Creating Organizational Buy-in: Overcoming Challenges to a Library-Wide Discovery Tool Implementation

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Available at: https://works.bepress.com/jodyfagan/12/
Planning and Implementing Resource Discovery Tools in Academic Libraries

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Chapter 24

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ABSTRACT

While launching a discovery tool can be technically easy, establishing a process that will result in organizational buy-in for the tool is an exceptionally important first step for a successful implementation. Many lessons about creating organizational buy-in can be learned from experiences with federated search software and next-generation catalogs. Libraries must grapple with three critical areas before discovery tool implementation. First, the library will need to consider how the discovery tool will affect key library departments and create a plan for addressing their concerns. Second, training will need to be developed for staff as well as end users. Finally, monitoring and assessing the discovery tool’s performance and impact will inform future decision-making related to the tool’s integration with the library’s other systems and services. Each of these areas will be explored in the context of existing library research, with illustrations from James Madison University’s discovery tool implementation.

DOI: 10.4018/978-1-4666-1821-3.ch024
INTRODUCTION

Discovery tool implementations should be carefully planned and executed in order to improve organizational buy-in and enhance the resulting user experience. Many of the issues and concerns libraries face related to discovery tools have broad implications and need to be approached with perspectives from multiple stakeholders. This chapter will explore several critical areas using research from the literature and examples from James Madison University (JMU). JMU is a predominantly undergraduate institution of approximately 19,000 students in the commonwealth of Virginia. Some of JMU’s programs of strength include communication sciences and disorders, music, psychology, nursing, business, and education. The libraries have a strong instructional program, and have been successful at partnering with other departments on campus to implement a required information literacy test for all students entering their sophomore year. Overt twenty liaison librarians provide subject-specific library instruction. Additionally, a general education librarian has recently begun working with the campus general education committee to increase the libraries’ connections to lower-division students. Because of this strong commitment to student instruction, implementing a discovery tool at JMU necessitated involving numerous internal stakeholders in the process.

Discovery tools bring profound changes to the nature of searching that affect staff and patrons in different ways. While many library systems, such as the catalog and traditional article indexes, were initially designed for librarians and scholars, discovery tools were designed for library patrons. Discovery tools eliminate the need for users to choose among library tools before beginning a search. With a discovery tool, a patron has to learn only one interface; the user can gather books, articles, and other types of items into one folder; and can limit effectively to full-text online without reducing result sets. However, library staff will need to illustrate to patrons that there are additional choices beyond the discovery tool that could be valuable for specialized searching.

While discovery makes search more manageable for patrons, it can be disruptive for librarians. Librarians do not need the library catalog to be combined with article indexes; in fact, it is more comfortable for most library staff to search such tools separately. When searching separate tools, characteristics such as authority and consistency are crucial. Discovery tools, on the other hand, compromise in these areas in order to be current, relevant, and provide as much content as possible. Whereas patrons need to think like librarians in order to use the catalog and article indexes, librarians may need to start to think more like patrons in order to understand discovery tools.

This chapter will begin with lessons gleaned from the literature relating to the advent of federated search, next-generation catalogs, and discovery tools. It will then examine three key areas for organizational buy-in related to the implementation of discovery tools: how the discovery tool will affect key library departments, developing training materials for staff and end users, and monitoring and assessing the discovery tool’s performance and impact.

BACKGROUND

The vision for discovery software as a unified search of library collections has its origins in federated search, which combined library catalogs, databases, and journals in one search interface, providing a similar search to Google and other search engines (Cervone, 2005; Miller, 2004). This desire was based on knowledge of users’ expectations to simply search, not to choose among various databases (Alling & Naismith, 2007, p. 195; Cervone, 2005, p. 10; Randall, 2006, pp. 181-182; Tallent, 2004, p. 69-75). However, the performance of federated search software disappointed many libraries, with problems related
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to uncertainty about their precision and recall (Lampert & Dabbour, 2007; Tang, Hsieh-Yee, & Zhang, 2007; Williams & Foster, 2011).

The next development in discovery-style searching was the advent of next-generation catalog interfaces, which featured faceted browsing and an up-to-date look and feel for traditional library catalogs (Fagan, 2010). Studies of these interfaces found increased use of article databases as well as an increased use of narrowing facets such as format, media type, and library location (Allison, 2010; Ballard & Blaire, 2011).

Discovery tools are the newest technology in the marketplace of library search (Brunning & Machovec, 2010a; Brunning & Machovec, 2010b). In this chapter, the term “discovery tool” will be defined as software that includes both a library catalog and article indexes in a unified index and search interface. This approach differs from federated search software, which searches multiple databases separately and aggregates the results post-search. Early investigations of discovery included reviews of content (Rowe, 2010; Stevenson et al., 2009) and explanations of selection decisions (Vaughan, 2011; Webb & Nero, 2009; Koch & Davis, 2011). Usability studies have been suggesting that discovery tools offer an improved experience for users over federated search (Williams & Foster, 2011). Findings seem to support the overall idea of discovery while offering a list of issues for vendors to address (Ward, Shadle, & Mofield, 2008; Boock, Chadwell, & Reese, 2011; Thomas & Buck, 2010; OCLC, 2009; NCSU 2011; Fagan, Mandernach, Nelson, Paulo, & Saunders, 2012). No single product seems to have a significant advantage over the others in terms of usability, perhaps because vendors are so fiercely competitive in terms of discovery tool interface features.

One of the major differences between the library environment and the corporate sector is the need to achieve organizational buy-in for technological change (Fagan & Keach, 2009, p. 39). Libraries are beginning to realize that careful planning for the introduction of new technologies can result in wider adoption, reduced stress, and more efficient implementation (Ballard & Teague-Rector, 2011; Sharpe & Vacek, 2011). With broad and deep organizational implications, discovery tools pose a significant change for libraries and therefore selection and/or implementation teams should be formed. Libraries also need to determine which departments will have a stake in the tool’s success, and plan to involve them in the process.

DEVELOPING A SHARED VISION FOR DISCOVERY

When implementing a discovery tool, one of the first discussions within the library should be related to the tool’s vision and mission. By having these discussions early in the implementation process, there will be established mutually agreed upon definitions and priorities related to this technology. While details may vary by institution, clarifying the tool’s purpose will inform numerous future discussions and smooth technical implementation.

In 2010, JMU launched EBSCO Discovery Service™ (EDS), participating as a beta development partner. A selection team recommended the tool after reviewing the major next-generation catalogs and discovery tools on the market. A separate implementation team provided guidance for customization decisions, integration of the tool into the library Web site, and numerous other questions that arose during discovery (Fagan & Mandernach, 2011b). At JMU, a formal mission statement was written and approved by a council of approximately 20 unit managers:

JMU Libraries’ discovery tool provides front-line access to physical and virtual library collections, including books and articles. Its purpose is to support users’ most common information needs, such as:
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- Finding a selection of relevant sources about a topic
- Determining whether JMU libraries owns / has access to a specific item
- Getting online full text or items-in-hand.

By offering a tool to search library/subscription resources that is similar to Google, we intend to expand our presence in users’ virtual worlds, and raise the library’s stature in their research context. Such a tool also offers a first tier of search to complement our learning commons service model.

Because such statements have wide-reaching implications, the process for creating them should be open and transparent. Discovery selection teams or project leaders should explicitly present underlying assumptions and premises of the discovery tool and facilitate conceptual conversations about discovery tool software, integration, the tool’s purpose, and how it supports the library’s larger mandate of connecting users with resources. Setting on a working mission and vision document can be challenging; therefore, library leadership will need to be prepared to arbitrate disagreements as they arise. Depending on an institution’s culture, such a mission statement may be written before, during, or after implementation. Libraries with high-vision leadership may be able to tolerate a mission statement written by one or a few people in advance (Wallace, 2004, p. 19). Libraries with a highly participative culture may need to wait until during or after implementation before settling on a mission statement in order for sufficient stakeholders to obtain experience working with the tool.

Regardless of institutional culture, all libraries have multiple internal stakeholder groups who will have strong opinions about the tool and how it is presented. The reference department will face front-line questions about using the search tool and working with the large results sets. Instruction staff will need to decide whether and how to incorporate discovery into classes. The cataloging department may feel threatened and/or empowered by the fact that the library catalog will be imported into a new interface. Access services and interlibrary loan may have questions about patron account integration and whether requests for materials will rise due to the discovery tool’s broad scope.

After preparing these key departments for impact, the organization will need to consider training for staff as well as users. One might consider it presumptuous to think that librarians would need to be taught about a search tool, but discovery software has some unusual technical aspects that are not initially apparent. Because of the nature of discovery, it would be useful for staff to understand that various decisions made during implementation may affect the tool’s performance and results sets. For example, the catalog’s material types may need to be mapped to the discovery tool’s source types; understanding how that mapping works is necessary to understand how to use the resulting source type facets effectively. An informed staff will be better equipped to participate in the discussions and decision-making processes necessary for buy-in. Library users, while caring less about behind-the-scenes details, will want to know how to search effectively and improve their results sets.

Preparing departments for the discovery tool and developing training for staff and users will set the tool up for success, but monitoring and assessing the software is necessary for tracking the numerous issues that will inevitably arise. Institutions will need to know how well the tool is fulfilling its purpose. Objective information such as usage statistics will provide one view of the tool’s impact, while qualitative inquiry can provide insight into the user experience.
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Impact of a Discovery Tool on Library Units

Discovery tool implementation will affect most areas in the library, but reference, instruction, and cataloging may find their work relates most directly to the discovery tool. Interlibrary loan and access services should also be prepared to adapt to changes to workflow due to implementation of the discovery tool.

Reference and Instruction

Many of the concerns over discovery tools in the areas of reference and instruction are linked to fundamental values these areas share, such as information literacy and quality of service. First, there is the issue of whether to incorporate discovery tools into instruction and at the reference desk. One might think that spending thousands of dollars on a new search tool would obligate librarians to use it, but similarly to federated search tools and Google Scholar, librarians may have serious questions about these products (Lampert & Dabbour, 2007; Tang, Hsieh-Yee, & Zhang 2007). One concern with federated search was the lack of users’ interest in determining the sources behind their searches (Curtis & Dorner, 2005). This led librarians to question whether these products, like discovery tools and Google Scholar, made research “too easy” for users, seducing them into inferior research habits (Frost, 2004; Lampert & Dabbour, 2007; York, 2005; Koch & Davis, 2011). Finally, even librarians who were interested in overcoming these challenges had problems finding time to demonstrate an additional system in a 50-minute instruction class and adapt existing pedagogies (Lampert & Dabbour, 2007; Koch & Davis, 2011).

Discovery software has overcome many of the technical barriers presented by federated search tools, but questions related to values remain. Reference and instruction departments should hold fora about questions and concerns surrounding implementation. Librarians and support staff should discuss their convictions about how to uphold information literacy ideals while avoiding “broccoli librarianship” (Vaughn & Callicott, 2003, p. 2), or the idea that libraries should impose the information librarians perceive as necessary rather than providing the quickest and most direct path (Benjes & Brown, 2000, p. 38). Reference staff may also wish to have conversations related to the scenario where a patron wants to use the discovery tool even when it is not the best tool to use. How heavily should the staff persuade users to consider other tools versus honoring the user’s choice? Such discussions should draw from recent research about user behavior, to avoid relying solely on anecdotal experiences. For example, in a study of the next-generation catalog Encore™, Ballard and Blaine (2011) found that users were 15 times more likely to refine a search if they were using Encore™ instead of the New York Law School’s classic catalog interface (p. 111). In a user study of the next-generation interface Aquabrowser®, Tod Olson found that doctoral students were able to find additional resources for their dissertations despite having already done thorough literature reviews (2007). Mississippi State University found that faculty and doctoral students welcomed the serendipity of discovery’s cross-disciplinary search, especially with extremely narrow topics (Powers, 2011).

Staff working at public service desks will face the challenge of determining how the discovery tool will fit into the service desk mission, training, or core competencies. At JMU, the discovery tool mission statement itself specified that the tool would offer a first tier of search to complement the JMU learning commons service model. Library assistants and student workers were specifically encouraged to use the discovery tool with patrons, because it was well suited for general, exploratory topics. If the question seemed to go beyond
discovery, desk workers were instructed to refer the patron to a subject specialist. All desk staff were expected to be able to locate and explain what types of information could be found using the discovery tool as well other specified library systems. As the library gains more experience with the chosen tool, follow-up training and discussions may further direct when the discovery tool is to be used.

To inform their thinking and planning, instruction librarians may wish to review how others have suggested that federated search, and now discovery, fit within the ACRL Information Literacy Competency Standards (Labelle, 2007; Fagan, 2011). Other questions they should discuss include: Should the discovery tool be a one-stop shop or merely the first of many steps in the research process? Is the discovery tool serving a particular type of user? Practically, instruction librarians also need to know the timeline for the discovery tool implementation and be updated about releases of new content into the discovery tool to ensure that they and their course materials are prepared for instruction sessions.

### Cataloging

In discovery tools, the success of results sets will directly reflect the work of the cataloger, especially subject headings and local notes for records from the library catalog. With catalog records more visible, the cataloging department may get an increased number of questions and requests for changes in practice (Wynne & Hanscom, 2011). This presents both challenges and opportunities. Without attention during implementation, a cataloging department may feel left behind, overworked, and undervalued as the “classic” catalog takes a back seat to the discovery tool. If the discovery tool implementation uses the expertise of catalogers and involves this unit in discussions, the department’s work can instead be seen as instrumental to the success of this new type of software.

One major contribution of catalogers to implementation of discovery tools is to evaluate search results and catalog displays. Wynne and Hanscom noted several areas in which catalogers have provided input to vendors on system-level issues, including which MARC fields to include in which facets and search indexes; the order of MARC fields; the display of notes; and hyperlinking fields such as earlier / later titles of serials (2011, p. 192). At JMU, the cataloging department played an instrumental role by comparing search records and result sets between the “classic” catalog and the discovery tool and evaluating how well the catalog records were represented within the discovery tool result sets. Yang and Wagner compiled a twelve-point checklist of common features in discovery tools and next-generation catalogs in order to review and evaluate both open source and proprietary interfaces (2010). Checklist items related to catalog display included a single point of entry for all library information, faceted navigation, and relevancy ranking (Yang & Wagner, 2010).

The metadata that catalogers have added over the years will help catalog records compete for relevance in discovery tool results sets and form the substance of discovery tool facets, which allow overviews of the collection using metadata such as subject, author, and geographic location. However, Naun (2010) noted that facets bring their own challenges; while they work well for categories such as format and location, “where the number of possible values is usually relatively small and easily accommodated in the limited screen area given to each facet,” the large number of subject terms retrieved can be very large, limiting the ability for the interface to display them (p. 336). Specific tests used at JMU related to cataloging are described in the “Monitoring and Assessment” section of this chapter.

It is clear that catalogers should be involved in the organization-wide discussions about the discovery tool. Wynne and Hanscom noted that cataloging departments should be involved with
both selection and implementation of new tools related to or making use of catalog records, and have often served in leadership roles during such processes (2011). Still, among Wynne and Hanscom’s survey respondents, only 45% of libraries had catalogers on implementation committees, and 35% on next-generation catalog selection committees. Some institutions they surveyed noted that catalogers had negative perceptions of next-generation catalogs, which may be one reason for exclusion. Recommendations from respondents suggested that catalogers need to be open to learning as much as possible during the process, and to be willing to speak from existing knowledge. Cataloging and/or technical services leaders may need to offer staff a positive vision of discovery tool implementation and be prepared to offer lists of benefits and opportunities offered by the tool (Wynne & Hanscom, 2011, p. 197).

Another challenge for cataloging departments preparing for a discovery tool is the impact on cataloging workflows. In a report on the implications of next-generation catalogs, Karen Calhoun noted several steps catalogers could take to streamline workflows, increase linkages in and out of the catalog, and to innovate and reduce costs (Calhoun, 2006, p. 17-18). Wynne & Hanscom (2011) noted specific ways that cataloging practices affect next-generation catalogs (p. 187-190).

Access Services / Interlibrary Loan (ILL)

For Interlibrary Loan and Access Services departments, questions about patron accounts and course reserves are common queries. Pathways to these services may not be obvious (or possible) in the discovery tool. Given the change in the discovery environment, access services should adapt and change with the technology in order to provide service consistent with user expectations. Users should be able to “focus their attention on information content, not the process we have in place for housing the material” (Chang & Davis, 2010, p. 113-114). Therefore, these departments will need to develop clear pathways to these materials (in and out of the discovery tool) and be ready to offer answers to patrons’ questions. Tutorials, Web page instructions, or FAQs may need to be developed to answer these queries. Chang and Davis advocate for staff development activities, networking with users, and cross-training within the library as a means of staying current in the face of technological change (2010). Since standards and technologies within the discovery tool are always changing, staff should monitor developments related to opportunities to provide clear pathways to library services.

Another potential impact of the discovery tool on interlibrary loan is increased borrowing due to the discovery of material outside the library’s local collections. While discovery tools highlight materials available locally to patrons, they also highlight materials that can be requested through ILL. Frank and Bothmann (2007) noted that students initiated interlibrary loan request three times more frequently using an OpenURL resolver than from another starting point. However, in cases where auto-fill features from OpenURL resolvers fail, ILL staff should be prepared to troubleshoot issues from the discovery tool. Additionally, ILL and access services should also be prepared to examine circulation reports and ILL usage reports since the discovery tool has the opportunity to highlight resources that users previously had to work to uncover.

With some discovery tools, the implementation team may be able to customize the content searched by default. At some institutions, such as the University of Washington, the default search might be as comprehensive as possible. At institutions with more limited loan resources, the initial search might limit results to locally held materials. A compromise is to provide limiters based on ease of access. At JMU, the discovery tool’s “Full Text (online)” limiter limits to catalog records with a URL in the 856 field in the MARC record that provides the electronic location, EBSCO records with attached full text, and any records for items
that show full-text holdings in JMU’s e-resource knowledge base from Serials Solutions®.

TRAINING / LIBRARY INSTRUCTION

Training and instruction will provide support for discovery tool implementation and adoption by helping staff understand how the tool works, as well as its strengths and weaknesses. Understanding the training and instruction needs of both internal and external users will help the implementation team and other library staff develop workshops and materials for both audiences. This section will outline the needs for staff and end-user training related to discovery.

Training for Public Services Staff

Staff who are unfamiliar with the discovery tool will be hesitant to use it at the service desk. With little or no training, reference services may be inconsistent, with some staff frequently recommending the tool, and others avoiding it. Instead, reference staff should discuss the discovery tool mission and purpose and how that translates to reference interactions.

In order to have informed opinions about when to use discovery, reference and instruction librarians and staff will need training in how the discovery tool software works (Koch & Davis, 2011, slide 17). Given that they will commonly be the front-line staff for patrons, they should be familiar with the content and interface features, including strengths and weaknesses of the discovery tool. Because local customizations and implementation decisions greatly affect the user experience, the implementation team should not assume librarians will automatically understand the content and features of the discovery tool.

Vendors’ aggressive development of the software may also mean changes due to product enhancement. Although initial experiences with searching for known items from JMU’s catalog records within the discovery tool were problematic, the vendor made significant improvements. A recent comparison study at JMU of known-item searching in the classic catalog interface and the discovery tool showed at least equal performance when searching for books. It is important to share this type of information with public services staff so their understanding grows with the tool’s development.

Staff training at JMU began with a collaborative process to create a series of videos that were used to train staff and student workers (http://www.lib.jmu.edu/eds). The process used to create the videos was to draft an outline, which was reviewed with service desk supervisors and the director of instruction; conduct a presentation for librarians and public services staff that followed the outline, and invite feedback; and finally to record the videos, which were modified to respond to feedback received from the presentations. This process supported staff participation in creating the videos, as well as initial training for staff. Additionally, the JMU implementation team wrote FAQs for the public Web site with answers to common questions about the discovery tool (http://www.lib.jmu.edu/info/faqscategory.aspx?id=102). Initially, many of these were intended for staff, who had plenty of questions during initial implementation, such as the difference between “academic journals” and “scholarly journals” limiters. Based on the FAQs’ popularity, it is clear that patrons are finding these useful as well.

Instructional Materials for End Users

End users will also need training in using the discovery tool. With federated search, students and librarians agreed that information literacy programs should include knowledge and skills to use these tools (Tang, Hsieh-Yee, & Zhang, 2007). Likewise, libraries should not expect users to immediately grasp how to use a discovery tool, but should provide direct training and support. This can occur in workshops focusing directly
Creating Organizational Buy-in on the tool, during library instruction sessions, and through online tutorials.

At JMU, a series of library workshops for freshmen included two sessions featuring the discovery tool. The first, “Library Research Boot Camp,” covered the scope of the tool and contrasted it with the library’s other research databases; topic development and basic Boolean searching; discovery tool limiters and facets; and linking to full text. The second, “Procrastinators Anonymous,” included a shorter version of this material. Since users were now able to search books and articles concurrently, it was found to be especially important to explain how to identify information source types and narrow topics.

Since it is likely the discovery tool will be prominently featured on the library home page, instruction librarians should plan to cover it in every class, however briefly. For general education classes, spending significant time teaching the discovery tool can provide a bridge between Google and library databases and introduce academic source types (K.E. Clarke, personal communication, 2011). One study of federated search suggested that equal promotion of single database and federated searching was needed for such students (Armstrong, 2009). While instructional messages should be informed by discussions about the purpose of the discovery tool within the context of instruction, they should be positive, or at least neutral, in tone. At a minimum, they should cover what the discovery tool searches as well as what resources or types of materials are not covered in the tool. For example, Drake University created a draft e-mail message library liaisons could send to faculty in their departments (Koch & Davis, 2011, slide 19).

**MONITORING AND ASSESSMENT OF THE DISCOVERY TOOL**

Discovery tools are new, large, and complex; therefore, another challenge is whether the software and customizations are working as intended. Additionally, vendors will continue to add and change features. This section reviews some of the specific needs related to monitoring and assessing discovery tools.

**Allocating Staff Resources**

Although responsibilities relating to monitoring and assessing discovery will likely be distributed to current staff as opposed to new hires, this should be done as carefully as if new position descriptions were being written. One of the most critical roles is that of project manager. A project manager overseeing projects that cross library departments...
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and oversees organization-wide discussions. At JMU, the work of the project manager was supplemented with the creation of an advisory committee, constituted of representatives from public services, technical services, and instructional technology. Due to its diversity, this group was able to advise the project manager on how to best communicate with stakeholders, provide quick feedback on customization decisions, and brainstorm solutions to complex problems.

While the project manager does not need to do all the project-related communication, he/she needs to ensure strong involvement for both internal and external stakeholders, and track project accomplishments. Figure 1 shows some of the documentation compiled on JMU’s intranet to support monitoring and assessment of the discovery tool. Drake University used a wiki to organize several sub-groups and their work (http://supersearch-implementation.drake.wikispaces.net/). By making documents easily available to the library staff, those who might miss a workshop or presentation can remain up-to-date. It will also provide more transparency into the decision-making processes.

Another of the project manager’s or project team’s challenges will be to identify who will fill additional roles and complete needed tasks related to monitoring and assessment, including: initial technical testing, documenting errors and reporting these to vendors, reviewing product improvements and enhancements, and conducting user evaluation and assessment of the discovery tool following implementation. These tasks may fit neatly into existing job descriptions; for example, at JMU, cataloging, e-resources, and research databases specialists were able to perform technical testing in their areas. However, a portion of a new, part-time position was allocated to review discovery product improvements and enhancements, including content releases and new features specific to the discovery tool.

Initial Technical Testing

Initially the discovery tool should be tested to ensure that the search functions are meeting library expectations. It is likely that these will be tested during the selection phase of a discovery tool. This testing can be done by a single individual within the library, or a library could create a group whose members could each test one area of the system (basic search, advanced search, limiters, etc.). Libraries have experience testing and evaluating database interfaces, but discovery tools have a few new concepts that will benefit from focused testing. It is essential that library catalog records integrate into the discovery tool results lists. Therefore, it will be critical to examine how catalog data is displayed in the discovery tool. The discovery tool may not include all of the fields from the MARC record commonly displayed through

Figure 1. Recommended documentation for discovery tool implementation

- Issue list: Use this to track issues reported to vendors and follow up with patrons and staff.
- Documents that supported selection / decision-making related to the tool: When software is ready to be renewed, similar criteria or processes can be used if documented. These documents can also be useful for reminding stakeholders who made decisions.
- Evaluation results: Showcasing user tests, survey data, usage statistics, and reports helps the organization connect decisions to user needs.
- Metadata chart(s): Show how metadata is mapped from the catalog to the discovery tool.
- Screenshots of the discovery tool interface: These help track what customizations were made, and when.
- Training materials: share handouts, video tutorials, etc. in an easily accessible, central location.
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an online catalog. Libraries can ask vendors to provide a list or chart of how the MARC fields map to the discovery tool’s fields as well as which discovery tool fields are searchable by the different types of searches. For example, libraries will want to know whether the discovery tool title list includes both main title and alternate title. After libraries gain an understanding of the display, a list of test searches for items and topics known to be covered in the catalog should be created. Library staff should execute these searches in both the discovery tool and the catalog to determine whether the relevance ranking is working effectively. If results are less than satisfactory, the vendor may be able to adjust the relevance ranking to boost catalog records.

Many library assignments ask students to locate both books and articles; historically, this was a challenge for users because it required them to choose different search tools for these materials. Therefore it will be necessary to test the discovery tool’s balance between material types, especially books and articles. Testers should perform searches on topics appropriate for book-length and article-length treatment, and review result sets to determine if relevant results are returned. General topics should produce results sets with at least some books, while specific topics should contain mostly articles. At JMU, public services librarians who were learning about discovery tools used their expertise to identify relevancy issues with results sets and they gained an increased understanding of how the tool could be used during library instruction and in reference interactions.

A variety of methods can be employed when performing technical tests including checklists or testing scripts. Checklists can be useful when first evaluating software, to ensure all of the required conditions are being examined, and when evaluating software after changes have been implemented (Ebena & Strauss, 1994, p .86). Regardless of which method(s) are employed for technical testing, successfully testing for errors requires simulating the search environment of the user (Whittaker, 2000). At JMU, a testing script was created and staff were allocated to troubleshoot each feature of the discovery tool. Step-by-step testing scripts may seem time consuming to create, but will save time and increase testing consistency (Fagan & Keach, 2009). While it may seem beyond the library’s scope of responsibility to do this, it will save the time of the users who would otherwise be the first to encounter any bugs. Additionally, if front-line library staff are the first to encounter bugs, this will foster a poor impression of the software.

Documenting Bugs and Reporting These to Vendors

Regardless of how good the initial testing is, new errors and issues will be uncovered. It will be important for libraries to provide a method for both users and staff to report issues with discovery tool functionality. Particularly when the discovery tool is new, patrons and staff will encounter numerous technical issues. The implementation team will likely anticipate the need to troubleshoot and report issues, but it can also be a challenge to get users and staff to submit trouble reports. The solution to this is twofold: first, provide an easy way for users and staff to submit issues; second, implement a tracking system for technical issues to help back-end staff stay organized and follow up. In addition to resolving technical issues, these activities are critical for increasing organizational buy-in and communicating efficiently and effectively with the vendor. Libraries will need to create workflow procedures for adding issues to the list and determine how responses will be communicated back to contributors. By tracking issues as they are found, the project manager and other team members will stay coordinated. An example of the JMU “issue list,” created with spreadsheet software, is shown in figure 2.
<table>
<thead>
<tr>
<th>Who Reported</th>
<th>Date Reported</th>
<th>Date Resolved</th>
<th>Last Checked</th>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>JCF</td>
<td>4/22/2011</td>
<td>6/22/11</td>
<td>7/3/11</td>
<td>OPEN</td>
<td>The product needs to be collapsed into one category.</td>
</tr>
<tr>
<td>Bob Smith</td>
<td>6/30/11</td>
<td>7/2/2011</td>
<td>7/9/11</td>
<td>RESOLVED</td>
<td>Search/browse call numbers, preferably as part of interface.</td>
</tr>
</tbody>
</table>

Publication Type/Source type: need to be collapsed into one category.

Note: If you do a search on aliens, then limit to journal discussions. Processes all faceted search results and only images are found.

Related Files: File1.xls

Figure 2: An example bug list
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Reviewing Product Improvements and Enhancements

Vendors will identify some of the issues that will be uncovered as “product enhancements.” Many vendors release software in beta form before all of the features are fully functional. Vendors are in a highly competitive, fast-paced market and may roll out features before they are properly tested. Therefore, this list can serve multiple purposes and can be used to track promised / potential new features. Since software testing is an iterative process, the tester should contact the vendor with each software update for a list of changes to the system and use the testing script to target those areas, revising the testing script if new features are added.

Assessment and User Evaluation

Each library needs to identify what measures and evaluation activities might be useful based on the tool’s local mission and goals. For any evaluation project, identifying what to measure will be the most time-intensive part of the process. Most libraries will use a combination of quantitative and qualitative information, including usability test results (Koch & Davis, 2011). At JMU, an examination is currently underway to determine what impact the discovery tool has on the usage of databases within and outside of the discovery tool. Figure 3 shows a sample goal, objectives, and measures.

Libraries will need to identify which person or people will conduct the evaluation, gather data, analyze findings, report results, and store assessment data, reports, and presentations. In order to manage the incredible amount of data that the discovery tool can report, libraries will need to ensure systems are set up to collect data. For example, at JMU, programmers set the library home page search box to anonymously log user queries and chosen limiters so librarians can observe how the tool is being used. Likewise, when the library’s chat widget was placed in the discovery tool, a specific “queue” was chosen so it would be easy to determine what types of questions were coming from the discovery tool. Vendors may also be able to provide information related to how searches within the discovery tool affect the overall database statistical reports for databases included in the discovery tool.

FUTURE RESEARCH DIRECTIONS

Libraries’ systems, services, and collections will continue to change, meaning that successful in-
integration of discovery software into the library organization will require ongoing research and experimentation. One area open to exploration is whether subject-specific discovery tools remain of interest and utility. Preliminary usage information shows discovery increases full-text downloads and subject database use, but use of some native interfaces to subject-specific databases remains steady (Fagan & Mandernach, 2011a). Many libraries set up subject profiles for federated search software, and others are trying this with discovery. Drake University has created several subject-specific variants of EBSCO Discovery Service™, with marketing messages specifically targeted toward these disciplines (Koch & Davis, 2011, slide 9).

Cataloging workflows will also continue to evolve. For large record sets such as e-book collections, some cataloging departments have already begun to shift to bulk import procedures. An obvious consideration is whether discovery tool vendors can “turn on” such record sets for their customers, potentially removing the need to add those records to the traditional library catalog. At JMU, while records for print government documents are still added to the library catalog, records for electronic government documents are now imported only to the discovery tool.

Research into the effects of discovery on interlibrary loan patterns will also be needed. Additionally, vendors may add technical capabilities for more direct pathways to interlibrary loan. The relationship of interlibrary loan and the inclusion of consortial or world-wide catalogs within the discovery tool will also be important for libraries to review carefully in the light of local user expectations and desires.

As libraries develop staff and end-user training, the instruction community will gain increased insight into how the pedagogy of teaching search has changed and needs to change further in order to keep up with the user’s context. How do information literacy skills need to evolve in order to support lifelong learning as well as college assignments? Research into users’ mental models about discovery tools, other library databases, and Web search engines will be useful for illuminating this area.

Libraries have long been aware of technical issues related to vendor usage statistics. With discovery tools, libraries are finding themselves re-examining which types of statistics are most useful, not only for measuring discovery tool impact, but also overall collection use. Searches and sessions were once of great interest; now, record views and full-text downloads seem to be increasing in prominence. Research will be needed to develop new key performance indicators related to library collection discovery and use, and to connect those indicators to strategic planning.

Finally, the big commercial search engine companies could dramatically change the discovery landscape. Microsoft has renewed its development of Academic Search (http://academic.research.microsoft.com/), and Google Scholar recently expanded its Scholar Citations service (Cordell, 2011). With just a little attention to some key features, these commercial products could become more central to libraries (Fagan, 2012). Alternatively, discovery tool vendors, publishers, and/or libraries might explore exposing more metadata to public search engines, expanding an additional avenue of discovery.

CONCLUSION

While discovery tool implementation is a time-consuming project involving numerous library departments, the investment of staff time and energy will pay off in a thoughtful, well-planned launch of the discovery tool. This can result in greater buy-in, better staff morale, and less disruption to users. Because of the new possibilities offered by discovery tools, this is also an opportune time to review other library systems, the library Web presence, and library marketing efforts. Ensuring that all areas of the library are prepared for a discovery tool implementation will allow for the maximum
integration and adoption of the discovery tool into the modern library organization.

**REFERENCES**


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**ADDITIONAL READING**


**KEY TERMS AND DEFINITIONS**

**Discovery Tool**: Software that includes both a library catalog and article indexes in a unified index and search interface; this approach differs from federated search software, which searches multiple databases and aggregates the results.

**Federated Search**: Software that searches multiple information sources simultaneously, but separately, combining results post-search into a unified results list.

**Issue Tracking**: The process of monitoring a list of known issues of a software system. This will include dates when the issue was first reported, who reported it, when the vendor was notified, name of the representative from the vendor who responded, action the vendor took, verification locally that the issue was resolved.

**MARC**: A format for bibliographic records containing a physical description of the item, subject headings, and classification or call number of the item. MARC stands for MAchine-Readable Cataloging.

**Precision**: A measure of an information system’s ability to return only relevant items.

**Project Management**: The process of directing the execution of an initiative through its lifecycle, including defining the project, collaborating with stakeholders, leading project team members, monitoring timeline and deadlines, overseeing organizational communication, and bringing the project to conclusion.

**Recall**: A measure of an information retrieval system’s ability to return all objects relevant to a given query.

**Stakeholders**: Individuals within an organization who have an interest in a process or product.

**Search Box Widgets**: Homegrown or vendor-provided code (usually in HTML, CSS, and JavaScript) for one or more input boxes that a library can embed into a Web page.
Creating Organizational Buy-in

Technical Testing: The process of examining software using a checklist or with a script in order to simulate user behavior and ensure that the software is behaving as expected.

ENDNOTES

1 EBSCO Discovery Service is owned by EBSCO Publishing Industries
2 Encore is a trademark of Innovative Interfaces
3 AquaBrowser is a registered trademark of Serials Solutions
4 Serials Solutions is a registered trademark of Serials Solutions