

2022

Hope, Impressions, and Reality: Is a Discovery Layer the Answer?

Susan Avery

Lisa Janicke Hinchliffe

Follow this and additional works at: <https://commons.emich.edu/loexconf2014>

Recommended Citation

Avery, Susan and Janicke Hinchliffe, Lisa, "Hope, Impressions, and Reality: Is a Discovery Layer the Answer?" (2022). *LOEX Conference Proceedings 2014*. 18.
<https://commons.emich.edu/loexconf2014/18>

This Article is brought to you for free and open access by the LOEX Conference Proceedings at DigitalCommons@EMU. It has been accepted for inclusion in LOEX Conference Proceedings 2014 by an authorized administrator of DigitalCommons@EMU. For more information, please contact lib-ir@emich.edu.

HOPES, IMPRESSIONS, AND REALITY: IS A DISCOVERY LAYER THE ANSWER?

SUSAN AVERY AND LISA JANICKE HINCHLIFFE

INTRODUCTION

Discovery layers in academic libraries have become common and their usage continues to grow. They are marketed as tools for undergraduates, providing a Google-like search box. Many libraries have heralded their arrival with praise and great hopes for the potential they offer students; however, the reality of a discovery layer may differ greatly from these initial hopes and impressions. This paper provides a close examination of a discovery layer in an academic library relative to student learning and information literacy instruction through an examination of transaction logs, which provide a picture of real user searching behaviors, and through an examination of student research topics utilizing both discovery and native database interfaces.

DISCOVERY

Libraries have long provided for discovery, i.e., information search, access, and retrieval. Doing so is arguably *sine qua non* for a library. More recently, however, the term “discovery” has taken on an additional and narrower meaning that identifies a particular type of technology service. Specifically, according to Jason Vaughan (2011), “web scale discovery can be considered a service capable of searching across a vast range of preharvested and indexed content quickly and seamlessly” (p. 6) This focus on preharvesting and indexing distinguishes a “discovery” service from earlier approaches to broad-scale searching, specifically, “metasearching, also known as integrated searching, simultaneous searching, cross-database searching, parallel searching, broadcast searching, and federated searching, is a process in which a user submits a query simultaneously to numerous information resources” (Sadeh, 2007, p. 2).

The University Library of the University of Illinois at Urbana-Champaign has a long history of utilizing new and emerging search tools. In addition to a locally developed recommender system, Easy Search (<http://search.grainger.uiuc.edu/searchaid2/searchassist.asp>), the University Library has explored WebFeat (Avery, Ward, & Hinchliffe, 2007) and WorldCat Local. When web-scale discovery systems became available on the market, a Next-Generation Catalog Committee was formed to investigate the options. The University Library selected Primo from Ex Libris for a three-year pilot in 2011. Primo is a powerful, multi-dimensional discovery system that:

harvests and indexes local library collections, such as bibliographic records, digital collection materials, and items within institutional repositories, and provides a common interface for discovery of these materials ... Primo can be configured to search remote repository indexes and blend the library’s local collections with the remote index results ... Primo Central extends the base Primo discovery experience by also searching a large preharvested central index of article-level content from a variety of publishers and aggregators. (Vaughan, 2011, p. 39)

Ex Libris provides two useful web portals with extensive information and documentation about Primo (<http://www.exlibrisgroup.com/category/PrimoOverview> and <http://meetprimo.com/>).

The University Library charged the Web-Scale Discovery System Implementation Team in January 2012 as a working group of the Content Access Policy and Technology Committee to implement and assess Primo (<http://www.library.illinois.edu/committee/capt/webscale/>). Specific tasks for the Implementation Team included:

- Developing an implementation timeline, including scope, needs addressed, and functionality

- Integrating Primo in the Library's website and in the Easy Search system
- Assessing Primo use
- Coordinating education and training programs

The Implementation Team was intentionally comprised of library employees from technical, information technology, and public services and is co-led by a public services librarian and a technical services librarian. This approach of ensuring multiple perspectives on implementation teams is characteristic of the University Library's approach to implementing search technologies and is intended to "make sure that all potential staff and patron impacts of a system can be adequately examined" (Avery, Ward, & Hinchliffe, 2007, p. 183).

ASSESSING PRIMO

Many libraries lack the staff time and expertise to undertake extensive testing of search systems. For example, a 2005 informal survey of RLG members found that "despite their enthusiasm, most respondents indicated they had limited time and attention to invest in either shaping or appraising metasearch efforts at their institutions; expediency mattered more than standards" (RLG). Librarians at the University of Illinois at Urbana-Champaign, however, often undertake extensive analysis and assessment projects as it is advantageous not only to the University Library's system implementations but also fits with the requirements of their faculty status to engage in scholarship (Hinchliffe & Chrzastowski, 2007).

Members of the Implementation Team undertook six kinds of testing/assessment of Primo during the three-year pilot:

- user experience (interviews and survey)
- user behavior/practices (search logs)
- assignment topics (student research topics)
- usage numbers and patterns (system reports/statistics)
- metadata and relevancy (testing scripts)
- technical (standards adherence)

This paper focuses on the testing related to information literacy and library instruction and thus reports only on the user behavior/practices and assignment topics analyses. Other testing protocols have revealed a number of data, searching, relevancy ranking, and sorting challenges in the Primo system and these have been reported elsewhere (Hinchliffe, Norman, & Mischo, 2014).

Testing related to assignment topics and user behavior/practices was informed by the competencies, and thus responsibilities, detailed in the *Professional Competencies for Reference and User Services Librarians* (<http://www.ala.org/rusa/resources/guidelines/professional>) articulated by the Reference and User Services Association of the American Library Association. Specifically these three sections:

Critical Thinking and Analysis: A librarian provides high quality services by carefully analyzing both information sources and services.

Information Resources: A librarian assesses and evaluates resources in all formats in terms of objective standards and how well it meets the library's user needs.

Information Interfaces: A librarian evaluates the format, access, and presentation aspects of resources as part of the overall assessment of the value of tools.

As such, the goal was to bring critical thinking and analysis to the tasks of assessing Primo as an information resource and information interface.

USER BEHAVIOR/PRACTICES TESTING

Primo was implemented both as a stand-alone interface and as a "target" in the locally-developed Easy Search recommender/identification system (<http://search.grainger.uiuc.edu/searchaid2/searchassist.asp>). Easy Search includes extensive logging of system use that enables analysis of user behavior and practices within that system, creating a unique information ecosystem in which patterns of user choices relative to Primo can be analyzed. It is possible to determine whether a user has chosen

to look at the Primo results retrieved by Easy Search and analyze patterns of those choices relative to choices to look at results from other target databases (e.g., EBSCO Academic Search Premier PLUS). Though it is possible to replicate the results in the target databases and use a rubric to analyze the quality of the results, it is not possible to track what a user did after clicking into the target database because that information is not available from the target database provider. The lack of information about how a user engaged the target databases is, therefore, an acknowledged limitation on the analysis of user behavior/practices reported here.

For this analysis, 150 search sessions in which the user accessed Primo at some point in the process were extracted from the log files in April 2013. Specifically the sessions were dated April 29, 11:20:27 p.m. through April 30, 10:42:37 a.m. Due to the time of the searches, it is likely that many were conducted by students; however, it is not possible to determine the user's status from the search logs. Each search session was analyzed for whether the user ended the Easy Search session in Primo or not and whether the Primo results set was judged to be a successful set for the user's search, using criteria appropriate to known item or topical searching depending on which the user had done.

The results of the analysis are that 87 (58%) user search sessions ended in Primo and of those 42 (48%) had successful results, 35 (40%) had unsuccessful results, and 10 (12%) of the results could not be categorized as successful or unsuccessful. Sixty-three (42%) user search sessions ended in a different target database after the user accessed Primo. Of those, the analysis of the Primo results revealed that 9 (14%) had successful results, 51 (81%) had unsuccessful results, and 3 (5%) of could not be categorized.

On the positive side, about half of the users who ended their search in Primo seem likely to have found the information that they were seeking. Likewise, it is heartening that most users clicked away from the unsuccessful Primo results. What is more troubling are the 44 users who were presented with a successful set of results in Primo but clicked away from it (often in just seconds, indicating very little time spent interacting with the Primo results) and those who were presented with unsuccessful results but did not return to Easy Search to try another option.

Conducting this user behavior/practices analysis resulted in the identification of many more questions about how users are interacting with Primo, interpreting the screens, system usability, and relevancy ranking. It also documented the difficulty of fully analyzing and understanding user behavior/practices without access to the Primo search logs as there is a limit to the inferences that can be reasonably made from the Easy Search logs about Primo per se. The results did, however, raise significant enough questions about the system to spur additional metadata and relevancy testing with librarian-generated examples as well as the assignment topics analysis which follows.

ASSIGNMENT TOPICS TESTING

Complementary to the user behaviors/practices testing was an analysis of Primo relative to faculty research assignments. The analysis was conducted in light of requirements of specific class assignments, student research experiences, and expectations of the faculty. In the case of this study of student use of a discovery layer, the students were in a first-year composition course. Students are expected to use scholarly sources that are credible, high caliber, and specifically address the student's research question.

The focus on first-year students is important, as it generally indicates the academic research experience of the majority of the students in these classes is likely to be minimal. Though "26% of students who took the ACT met all four benchmarks for college readiness" (Supiano, 2013, para. 1) and "43% met or exceeded the SAT benchmark of 1550" (Doubleday, 2013, para. 2) students themselves express concerns in their ability to engage in college level research. Specifically, Project Information Literacy found:

- 74% struggled to find keywords and create search strategies
- 57% stymied by irrelevant results
- 43% have trouble make sense of information (Head, 2013, p.3)

As noted above, there are many levels of testing that can be done on a discovery system. Often the focus of testing is usability and interviews with students. Such studies generally have a prescribed set of searches a student completes and specific questions to gauge student understanding and perceptions of the tool. While this testing provides useful information in the implementation of a discovery layer, it does not test actual use of the system in an authentic search situation. Investigating actual use of a discovery tool as it applies to a specific assignment provides valuable information, particularly in a library instruction context. For this analysis, the question is: *does this tool best meet the requirements of the assignment?*

Matching Assignment and Tool

The focus of this assignment topics study was student research questions from first-year composition classes. The course requires students to observe something (location/event/group) on campus. Following their observations, they seek primary sources

that help them understand the location/event/group and its role on campus. Library instruction occurs when students need to scale their research beyond something local and identify relevant secondary sources.

A goal of the library instruction is to provide students with what is, for many of them, their initial academic library research experience. Identifying a relevant tool for students to search in order to achieve this objective is crucial. Academic Search Premier (EBSCO) was selected as the teaching tool and testing student topics using multiple databases and tools each year has reinforced the commitment to utilizing Academic Search Premier for this instruction because:

- The advanced search screen helps conceptualize keywords into separate search boxes.
- Most recent results returned toward the top, even in relevancy search.
- Relevant subject terms are easy to identify and use to refine a search.
- Search limits (article type and date) are simple to apply.
- Through application of the above it is possible to create a focused search with a manageable set of results.

Primo Test Results: Student Topics

With the implementation of Primo, it was important to examine if Primo would be a better resource to utilize in first-year library instruction, either as an alternative or complementary to Academic Search Premier. Searches were conducted in each system (EBSCO and Primo), using student topics and engaging in a multi-faceted search following the steps students are taught when being introduced to a library database. The following steps were employed:

1. The topics were broken down into two to three relevant keywords.
2. The topics were tested in Primo; this testing was intended to replicate, as closely as possible, the search that took place in Academic Search Premier. The search results were limited to articles, as this is an expectation of the assignment.
3. The topics were tested in Primo, applying the strategies above, but using the limit to EBSCO sources.
4. The topics were tested in Academic Search Premier directly.

Results from this testing were striking. The result sets in Primo were significantly larger than those in the native database, but in addition, the relevancy and the date of the articles were troubling. Regardless of the limit, the result sets via Primo were significantly larger than those in the native database. (See Table 1)

Following the comparative searches, the Primo results were examined to determine where (or if) the first ten results retrieved in Academic Search Premier were present. The Primo results were also examined to determine relevancy to the search topic and currency. In a search for *exercise, mental health, college students*, only one result contained all three search terms and, though several included some focus on college students, others were off target, including an article about “older Asian Indian immigrants” and one focused on “therapeutic lifestyle changes.” A second result set for *procrastination, college students, time management* was examined for currency. The first result was from a 1994 journal article that focused on time management in the workplace. Other results on the first page were published in 2000, 2003, 2004, 2011, 2012, and 2013. Two of the first ten results did not address college students. The results of this examination provide further concerns for utilizing Primo in first-year instruction. Upon revisiting the established learning outcomes for this course, it became clear that Primo will not significantly aid students in achieving the outcomes and meeting faculty expectations.

CONCLUSION

The analysis of Primo as an information resource and information interface relative to user behaviors/practices as well as assignment topics revealed a number of limitations in considering the role of discovery in an information literacy program. Ultimately, more testing and assessment is needed of the different discovery systems in order to reveal their strengths and best use cases. In the interim, however, librarians are right to be cautious about abandoning other search tools and should assess carefully how users interact with any search system and which tools best enable students to meet faculty expectations in their assignments.

REFERENCES

- Avery, S., Ward, D. & Hinchliffe, L.J. (2007). Planning and Implementing a Federated Searching System: An Examination of the Crucial Roles of Technical, Functional, and Usability Testing. *Internet Reference Services Quarterly*, 12, 179-194.
- Doubleday, J. (2013, Sept. 23). Most Students are Unprepared for College, SAT Results Show. *Chronicle of Higher Education*. Retrieved from <http://chronicle.com>
- Head, A. J. (2013). Learning the Ropes: How Freshmen Conduct Course Research Once They Enter College. *Project Information Literacy Research Report*. Retrieved from http://projectinfolit.org/images/pdfs/pil_2013_freshmenstudy_fullreport.pdf
- Hinchliffe, L. J. & Chrzastowski, T.E. (2007). Getting Started with Library Assessment: Using Surveys to Begin an Assessment Initiative. In F. DeFranco, et al. (Eds.), *Proceedings of the Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, (pp. 63-68). Washington, DC: Association of Research Libraries.
- Hinchliffe, L.J., Norman, M. & Mischo, W. (2014, May 1). Taking a closer look at Primo: Multi-perspective system testing. Paper presented at the annual meeting of ELUNA (Ex Libris Users of North America), Montreal, Canada.
- RLG. (2005). *Metasearch Survey among RLG Members*. Retrieved from <http://oclc.org/research/activities/metasearch.html>
- Sadeh, T. (2007). Transforming the Metasearch Concept into a Friendly User Experience. *Internet Reference Services Quarterly*, 12, 1-25.
- Supiano, B. (2013, August 21). A Quarter of High-School Grads Who Took ACT Are Found College-Ready. *Chronicle of Higher Education*. Retrieved from <http://chronicle.com>
- Vaughan, J. (2011). Web Scale Discovery Services. *Library Technology Reports*, 47 (1), 5-29.

Table 1: Example Searches Comparing Results: Primo, Primo EBSCO, and Academic Search Premier (EBSCO)

Search	Student Research Question	Keywords	Results: Primo, Advanced Search, Articles and More	Results: Primo EBSCO	Results: Academic Search Premier (EBSCO)
1	How is global warming presented differently in the popular media vs. media for a scientific audience?	global warming, media, perception	5,258	6,011	32
2	How do the sororities on campus deal with negative perceptions of hazing?	sororities, university, hazing	180	713	102
3	How has for-profit education changed college in the United States over the past ten years?	higher education, for-profit, impact	1,329	35,357	126
4	How do the sleeping habits of freshmen affect their academic life?	sleep, college students, academics	2,673	12, 814	369