivation to ensure accuracy of

metadata or accuracy of content.[5] Google Scholar does not provide any list of covered journals or databases, making it very difficult to know what is available relative to a library's holdings. The popularity of Google search engines among our users as tools for article discovery appears to be more of a testament to how strong their preference is for the interface advantages of a web-scale discovery service (speed, full text searchability, one-click access to full text, etc.) than it is for how well Google products meet their overall article discovery preferences and needs.

Recommendations

We recommend that the library pursue web-scale article discovery. Based on our user survey, and the phenomenal response rate, it is clear that our users are passionate about article search and want improvements in the short term.

We offer specific recommendations in two areas: Strategic Direction and Getting More from Article Search.

Strategic Direction

In this section, we focus on implementing a new article discovery environment. In the following section, we discuss ways the library could improve article discovery, with or without a web-scale discovery tool.

1. Web Scale Discovery is the recommended path. We could integrate a web-scale discovery tool into the 'articles' section of the site, so that it would become the default article discovery tool for most users. Search Tools would remain a special-purpose research tool for advanced researchers.
2. The new article discovery environment needs an identity. This could be as simple as "MLibrary Article Search" or be a completely new name.
3. Article Search needs to be at a parallel level of prominence to Mirlyn/Catalog in navigation.
4. Search Tools will need to stay in service for a while because it acts as the inventory management system for our databases and because it, unlike any of the web-scale discovery tools of which we are aware, allows for searching of specific databases (see the next section, "Getting More from Article Search," for a discussion of why this is important to preserve). Its lifespan is not unlimited, but these functionalities will need to be replicated in other systems before we can pull the plug.
5. The library will need to adapt its bibliographic instruction to research that is not database-specific, but is centered more on the evaluation of sources.

Getting More from Article Search

Even without adopting a next-generation article discovery tool, the library could more efficiently connect library users with article data. We present a number of approaches (characterized as

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[5] Péter Jascó, Professor of Information and Computer Science at the University of Hawai'i Manoa, has published extensively on the problems of Google Scholar's automated citation derivation methods. See his list of publications at http://www2.hawaii.edu/~jacso/extra/

being appropriate for the current environment, the next-generation environment, or both) that we recommend the library pursue. Any implementations of these changes should be subject to thorough usability testing.

Standard Navigation

When: Next generation

The site's high-level navigation (in the upper right of all web pages) has links to MGet It, Search Tools, and Catalog (Mirlyn). The next-generation tool should be added here. It cannot replace Search Tools in the short term, for reasons explained above. Analysis of Search Tools' user logs indicates that around 1,000 people have accessed the "My Search Tools" personalization features since June 15, 2009.[6] These features include saving a search, selecting a personalized Quick Set, or saving favorite databases.

Gateway Page

When: Current environment

A reorganization of the MLibrary Gateway page should include a "find articles" search using the best tool currently available (Search Tools, Project Lefty, a next-generation search tool).

Article Searching from Browse Pages, Research Guides and CTools

When: Current environment

We currently offer views of library resources in two ways: Browse pages and Research Guides. The integration strategies for article discovery in each are similar and could also be implemented from within the CTools environment. Subject specialists could choose from three options:

1) A generic article discovery search box (working against either specified Search Tools databases or against Summon) that would retrieve articles (through selection of databases or application of appropriate keywords) relevant to the topic of the browse page or research guide;
2) A search field that would search only the specific databases, via Search Tools, that were selected by the subject specialist; or
3) No subject-specific search box

In all cases, the standard site search box and navigation would be available to the user to conduct a broader search.

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[6] Search Tools does not provide robust reporting tools; this figure is estimated based on matching web server and Oracle log data. This is an educated guess.

Recently Published Articles in CTools, Browse Pages and Research Guides

When: Both

We could provide access to recently published articles on a given topic by (in the current environment) running librarian-constructed searches through Search Tools and saving the results for display on the relevant browse pages, Research Guides, or Search Tools. If we are restricted to using Search Tools' infrastructure, these queries would not be live (because of the inherent delay in Search Tools' mechanism) but could be updated with some frequency and cached.

Given an article discovery tool, we could have these article search results appear on the browse page or research guide dynamically, at the time the page is loaded.

Project Lefty

When: Both (pending implementation)

Project Lefty, in active development at http://www.lib.umich.edu/article-dev, holds promise for transparently making searches more relevant to a user's query. It is built to work against Search Tools and Summon's API, but in theory could function with any information discovery environment that offers an API, including yet-to-be marketed article discovery tools from other vendors. While Project Lefty is focused on interpreting a user's probable level of academic investigation given a particular query, it could be used with 'dummy' users, representing specific subject domains and levels of expertise, to improve the "just published" section on browse pages and research guides described in the previous paragraphs.

Appendix 1: Charge

The Library Dean's Group charges the Article Discovery Working Group to undertake a comparison of Search Tools, Google Scholar and Summon to explore the possibility of offering an alternative to Search Tools as the primary gateway for finding journal articles. The group will:

- Engage a broad spectrum of University Library users in the evaluation and planning process;

- Explore the feasibility of using one or more of these tools with strategies that augment that information with resources exclusively available through Search Tools (cf. current development work in Web Systems on 'project lefty');

- Present to LDG recommendations on both a primary strategy for the Library's web gateway and strategies that incorporate the best of Search Tools in areas such as subject guides or mechanisms for more advanced users.

Deadline: The Article Discovery Working Group should deliver its recommendations to LDG by December 31st, 2009 [extended at ADWG's request to January 31st, 2010].

Members:
Gaurav Bhatnagar
Scott Dennis
Gabriel Duque
Sara Henry
Mark MacEachern
Stephanie Teasley
Ken Varnum (Chair)

Appendix 2: Persona-based Needs Analysis

Needs based on JHU Personas

Gaurav Bhatnagar, 28 Oct 2009

What I am looking for when reading through personas:
- What are the **regular tasks** that the personas are doing?
- Why are they doing these tasks (**goals**, attitudes, behaviors/habits)?
- What **needs** do they have of a system that will **support these goals and tasks**?

Joan **Data Cruncher**

"The library has been an integral part of my research; I use their website and resources daily."

Goal Use known reliable, trustworthy & familiar sources.

Need Easily find and link directly to known specific websites, databases and e-journals that the library has access to.

Goal Use the "best," most relevant & useful content.

Need Recommendations and reviews from colleagues and scientists to determine what is relevant and useful.

Goal Save time; get relevant information.

Need The ability to know whether full-text is available before investing in a lot of exploration.

Goal Happen upon useful, relevant information.

Need Brief background information that is relevant to my search (i.e. Wikipedia article) & RSS feeds/email alerts relevant to me

Goal Share relevant information with colleagues and increase my effectiveness at finding an article again.

Need Ability to email articles, post them to my team's online repository (SharePoint), or export to RefWorks

Donald Guide

"Students are so distractible. It is good to have qualitative pointers."

Goal Save time.

Need Authentication from off campus and mobile devices (BlackBerry) in as few steps as possible.

Goal Have access to important information where ever I am.

Need Initiate easy physical and virtual delivery of items to a number of different locations.

Goal Use known reliable, trustworthy & familiar sources.

Need Easily find and link directly to known specific websites, databases and e-journals that the library has access to.

Goal Gain general exposure to an unknown, but related field.

Need Use a simple and broad, but relevant search index, such as Google Scholar.

Goal Get the "best" content.

Need Filters such as "more like this" to quickly narrow down my search space.

Goal Ensure students are using quality content.

Need Make it easier for students to find peer-reviewed content and other information to critically evaluate a source.

Goal Share relevant information with students and increase my effectiveness at finding articles again.

Need Ability to create lists and email articles to myself and post them to our LMS (Blackboard).

Candace **Browser**

"The trail that I end up following is often not the one I started down."

Goal Happen upon useful, relevant information.

Need Suggestions and filters such as "more like this" at Amazon.com to browse unknown but related content.

Need Be notified when the library gets new musicology books, new recordings or new publications.

Goal Have my field of study supported by the library.

Need Find printed music, recordings and DVDs in the library catalog with the same search features that are available for finding books and other more standard catalog items.

Goal Gain confidence in my research skills and knowledge.

Need Be able to more quickly determine whether the research path I am taking and the results I am finding are valuable.

Goal Have ready access to articles.

Need Find and print the full-text of articles.

Ryan **Simplicity Seeker**

"Google is my starting point for pretty much everything."

Goal Use modern search tools.

Need Clean and appealing interfaces with search results that are relevant to my search terms and can offer spelling corrections.

Goal Save time.

Need See snippets of text relevant to my search query within search results so I do not have to leave search results page unless I know I am on to something good.

Goal Use content from reputable sources.

Need Make it easy to determine if a source has a good reputation or comes from someone worth citing.

Goal Understand what sources I should be using.

Need Connect with people (i.e. librarians), suggestions or easy-to-get/easy-to-digest information (i.e. Wikipedia) quickly while searching.

Goal Have ready access to articles from anywhere.

Need Easily find and print the full-text of articles, or download the PDF for later use whether on or off campus.

Goal Easily create bibliographies.

Need Have citations that can be quickly cut-and-paste into Word.

Anthony **Complex Searcher**

"I like to perform structured searches so that my results are more targeted to my needs."

Goal Use known reliable, trustworthy & familiar sources.

Need Easily find and link directly to known specific websites, databases and e-journals that the library has access to.

Goal Get the "best" content.

Need Use advanced search features such as limiters/filters, fielded searching and classification schema.

Goal Have ready access to articles.

Need Find and print the full-text of articles, or download the PDF for later use.

Goal Share relevant information with colleagues and students.

Need Ability to email articles to others or post them to an online repository.

Asha **Advice Seeker**

"I go into the library and tell the librarian about the project and they say, 'Ok, let's go'."

Goal Feel confident in my research process.

Need Consult a professional librarian and then subject research guides authored by librarians.

Goal Feel confident in using library tools.

Need Better help tips and cues to understand fields, services and tools unfamiliar to new researchers.

Goal Have ready access to articles where ever I am.

Need Easily find and print the full-text of articles on or off campus.

Goal Check library holdings while I'm on the go.

Need Allow simple searches or access to saved lists via a mobile interface.

Persona Goals aggregated and listed by frequency:

Goal Category	Personas w/similar Goal	Frequency of Goals
Use the "best" content (high relevance and utility)	All	6
Save time	All	6
Ensure use of quality content (reputable sources)	Donald, Candace, Ryan, Asha	4
Use known reliable, trustworthy & familiar sources	Joan, Donald, Anthony	3
Gain confidence in my research skills and knowledge	Candace, Ryan, Asha	3
Share relevant information with colleagues/students	Joan, Donald, Anthony	3
Increase my effectiveness at finding an article again	Joan, Donald, Anthony	3
Have ready access to articles from off campus	Donald, Ryan, Asha	3
Have ready access to articles	Joan, Candace, Anthony	3
Gain general exposure to an unknown, but related field to my own	Donald, Candace, Ryan	3
Happen upon useful, relevant information	Joan, Candace	2
Check library holdings while I'm on the go	Donald, Asha	2
Easily create bibliographies	Ryan, Asha	2
Have my field of study supported by the library	Candace	1
Use modern search tools	Ryan	1
Gain confidence in using library tools	Asha	1

There are some goals seen listed here that are not listed along with the actual persona above.

Appendix 3: Review Matrix

Category	Conclusions
Scholarly Results	
Top databases & journals for subject areas are included (what is the database coverage of tool?)	Summon, Search Tools yes; GS unclear
Quantify or compare number of scholarly sources obtained with the same search	Quantity OK; quality hard to judge or limit to (can limit to 'scholarly' in some cases in all 3 tools)
Peer-reviewed articles filter	Summon
Is the tool biased toward certain fields or not good for other fields?	No difference
Communicate Research	
Email results	Summon
RSS feed for specific search	Summon
Text citation(s) to mobile device	Easier in Summon, but not built in
Save results/citation to something like "my shelf"	Summon / Search Tools
Export in variety of formats, including RefWorks & EndNote	Easier in Search Tools and Summon
Technology/Customizability	
Authentication ability	No difference
Can be integrated into the front page of library/navigation bar	Summon best, then Search Tools
Full text provided immediately in results – or direct link to PDF of full text with no additional database navigation	All via proxy/citation linker
Can we customize to provide something like "tip of the day" for searching?	Summon best, then Search Tools
Can results list be made into a static URL?	Summon
Static URL for article? (URL in the location bar)	No difference
*Appealing, intuitive interface	Summon best, then GS
Can we integrate MTagger?	Summon
Can we integrate tools to indicate "Library Approved" journals/databases?	Summon
Compare the time each tool takes to do the same exact search	Summon and Google Scholar
Provide access to delivery services (ILL/7fast links in results/records)	No difference
Easy access to tutorials – either built in help/tutorial or link to LibGuide	No difference
Meets basic accessibility standards	No difference
Facets/Info Discovery	

Category	Conclusions
Subject searching & facets	Summon best, then Search Tools
Suggest related topics/subtopics	Summon best, then Search Tools
Suggest articles related to the one being viewed	No difference
Year facet	Summon best, then Search Tools
Citation tracing – track articles cited in and cited by	Google Scholar
View an article's citations/notes	Not in native interface for any
Narrow down results based on material type – books, chapters, articles	Summon best, then Search Tools
Limit by availability – physical copies in library or electronic only	Summon
Open Access filter	Not in native interface for any
Search variety of databases at once	Yes, but none present 'databases' as coherent whole
Restrict searching to specific database(s) or journal(s), have a facet/filter	Search Tools
Variety of search fields (advanced searching option?)– title, author, journal, volume, issue, page #, conference name, etc.	Summon best, then Search Tools
Search variety of materials – images, scholarly articles, opinion pieces, newspaper articles, encyclopedia info, conference proceedings, patents, etc.	Summon best, then Search Tools & GS
Incorporates web-searching with article searching (non-journal info that's credible; like doing a site:gov or site:edu search in google, open access journals, government websites, associations, etc.)	ST: Not at all S, GS: Limited
Autocomplete/autosuggestion search queries (i.e., like Google)	No difference
Did you mean (i.e,. spell check)	Google Scholar does this; Summon could
Mobile Technology	
Can be used on high-end mobile device w/full browser (ready now, could be done, etc...)	Yes
Can be used on low-end mobile device w/out full browser (ready now, could be done, etc...)	Google Scholar
*Good format and interface for mobile devices	Google Scholar
iPhone, Palm, Android, etc. app capability: 'I want an app for this'	Summon will have one
Other Characteristics	
Cost (estimated)	Need more information
Available now	NOT Primo Central

Appendix 4: Survey Instrument

Library

The University Library is interested in learning more about the way you search for journal articles. This survey should take about 5 minutes of your time. If you have questions, please contact Ken Varnum at the University Library: varnum@umich.edu.

* Required

* What is your current status at the University of Michigan?

- ○ Undergraduate
- ○ Graduate or Post-doc
- ○ Faculty or staff
- ○ Other at UM (Please specify)
- ○ Not affiliated with the University of Michigan

* What is your primary affiliation at the University of Michigan?

- ○ Literature Science & the Arts (LSA)
- ○ College of Engineering
- ○ UMHS, Dentistry, Pharmacy, or Public Health
- ○ Law or Business School
- ○ Architecture & Urban Planning or Art & Design
- ○ Education or Social Work
- ○ School of Information
- ○ Natural Resources and Environment
- ○ Public Policy
- ○ Kinesiology
- ○ University Library
- ○ Other (Please specify)
- ○ Not affiliated with the University of Michigan

Please rate your experience using library resources on a scale of 0 (I'm new to library research) to 10 (I'm an expert in library research).

	New										Expert
	0	1	2	3	4	5	6	7	8	9	10
Research experience											

What online resources do you most frequently use to find journal articles?

Library

Imagine you are starting a new research project and need to find journal articles. Rate the importance of the following features for finding articles.

	Not at all important	A little important	Neutral	Important	Very Important	I don't know what this is
I can find articles from the top journals in my subject area.	○	○	○	○	○	▭
I can perform advanced searches (options are available to search in multiple fields at the same time like year, author, title, keyword).	○	○	○	○	○	▭
My search results lists both relevant books and useful journal articles.	○	○	○	○	○	▭
I can limit my search so I only get articles from scholarly (peer-reviewed) journals.	○	○	○	○	○	▭
I can get articles from multiple databases with one search, and know which databases the results are coming from.	○	○	○	○	○	▭
I can easily find other topics and articles related to my original search.	○	○	○	○	○	▭
I can easily narrow down my search results by clicking on different links (such as year or subject).	○	○	○	○	○	▭

Imagine you are looking at a list of search results related to your new research project. Rate the importance of the following features for using your search results.

	Not at all important	A little important	Neutral	Important	Very Important	I don't know what this is
I can get to the full text of an article in one mouse click.	○	○	○	○	○	▭
I can save a search so I can go back and see new items.	○	○	○	○	○	▭
I can use it from my smart phone (or other mobile device).	○	○	○	○	○	▭
I can easily save and share citations of articles I find.	○	○	○	○	○	▭
I can export citations into citation management tools like RefWorks, EndNote, or Zotero	○	○	○	○	○	▭

Do you have any other comments or suggestions about what is important to you in an article search tool?

Appendix 5: Selected Survey Verbatims

There were a few themes that emerged from asking for more comments at the end of the survey. The comments listed here demonstrate these themes, although it is not an exhaustive list of all the relevant comments.

1. **Users want full text and they want it immediately**

"Sometimes it is very difficult to find a full-text version of the article I want"

"Full text is the most important thing to me. It makes life so much easier!"

"I think the most important thing is that I find the FULL text of the article"

"Most important is to be able to get full-text versions to download. I hate if I have fifteen click throughs to get to an article. The more streamlined the better. Thanks!"

"I would like to have a way to narrow my search results to only articles that I can access online and to only links that have the full text available."

"The availability of the articles, can and will I be able to simply tell if I can receive the full text on my computer."

"I want to be able to get to a pdf of the article (a couple mouse clicks is OK), and download the pdf."

"I would have to say the most important feature that I find to be lacking about 50% of the time in my searches is being able to obtain the full text of an article."

"All I want is something where I can actually see articles quickly. And if it says MGet it or available electronically or something, I want the site to actually show the article! And if it's not available, I want this clearly marked!"

"A lot of times when I search I will find citations for articles that seem to be impossible to find. Direct forwarding to a webpage that has the pdf of the article would be extremely useful."

"of everything above, a direct and simple process to get full text if available is both the most important and most lacking in my experience"

"It's nice to be able to quickly identify if i have online access or not. Perhaps an option to only list articles that are available online."

"For myself, after finding an article, the most important feature would have to be immediate access (via a one-click option) to the full article. Above, I would give this a "very, very important" if I could."

"Full text access is essential!"

"More full text, easier to get full text! so important for convenience"

2. Users are easily frustrated with the MGetIt process

"It would be great if I could go right from the MGetIt button to a PDF instead of having to click through several screens."

"Minimize the number of popup windows that result during an article search. All of these windows add time to the search and are, frankly, annoying. Also, following the search results often doesn't lead directly to the article itself, rather the journal's homepage."

"Clicking the MGetIt button doesn't always bring me straight to the full-text article, sometimes requiring that I scan a table of contents, other times requiring me to do the search over again (the latter is pretty new - Academic OneFile and Gale OneFile are brand new pains in the neck - MGetIt tells me I can get some article through those databases, clicking on the database's weblink tells me it can find no evidence of the article - annoying!). It would be so great just to have one click access."

"compatibility with SFX tool-- sometimes the bibliographic information gets wonky when pulled into the MGetIt window"

"I like the MGetIt feature, I just wish it worked more regularly. Often the citation is garbled or some other problem, so that Mirlyn has no idea where to find the article."

"the "M get it" link is a good start, but it often doesn't work even when I know the library has access."

"less visual clutter, less re-use of windows (ie if I click on a link to the full text for article2, please don't download it into the window I just downloaded article1 into) so I can keep track of them more easily."

"There is currently WAY too much clicking involved in getting the full text of some articles."

"I like the Mget it button. But, they are often cumbersome to use. they direct you to a website and then you spend time on that site finding the information. Ideally, one click would get you to the article."

3. Users want an interface that's intuitive, simple, and easy to use

"Mirlyn is impossible to use! Make it more user friendly."

"It should be easy to use. The majority of the time I've spent searching the databases on the UM library website has just left me confused and without any results."

"Just make it clear and simple to find the databases"

"getting to it easily. I find Search Tools to be awkward (especially because one has to sign in even when one is already signed in). that's why I started going directly to JSTOR through Mirlyn first, before going to databases on search tools."

"Please make it easier to search all of the databases at the same time."

"Often subscription sites are difficult to access for a variety of reasons. Need a more intuitive way of accessing complete articles from suybscription based services."

"Clarity of web page design is important, so that important choices are clearly visible (and of a legible size!)"

"user-friendly, i.e. it is obvious what to do!"

"It needs to be easy to link to from the library website. I always access Google Scholar and Pubmed via the Health Sciences Library homepage, because the main library website is totally incomprehensible to me, no matter how much time I spend trying to navigate it."

"Being able to find what I am looking for is most important."

"I always have a hard time navigating to the correct search page on the library website for journal article searches. I think this process needs improvement."