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ARTICLES

A Tale of Two Discoveries: Comparing the Usability of Summon and EBSCO Discovery Service

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Web-scale discovery systems are gaining momentum among academic libraries as libraries seek a means to provide their users with a one-stop searching experience. Illinois State University's Milner Library found itself in the unique position of having access to two distinct discovery products, EBSCO Discovery Service and Serials Solutions' Summon. Two researchers at Milner conducted a usability study for the former product in 2010, and now two other researchers, including one involved with the EBSCO Discovery Service study, have conducted the same study on the latter product. The goals of the study were twofold: first, to identify user behavior while using discovery systems' search features and to see whether using these features would improve the user's searching experience, and second, to compare user experiences with EBSCO Discovery Service and Summon at Illinois State University. The similarities and differences in user expectations, use, manipulation, and satisfaction with both discovery tools are explored in this article, with the ancillary hope that libraries investigating discovery tools might be able to make a more thoroughly informed choice in acquiring their own Web-scale discovery system.

KEYWORDS resource discovery tools, usability study, user experience, information seeking behaviors

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INTRODUCTION

Web-scale discovery systems are a maturing technology. More libraries are adopting them for their user communities. Content in unified indexes continues to expand, and the features of individual systems are becoming more robust. Usability of Web-scale discovery systems by end users continues to be a topic of interest.

Frequently, a library can only compare systems during the purchase process, when vendors make demonstration systems available for potential customers. The demonstration systems are useful for seeing general behavior, but rarely can a library explore back-end features (e.g., linking options, catalog data). Such access is typically given only after making a purchase commitment. Consequently, few libraries have the opportunity to compare discovery systems after purchase, because costs for such products can be substantial.

Milner Library at Illinois State University was the first academic library in Illinois to adopt EBSCO Discovery Service (EDS; http://www.ebscohost.com/discovery/) for its user community. It is accessible on Milner Library's Web site (http://library.illinoisstate.edu) via a prominent search box. In 2011, the Dean of University Libraries added Serials Solutions' Summon (http://www.serialsolutions.com/Summon) to the library's arsenal of search tools for the university community. This provided an opportunity for Milner Library to add local records such as those from the catalog and digital collections to the unified index. With both EDS and Summon in production, the time seemed ideal for performing usability tests to compare the two systems.

In 2010, Sarah Williams and Anita Foster completed a usability study on Milner's EDS. That study found that participants were generally successful in completing search scenarios using EDS, but material formats and facet options were often unnoticed or their purpose was unclear. In addition, the participants felt that instructions for using the resource would be helpful (Williams and Foster 2011). The same methodology used for the EDS test was used to perform usability tests on Summon. There were two aims for this study: to evaluate Summon's usability and to compare the results with those from the EDS study. In addition, we expect that other libraries can refer to the results from both usability studies when exploring resource discovery systems for their own library.

LITERATURE REVIEW

Discovery tools like Summon and EDS exist to maximize resource use, minimize student frustration, and ensure libraries' pivotal role in information use and retrieval. A review of the literature reveals common points for consideration when acquiring a discovery product. While users' response

to and use of discovery systems are almost as unique and individual as their personalities, commonalities among their perceptions and use of these systems are noteworthy.

One key theme found across user studies of discovery systems is how well participants understand what is being searched. In 2010, Lyle Ford found that students at the University of Manitoba assumed they could search for books and articles simultaneously while using Summon. He found students did not notice the various results-limiting options until prompted to do so. James Madison University in Virginia conducted a usability test on EDS in October 2010 (Fagan et al. 2012). Their findings raised questions about how users interpret large result sets, how or when they would benefit from using an individual database or the catalog, and how to best use limiters. Helena Luca's (2011) usability study of Summon at the University of Konstanz revealed the difficulty some users had with language used by Summon for its limiting options, notably those options to limit by date and format. Similarly, the icon used to highlight the function to save results was not obvious to a number of the participants of the study. Julia Gross and Lutie Sheridan's 2011 usability study of Summon similarly found that students had difficulty interpreting the results with respect to format. They reported, "Students in the usability study were confident with the user interface, but somewhat perplexed by the search results" (242). Ultimately, Gross and Sheridan concluded that "the simplicity of the new interface may be double-edged. On the one hand, it gives students confidence. Yet, on the other hand, this may not mean they have any great understanding of information seeking or evaluation of resources" (245).

Gross and Sheridan concluded that librarians' roles in helping users find information may be diminishing with products like Summon while librarians' roles as teachers of search strategies and evaluation may need to increase; this highlights another commonality found among various user studies of discovery products. Rice Majors' (2012) comparative study revealed that library jargon is often confusing to discovery products users, indicating a need for some level of instruction and/or nominative change to counterbalance this effect. Annie Armstrong's (2009) article demonstrated that students' information searching techniques with new search products could be positively impacted through instruction, as long as that instruction was fresh and relevant. Helen Timson and Gemma Sansom's article stressed the importance of catering services to the different needs of users, based on their maturity level and research needs (2011). Melissa Becher and Kari Schmidt's article (2011) detailed American University's use of two different discovery layers, Aquabrowser and WorldCat Local. They found that users' preference for a product was based on interface more than content.

Another common trend found across user studies is the readiness that discovery tool providers display in the face of constituent demand. This trend is laudable on its own, but it also highlights the fact that users have struggled

with various components of these tools. Dartmouth College's determination to continuously seek new ways to improve their users' experiences drove them to become a beta test site for Summon. In 2009, they noted that "undergraduates, in particular, took to Summon immediately, owing to its ease of use, finding it 'fast, simple, and familiar' " (Rapp 2012, 38). The reviews were not singularly positive; however, they raised concerns about the relevancy of results and with full-text linking. David Rapp reported that Summon's parent company, Serials Solutions, used feedback provided by Dartmouth and others in tweaking elements of their product. Similarly, Michael Gorrell (2008) noted that EBSCO utilized input from users to design their interface, notably the text that appears to preview articles while hovering over citations, the different facet features, and the date slider.

METHODOLOGY

As stated earlier, the goals of this study were twofold: to determine how easy Summon is to use and to compare participants' experiences with a similar study of the usability of EDS (Williams and Foster 2011). As the researchers wanted to consistently test both systems, the same process and research scenarios used for the EDS usability study were also used during the Summon study. Both studies used informal usability testing processes such as those suggested by Steve Krug in his book, *Rocket Surgery Made Easy* (2010). As with the EDS study, the Summon study was limited to undergraduate and graduate students.

The researchers received approval from the Illinois State University's Institutional Review Board in February 2012, and recruitment began in March 2012. The researchers recruited participants via Facebook postings, an announcement on the library Web page, and messages on iCampus (the university's student information portal). The researchers placed information about the study on a Web site and included its URL in recruitment material. Participants received a $15 Amazon gift card for participating in the study. The recruitment effort identified seven participants, six of whom attended their scheduled usability session. The usability sessions were held in March and April 2012.

Each usability session involved one participant and both researchers. One researcher facilitated all of the sessions while the other was an observer. The computer screen was projected on a larger screen for the observer, and TechSmith's Camtasia software (http://www.techsmith.com/camtasia) was used to record on-screen activity and comments which helped supplement any written notes. Due to technical difficulties, the audio portion was missing for three sessions.

Before working through the test scenarios, participants listened to an introductory script and then read and signed a consent form. The participants spent a few minutes exploring Summon on their own as an introduction to

the system and for practice in speaking their thoughts aloud, much like the "homepage tour" suggested by Steve Krug (2010, 75). The facilitator asked the participants to explain what they thought Summon was, what it did, and what sort of results they found. After this short practice time, the participants worked through the five research scenarios using Summon's Advanced Search as a starting point while they spoke their thoughts and the researchers observed their activities. Figure 1 shows the search form where participants began. In the EDS usability testing, participants began each scenario at a basic search page, which included options for pre-search limiters. As Summon's basic search has no such options, the researchers had participants begin with its Advanced Search page, which does have pre-search limiters available. Libraries can select either basic or advanced as the default search page, and this option seemed more comparable with the EDS search. Participants all started at the same place but had no other restrictions on what they could use, either in Summon or with other resources available to them.

Table 1 briefly lists the scenarios and the functions tested. The full scenarios are found in Appendix 1. After finishing the scenarios, the participants completed a brief written questionnaire. The researchers then asked the participants follow-up questions about their experiences during the scenarios and their responses to the questionnaire.

As mentioned above, the same scenarios from the EDS study were used in the Summon usability testing. While four of the five scenarios should have led participants to find success regardless of the resource discovery system used, the fifth one (asking participants to find information from the *ABI/Inform* database) was created specifically to test the behavior of the EBSCOhost Integrated Search integration within EDS. When EDS does not include a database or resource as a content provider, access can be configured via the EBSCOhost Integrated Search, an optional federated search module. Databases included in EBSCOhost Integrated Search are determined by the subscribing library. As Summon does not have an equitable integration mechanism, the researchers discussed removing that scenario and replacing it with a similar activity more targeted at Summon. However, as professors often ask students to retrieve information from a specific database, the researchers felt it was an opportunity to see how students might be able to fulfill that request when the source of information is not as accessible as choosing a database from a list. In addition, because it is possible to discover the answer to the scenario in Summon and as replicating the EDS study as closely as possible was important, scenario 5 was retained.

RESULTS

Participant Demographics

Participants were a mix of undergraduate and graduate students. Unlike the EDS study which had only upperclassmen and graduate students, three

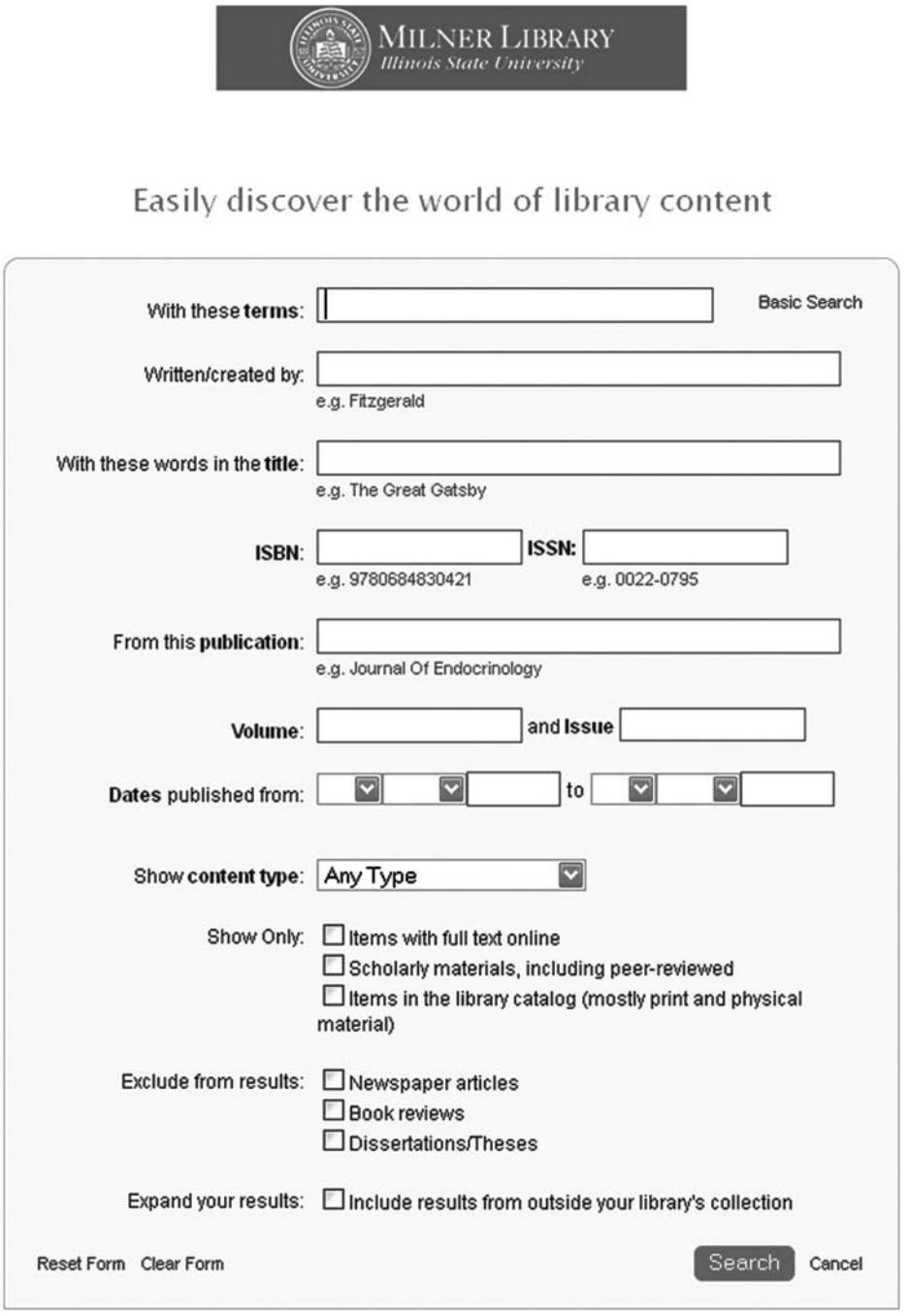

FIGURE 1 Beginning search form.

TABLE 1 Intent of Five Scenarios Used

Scenario	Task description	User experience tested	Feature/Functionality tested
1	Find and e-mail the records for a book and a peer-reviewed journal article	Effectiveness of Summon's distinctions between types of information	E-mail results
2	Open a full-text article published since 2005	Ease of finding a full-text article via Summon	Date limiter
3	Determine if the library had an available copy of a poem published in a book	Ease of finding a book in the library's collection via Summon	Local library collection limiter
4	Find an article on a complex topic and decide how to share it with a group	Ease of searching a complex topic in Summon	Methods for sharing results
5	Identify a relevant citation from a specific database in the "Additional Results"	Visibility and effectiveness of Summon's federated search component	"Additional Results" component

freshmen volunteered for the Summon usability testing. The remaining participants included one senior, one master's student, and one doctoral student. Their areas of study were mixed, but again, no one majoring in natural sciences volunteered to participate. All six participants reported using Google weekly, half used the library catalog weekly, and one each used the library's Search Anything (EDS) system and EBSCOhost databases. All reported that they had never used Summon or "Discover It," which is what it was called during the usability testing.

Pre-Search and Post-Search Refining

Other than the requirement to start each scenario from the given page, participants could use any other search box available to them within Summon. Although not explicitly told, participants could also use resources available outside of Summon such as Google or other library resources. Most participants used the advanced search, although half of them did switch to the basic search at some point. All participants used pre-search refinements at some point, with the most popular one being the option to restrict by a specific format (e.g., journal article, book). Two of the five scenarios required the use of a peer-reviewed article. A peer-reviewed limit option appears in the search form but was only used three times. The lack of use of this option was unexpected. This was a major difference from the results of the EDS study. Figure 2 presents a sample of search results seen by participants.

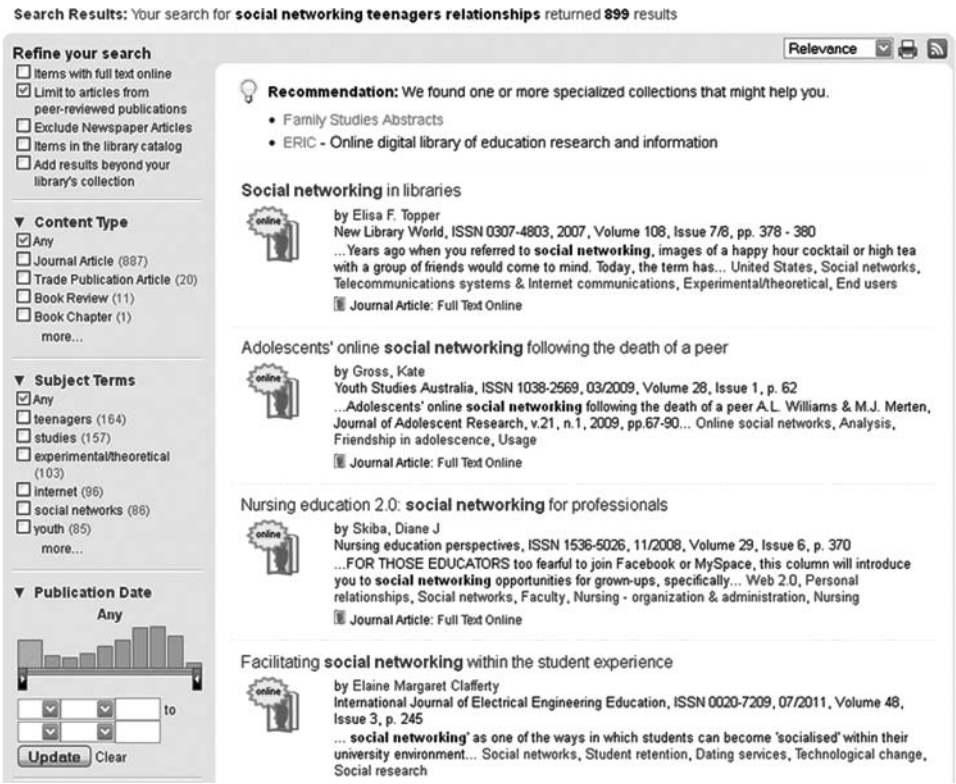

FIGURE 2 Search results example.

Another difference was the frequency of post-search refinement use. In the EDS study, participants used the post-search refinements sparingly, only turning to them when results were not as expected. The Summon usability testing participants frequently used post-search refinements. In fact, post-search refinements were used two-thirds more often than pre-search limiters. The most popular choices were format (e.g., journal article, book), subject, and full text.

Use of Special Features

Summon does not have the large range of special features (e.g., sharing options, note taking) that are available in EDS. It does offer the ability to create an RSS feed for a search, collect records into a temporary folder, and export to a citation management system, e-mail, or print. During the time the testing sessions were held, a participant could only view the option to add things to the temporary folders when the mouse hovered over a record. Only one of the six participants discovered and used the temporary folder option at any time. Two scenarios asked participants to e-mail satisfactory records

to themselves. None of the participants used the option to add records to the temporary folder in Summon and then e-mail the records; all of them used e-mail options that were available in subsequent screens opened during their searching activities. After the usability testing was completed, Serials Solutions made the folder option visible at all times when using Summon. Participants frequently clicked on record titles, which took them away from the Summon results. Only a couple discovered that if they hovered the mouse pointer over the title, they would retrieve more information about the article without leaving Summon.

Although Summon does not search databases as part of its index, it does make a feature available called Database Recommender Service. Based on search results, Summon displays up to two databases that might be appropriate for users to also search. The recommendations appear at the top of the search results in a gray box, with database names in green. Because the recommendations are context-based, they do not display with every search. When these recommendations did display, none of the participants mentioned noticing the Database Recommender box or any recommendations within it.

Unsuccessful Scenarios

In general, participants in the Summon usability study had a more difficult time fully completing scenarios than those in the EDS study. Overall, participants satisfactorily completed only a little more than 50 percent of the five scenarios. In the EDS study, over 86 percent of the scenarios were completed successfully by participants. Even if scenario 5 was dropped from the Summon study due to its EDS focus, only 73 percent of the scenarios were completed successfully.

As in the EDS study, scenario 5 was the most problematic. This scenario asked participants to identify records in Summon results that came from the *ABI/Inform* database. Although difficulties were expected due to the differences between how EDS and Summon present database names, the researchers thought participants would discover results that would satisfy the requirements of the scenario, either through information available in the results records in Summon or through a more thorough exploration of results. In addition, Milner Library includes catalog records for all databases in its online catalog, so at least participants would see the record about *ABI/Inform* from the catalog. Using the links in the catalog records, participants could have discovered a path to search the named database. In addition, catalog records are generally highly ranked due to Summon's relevancy ranking algorithm. For searches done by two participants, *ABI/Inform* displayed in the Database Recommender box, but it was not noticed. When faced with the possibility of not completing the scenario, some participants did the search anyway, disregarding the database requirement. They stated this approach

was a technique they used when unclear about an assignment. Some also said they did the search with an expectation of seeing some indication of the source of the information in the retrieved records. Other participants stated they would leave Summon and find the database in the listing of those available to Milner Library patrons. Half said they would be more likely to leave any library site and do the search in Google.

Library Catalog Data

A feature commonly touted about all resource discovery systems is the ability to include local collection information such as library catalogs and local digital collections. The third scenario asked participants to check the availability of a copy of Walt Whitman's *Leaves of Grass* containing the poem, "I Sing the Body Electric." This scenario was significantly problematic for participants. Several editions were readily available, as Milner Library has over 30 copies of *Leaves of Grass* in various compilations in its collection.

As in the EDS study, participants were uncertain of what search terms to use. They also did not clearly recognize the difference between results of material available in Milner Library versus information available from other sources. Milner Library uses the real-time availability look-up feature for items in the collection and displays the item status, call number, and location in the list of results. Real-time availability is a feature found in both EDS and Summon. The option to limit results to the catalog is available on both the Advanced Search screen and as a post-search limiter; however, it was infrequently used. When evaluating the retrieved results, participants found it difficult to determine what items were available on the shelf. Two participants also did not recognize the difference between Milner's collection and that of a laboratory school whose records are also included in Summon.

An additional complication for completing the scenario was tied to the options available on the Advanced Search form in Summon. The form has two boxes: "With these words in the title" and "From this publication." Because the scenario asked participants to find a book containing a poem, two participants used one box for the poem name and one for the book title. However, such a search did not retrieve any results, as it does not work in the way they expected. Using multiple search boxes posed some challenges for study participants. For example, when having difficulties finding matching records for *Leaves of Grass* and the poem "I Sing the Body Electric," some participants put terms in each box. This seems like a logical way to approach such a search—to put the poem name in the "With these words in the title" field and the book title in the "From this publication" field. However, by doing so, participants retrieved no results. "From this publication" actually retrieves the contents of a known-item publication while "With these words in the title" is a more traditional title search.

The largest issue with this scenario is not related to Summon or EDS; even if the Summon study participants started with the Basic Search box, result sets are very similar to those when the Advanced Search form is used. Instead, participants demonstrated that they were unable to differentiate between types of material and how to determine when a record referred to a physical item available in the library and when it did not. Since this behavior was noticed in both studies, it indicates that even resource discovery systems need some type of instruction component to be fully utilized by end users, despite their general ease-of-use.

Questionnaire Responses

After participants finished the five scenarios, they completed a questionnaire about their experiences using Summon and the type of search systems they used. All six participants agreed or strongly agreed that they were able to easily find relevant results in Summon and that they liked the Summon interface. As with the EDS study, this group of participants said that instruction on how to use Summon would be helpful.

LIMITATIONS

There were some limitations in this study. The small size of the participant group may not be truly reflective of the experiences of all university students. Another limitation of this study was in its variation from what is typical for student researchers to do. Normally, students do their research without having their mousing patterns recorded, their screens shared with researchers, and without verbalizing their thoughts. The artificiality of the usability sessions undoubtedly influenced user behavior. Finally, participants in the Summon study represented a different cross-section of student users than the EDS study did. To be a thoroughly comparable study, users of more similar educational standing and rank could have been used in both studies.

DISCUSSION

Interesting similarities and differences emerged between this usability study of Summon and the previous study of EDS, both at Milner Library and at other libraries. This section will summarize the ways this study's participants interacted with Summon, and then it will compare Summon, EDS, and other libraries' experiences. The way in which study participants interacted with Summon can be broken down into four broad categories: pre- and post-search use of limits/refinements, identification of special features and functions, relevancy identification, and speed. All elements are related, but by discussing each individually and then comparing these findings to those

of the previous EDS usability study conducted at Milner Library, interesting differences and similarities emerge.

Two search refinements that participants in the Summon usability testing frequently used were content type and date. These refinement options are available in the advanced search form as well as when presented with results, under the option to "Refine your search" on the left side of the result set. Not surprisingly, the refinement by content type (e.g., newspaper article, book/e-Book, journal article, book review, etc.) saw the largest cumulative increase in usage between pre-search selection (thirteen uses) and post-search selection (31 uses). The date refinement was also more uniformly used; it saw only a modest increase in use between pre-search (six uses) and post-search (eight uses). Most participants found limiting by date exceptionally easy to use, by either using the slider bar or typing in specific dates. One participant confused the direction of the dates on the slider, pushing the publication date to include anything published before 2008 for the second question. Quickly realizing the error, the participant remedied the date refinement to reflect the requirements of that question.

Whether users accurately identified different features and functions within Summon was another point of interest. While many investigated the options to refine search results by content type, subject terms, and publication date, fewer commented on or used the five options listed immediately beneath the "Refine your search" phrase, namely the options to limit to items with full-text online, limit to articles from peer-reviewed publications, exclude newspaper articles, [include] items in the library catalog, and add results beyond your library's collection. Table 2 details the refinement types used by study participants.

No participant discovered how to e-mail records using Summon's e-mail function, and only one used the option to save records in folders. All participants explained they would e-mail a link to the record, e-mail the full text from the content provider, or paste the text into a document and

TABLE 2 Search Refinements Used

Refinement	Total
Format (e.g., book, journal article)	42
Exclude formats (e.g., newspapers, book review)	16
Limit to full text	7
Subject	7
Add beyond your library collection	4
Date (boxes, slider)	4
Library catalog	2
Keep search refinements	2
Author	1
Language	1

send it that way. Two participants said they appreciated the presentation of abstracts offered while hovering over citations.

When searching Summon, several users expressed confusion about extra windows that were presented while refining searches. One said, "When I clicked on a source to get more info, another page popped up. This was frustrating." Another said, "Whenever I clicked on 'subject terms' or 'content type' a box popped up and kept making me nervous that it was changing the page." This issue will be more thoroughly discussed below.

Summon offers the option to sort results by relevance (default) and date (newest and oldest). No participant chose this option. It was not clear from their narrative or from their navigation whether they actually saw this feature. However, one participant indicated that he felt that the results were presented with the most relevant or best article first, as he admitted he would order the first article presented in his results of the first scenario through interlibrary loan, even though there were other articles available full-text online further down his list.

All users in the study appeared to appreciate the speed with which results were presented. The researchers consistently heard positive comments when results were presented to searches for each scenario. All participants appeared satisfied with Summon in this regard.

A few common points raised concern. While all the first-year students would have had library instruction sessions for at least one, if not both of their semesters, none of them performed searches that were very sophisticated in terms of search terms or keyword searching, an element common to library instruction at their level. Additionally, many of the individuals did not indicate that they understood the link resolver (Find It) option would direct them to the full text; instead, they stated that they expected the full text to be presented immediately upon clicking on the record title. Finally, most study participants misinterpreted the use of the word "citation" when asked to send it to others, thinking that the word referred to a style manual function instead of a bibliographic record, highlighting the problems that can arise from the use of library jargon.

Two participants indicated that not knowing where the records retrieved in Summon came from was a concern. One participant said, "If you can't tell what kind of results you've generated, you're less likely to follow through and track them down successfully." This participant was an instructor in addition to being a graduate student. This individual indicated that, as an instructor, she/he would not encourage her/his students to use Summon, as relationships between searches and results were more difficult to discern.

Comparison Between EDS and Summon

Generally, participants in both the EDS study and the Summon study found the systems straightforward when performing searches. They were able to

search and retrieve results that met scenario requirements satisfactorily. When comparing the experiences in the two studies, the researchers observed noticeable differences. The differences were most obvious in five areas: searching, relevancy, search refinements, the use of data from the local library catalog, and use of discovered content.

Although participants in both studies started the search scenarios in similar ways, they could switch between basic and advanced search options at any point when completing the scenario. Both groups tended to use the study's opening search screen throughout the session, with only a few switching to a different option. The Summon participants struggled when deciding which field to use for entering search terms. While most recognized that the "With these terms" box was a keyword search, other fields were confusing. When struggling with a scenario, many of the Summon group tended to find that using other Advanced Search fields led to no results or confusing results. The purpose of two fields, "With these words in the title" and "From this publication," seemed especially confusing.

Relevancy ranking of search results has been a concern with both federated search and resource discovery systems (Randall 2006; Wrubel and Schmidt 2007). Both EDS and Summon present results in a relevancy ranked list by default, and participants in each study indicated some recognition that each system places the most relevant records higher in the list. However, this awareness seemed to disappear for some participants in the Summon study. When searching for *Leaves of Grass*, nearly every participant retrieved a result set where an appropriate record was in the top five results, even when no search limit was applied. When limiting the search to the format of books, all but one record in the top five was relevant, but participants were observed not recognizing appropriate records that could satisfy the scenario requirement. In other searches, participants scanned through the entire list of results on the first page before choosing any record. In the EDS study, participants rarely went beyond the first ten records in a result list, even for the *Leaves of Grass* scenario. Reasons why this behavior was different are outside the scope of this study, but further research could prove illuminating.

User inability to distinguish between different source types was another common finding between EDS and Summon. Like other discovery tool usability studies, this one revealed that users' ability to distinguish between different source types is questionable (Luca 2011; Gross and Sheridan 2011; Fagan et al. 2012).

Search refinements, both pre-search and post-search, are available in both Summon and EDS. Each system has a variety of options for using them, and in each study participants took advantage of the refinements to enhance their searches. As in the EDS study, the Summon participants relied heavily on the refinements, making use of them most often as a post-search refinement technique. Unlike the EDS study where the most common choice was limiting to peer-reviewed records, Summon participants most

often chose format (e.g., book, journal article) refinements. Summon allows for facet types to be both included and excluded, an option not commonly found in literature database search interfaces. Regarding this, one participant commented, "Being able to include/exclude specific factors was *much* easier than other Web sites."

Professors frequently require students to use peer-reviewed articles in their research. Both EDS and Summon have opportunities for students to limit results to peer-reviewed articles both in search screens and as refinement options. As mentioned earlier, two scenarios required participants to identify useful peer-reviewed articles. Although frequently used in the EDS usability sessions, it was only used three times in the Summon study. One possibility for this may be tied to the refinement label. In EDS, it is labeled, "Scholarly (Peer Reviewed)" and is consistent between search pages and result lists. In Summon, the option is not seen on the basic search and is labeled "Limit to articles from peer-reviewed publications" on result screens. When using Summon's Advanced Search, it is shown as "Scholarly materials, including peer-reviewed." Although Summon provides a search box on the results page, it defaults to "New Search," which led to problems for those who initially chose a peer-reviewed option. If the participants refined their search using this search box, they lost any refinements, possibly because they did not notice the option to "Keep search refinements." When a search was modified, participants were observed to not notice the check marks disappearing from the search refinement options and therefore did not notice that their results now included items from the library catalog, newspapers, and other material.

EDS and Summon both feature the ability to add library catalog data as well as retrieve and display call numbers, locations, and real-time availability information on the results list. EDS also lists availability in the full records. At the time of the study, Summon did not have a version of full records for catalog data. In EDS, this item information displays in a distinct box, with availability information displayed in green. In Summon, the information is listed at the bottom of each brief record, with a small icon that indicates format. Availability information is a hyperlink, but is the same color as other links on the screen. Participants in the Summon study had difficulty differentiating records from the library catalog from other types of retrieved records. This difficulty led them to struggle when trying to complete scenarios 1 and 3, which involved recognizing different formats to satisfy the scenario. Participants in the EDS study had fewer problems identifying materials available in the library.

Lynn Sillipigni Connaway, Timothy J. Dickey, and Marie L. Radford discussed the influence of convenience on information-seeking behavior, noting that the ease of access to material influences discovery. The more readily available content is, the more convenient it is to use (2011). The presentation of the availability of full text is very different between EDS and

Summon, affecting ease of access. In EDS, users frequently see links that take them directly to full-text content. The links are found in both the results list and inside the full records. The library's link resolver icon is clearly displayed on each record both when there are direct links to full text and when direct links are unavailable. How links to full-text display in EDS can be configured by subscribing libraries. Libraries can determine the display order of full-text links (e.g., link resolver first, then other links). Libraries can also choose to use the EBSCOhost CustomLinks feature and include links to specific content provider platforms. In Summon, identifying records where full text is available is less predictable. Although a visual cue for full-text availability displays to users, what happens when a user clicks on the link varies. At the time of the study, users experienced three possibilities: They could go straight to the full-text article, they might go to the library catalog interface, or they could see the link resolver menu, from which they would have to click at least one more time to get to the full text. After the study concluded, Serials Solutions added a fourth possible behavior: users could go to a subsequent page in Summon which displays additional information from the catalog or more metadata from a few abstracting and indexing databases.

Participants in both studies stated that they expected to retrieve full text when a record indicated it was available. In the Summon study, when the participants saw a link resolver menu, it was unclear to them why they were seeing it instead of the full text. As William Wong et al. (2012) discovered, "Users abandon searching on library subscribed resources when this occurs too frequently and turn to freely available resources on the Internet" (39). This behavior was seen with the Summon participants. They often stated that they would turn to Google when they did not understand what had happened with their Summon search. The EDS study participants rarely mentioned wanting to use Google during the study scenarios.

Additional complications for the Summon participants came from browser settings; whether tabs were used or links opened in new windows affected how users interacted with Summon. As previously mentioned, participants experienced frustration and confusion when Summon opened new windows. EDS rarely opens additional windows, and participants did not express confusion about the purpose of new windows when they did display.

Special features in both EDS and Summon were rarely used. Two scenarios asked participants to share information, both with themselves for later use and with others who might be working on a project with them. Both products allow record saving and export to other systems. EDS study participants used the "Add to folder" option occasionally, but only as a way to get to the e-mail feature. They did not recognize that records could be collected throughout the process and e-mailed or sent to a citation management system such as RefWorks at the same time. In Summon, only one participant noticed the option to add records to a temporary folder in the interface. All

others in the Summon study used features available in the subsequent sites to which they were led. Participants discovered citation style options in the EDS study but not with Summon. This feature was not used, as none of the study scenarios required it. None of the other features in either system (e.g., permalinks, creation of RSS feeds) were mentioned or used to fulfill the requirements of any scenario.

Both EDS and Summon have options to customize the user experience. The number of possibilities is fewer in Summon; libraries can choose which refinement options to display to users but cannot choose which subject or format facets appear. Summon can also include library-specific links. At Milner Library, a link to the primary Web site listing its databases was added to Summon after seeing how few participants noticed the Database Recommender or database names in result sets. However, in Summon, the general look and feel cannot be modified without using its API. Using the API is not an option for many libraries, as it requires staff with programming skills. In EDS, however, a library can modify look and feel to an extent. For example, libraries can change the colors or add custom widgets for chat and other purposes.

One issue that both the EDS and the Summon study revealed is the need for instruction on resource discovery systems. While discovery systems are easy to use and generate useful search results, more information, either from library instruction sessions or at the point of need, on using the depth of features is necessary in order to use any system to its fullest.

CONCLUSION

Which resource discovery system is best for a library is a difficult question to answer. Many factors are involved in the decision including cost, content, and usability. The usability studies at Milner Library at Illinois State University uncovered issues with EBSCO Discovery System and Summon. While participants in each study thought both systems were generally easy to use and found relevant information, there were also situations where they struggled. Both groups said instruction on the systems would be helpful and additional training could show users how to overcome the areas of difficulty. Based on the results from the two usability studies, EDS had fewer issues for participants and gave them better search experiences.

The observations from both studies strongly indicated the importance of understanding end users who will be using the resource discovery system. Knowing the needs and experiences of the targeted users is just as important, if not more important, than understanding the features of the discovery system itself. Once a library understands the expectations and demands of its users, the choice of system will be more informed and more easily made.

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APPENDIX 1: DISCOVER IT USABILITY SCENARIOS

(Williams and Foster 2011)

Discover It Usability Scenarios

Scenario 1
Click the *Advanced Search* link to begin a new search.
You are writing a short research paper about hybrid cars. Your professor requires you to have one book and one peer-reviewed journal article for your paper. Identify one of each and e-mail the citations to yourself.

Scenario 2
Click the *Advanced Search* link to begin a new search.
You have to give a presentation on bullying in high school, and your sources must be published since 2005. Your presentation is tomorrow, so find an article that you can read online. Open the full text of the article on the screen.

Scenario 3
Click the *Advanced Search* link to begin a new search.
You need to read the "I Sing the Body Electric" poem by Walt Whitman, published in *Leaves of Grass* for your English class. Is there a copy available in Milner Library?

Scenario 4
Click the *Advanced Search* link to begin a new search.
You are a member of a group working on a presentation about the effect social networking (i.e., Facebook, MySpace) has had on relationships of teenagers. Identify an appropriate article from a peer-reviewed journal and decide how to share it with your group members.

Scenario 5
Click the *Advanced Search* link to begin a new search.
You are researching a project about the economic factors that affect businesses in Indonesia. Your professor said that useful information could be found in the ABI/Inform database. Perform a search on this topic and identify a relevant citation from ABI/Inform. Retrieve the full record from ABI/Inform.