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Selecting and Implementing a Discovery Tool: The University of Maryland Health Sciences and Human Services Library Experience

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Staff of the University of Maryland Health Sciences and Human Services Library embarked on an investigation of discovery tools in 2010. These products provide users with the popular Google-like interface to library resources. The evaluation which included completing a checklist of desired criteria, demonstrations by vendors, and trialing live systems resulted in the purchase of EBSCO's Discovery Service (EDS). The key to its successful implementation was comprehensive testing of the tool to ascertain its usability among diverse populations, and evaluating its treatment of all types of resources. After several phases of customization, OneSearch was officially launched in April 2013.

KEYWORDS discovery services evaluation, discovery services implementation, EBSCO Discovery Service, health sciences libraries, usability studies, web-scale discovery services

INTRODUCTION AND BACKGROUND

Discovery tools for libraries provide users with the popular Google-like experience: a single search box, fast response time, the ability to query a vast amount of content, and results ranked by relevancy. In 2010 the

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Color versions of one or more of the figures in the article can be found online at www.tandfonline.com/werm.

University of Maryland Health Sciences and Human Services Library (HS/HSL) embarked on a project to select and implement a discovery tool that would meet the needs of the campus community.

Located in Baltimore, the University of Maryland HS/HSL serves the Schools of Dentistry, Medicine, Nursing, Pharmacy, and Social Work as well as the Graduate School. Additionally, the library is a member of the University System of Maryland and Affiliated Institutions (USMAI) consortium consisting of 16 libraries, many of which were also in the process of evaluating discovery tools. As a result of the considerable interest among its membership the consortium agreed to facilitate the investigation of the available products.

EVALUATING DISCOVERY TOOLS

The HS/HSL User-Oriented Discovery Task Force was formed in June of 2010 and charged with becoming familiar with the issues and trends in discovery tools, to identify aspects of particular relevance to the Library, to develop a list of criteria and features that would result in an optimal product for users, and to participate in the USMAI selection process

The consortium scheduled a series of webinars and one in-person presentation for a total of seven products including EDS, Ex Libris' Primo, III's Encore, OCLC's WorldCat Local, Endeca (purchased by Oracle in 2011), Serials Solutions' Summon, and VuFind, an open source option. One of the first responsibilities of the task group was to complete an extensive checklist for each tool. The document was divided into seven main categories: Integration with Catalog, Implementation, Purchase; Navigation and Discovery; Usability; Delivery; Campus Customization; User Interaction; and Authentication. Sections included critical, desired, and "wish list" features. Figure 1 is a screenshot of the elements in the Navigation and Discovery section.

Responsibility for completing each category was split among task force members according to area of expertise and preference. Questions during the webinars were limited due to time constraints. However, queries were sent to vendors for information and/or clarification of issues not covered in the presentations. Additionally, the consortium requested feedback from its members specifying each tool's strengths, weaknesses, and features most valuable to the individual library. The task group met on a regular basis to discuss member evaluations especially with regard to critical features and functionality. Completion of both the checklist and the responses to the questions posed facilitated narrowing the initial field of seven products to three: EDS, PRIMO, and WorldCat Local. More in-depth investigation of the finalists was accomplished through on-site vendor demonstrations and a literature review which provided sufficient information to rank the three in order of preference. The final step in the process was arranging for trial access from a facility using the top-ranked products. Staff members from all departments within the HS/HSL were invited to use the discovery tools and

Checklist of desired features for a Discovery Tool	Essential?	Fulfillment of criteria Y/N	Comments
Navigation and Discovery			
Tool is able to search multiple formats and collections			
Seamless access to subscription e-journals at the article level			
Access to free or open source e-content, specifying limits			
Access to full text of e-books			
All catalog content			
Access to other databases outside of tool's native content (e.g., access to other databases via federated search)			
Locally created subject guides			
Repository or other in-house databases?			
Finding aids or other data about special collections?			
Tool displays holdings and items available by institution in a precise, user friendly manner.			
Offers faceted browsing options			
Scholarly peer reviewed facet			
Content type			
Is the criteria and method for relevancy ranking clear?			
Title/author?			
Keyword title / author?			
Subject/index terms			
Keywords (where does it search them)?			
Can it be changed by the user?			
Capacity for exact searches and advance search?			
Can results be limited to certain collections or branches?			
Did you mean? and spell check suggestions for searches			
Autocomplete			
Suggestions for alternative searches on related topics			
Integration of discovery of library resources with materials on the open web			
Links to reviews and other supplemental material			
Links to full-text resources, such as Google Books or Open Content Alliance			
Ability to easily broaden the search to other libraries as needed			
USMAI			
WorldCat			
Others			
Ability to sort by multiple fields			
FRBRized records to group editions together?			
Ability to virtually merge records			
Different formats			
Multiple editions			
Duplicate records			
De-duplicate results?			

FIGURE 1 Section of checklist adapted from documents created by: the HS/HSL Future of Cataloging Group and the USMAI User Interface Task Group. the Catalog Group, the USMAI User Interface Task Group and the USMAI Web Presence Study Group. © [USMAI]. Reproduced by permission of Charles Thomas, Executive Director, USMAI. Permission to reuse must be obtained from the rightsholder.

evaluate their experience via an in-house survey. In September 2011 the task group presented the HS/HSL executive director with a report endorsing EDS. Among the features of primary importance were the centrally indexed health-related content, good relevancy ranking, customizability, export capability to bibliographic management software, and authentication flexibility. Ease of implementation and ongoing maintenance were also topics of discussion. It should be noted that EDS did not fulfill all criteria considered critical to the HS/HSL. At the time, its usability with mobile devices was considered to be inadequate by the task group. However, EBSCO indicated that a true mobile version was under development and it was subsequently released in 2013.

A number of other institutions within the consortium also selected EDS. Consequently, USMAI began negotiations with EBSCO resulting in the purchase of EDS in 2012. Although it was a group purchase, each individual library retained responsibility for customization and for deciding on the content to be included in the central index.

CUSTOMIZATION AND IMPLEMENTATION OF EDS

The HS/HSL established an implementation team comprised of five core members with additional staff from across the library participating as needed. Chaired by the Metadata Management librarian, it included the head of collection management, the reference services manager, the associate director for resources, and the web developer. Its primary goal was to provide the user with seamless, intuitive, relevant, and comprehensive search and result functionality of the library's content. In consultation with services division staff, the initial task was to select in-scope resources from the range of databases available in the EDS central index. Subsequent discussions focused on elements in the interface associated with limiting and displaying results. Considerable time was also spent testing federated searching of databases not included in the central index (called connectors). However, due to significant timing out problems and other issues that affected functionality it was decided not to utilize the connector option.

Testing occurred in increments, first by team members and colleagues in the services division, then by the entire HS/HSL staff, and finally by a "soft launch" in September 2012. At each level, feedback was solicited and improvements made accordingly. To enhance visibility, adjustments were made in the placement of some facets and limits considered to be of particular importance to the user community, such as "peer reviewed" and the date range limit. Other elements were eliminated due to redundancy or possible confusion. For example, "HS/HSL Print and Digital" (EDS' "Available in Library Collection") was hidden since the "Electronic Full Text" and "Library Catalog Only" options already existed. Another significant recommendation was to display the name of the database in the hit list. This became an enhancement adopted by EBSCO.

A meeting with an EDS training specialist provided an additional opportunity for staff to learn more about the product and to discuss suggestions for further improvements. Changes resulting from the meeting included:

- Replacing the label "More Search Options" with "Advanced Search" making the terminology consistent with other EBSCO products and more familiar to users.
- Changing the designation of "Institutional Repository" to "UM Digital Archive" since the proper name would be more easily understood by users.
- Retaining the display of search criteria providing users with information on how the results were retrieved as illustrated in Figure 2.

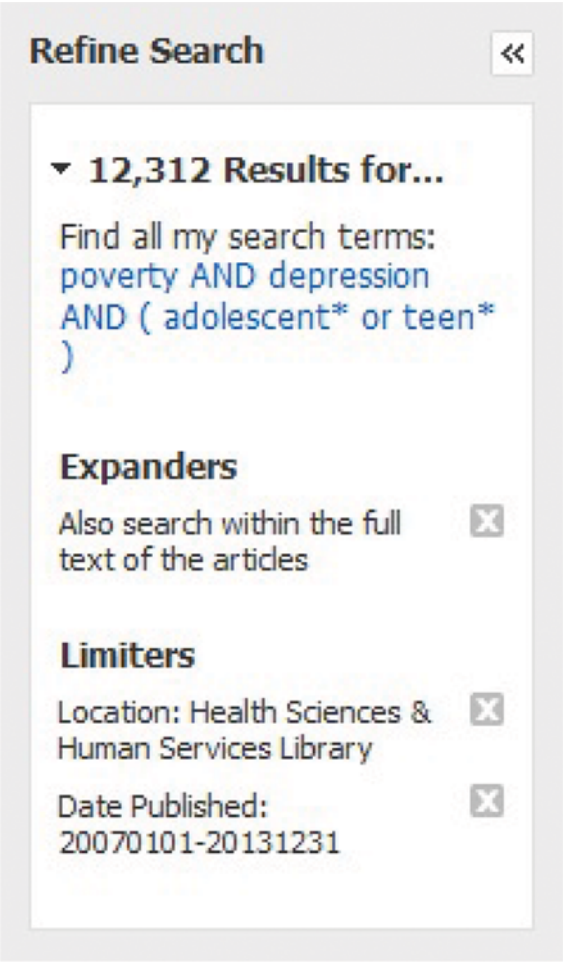


FIGURE 2 Search results box. © [EBSCO Health]. Reproduced by permission of Tracey Bahia, Director of Medical Sales, EBSCO Health. Permission to reuse must be obtained from the rightsholder.

Efforts were also focused on the databases available in the central index and activating those considered to be most relevant to the campus community, primarily graduate level students, faculty, and staff in the health sciences and social work. It was important to balance the desire to make a variety of resources easily accessible, while excluding those that may be perceived as not useful[1]. Determining what should be included is a continuous process as new databases are licensed or made available in the central index. A "What's Included" link specifying the content being searched in EDS (branded OneSearch) was added as shown in Figure 3.

A link to "What's Included in OneSearch," as can be seen in Figure 4, is also accessible from the header of the search page.

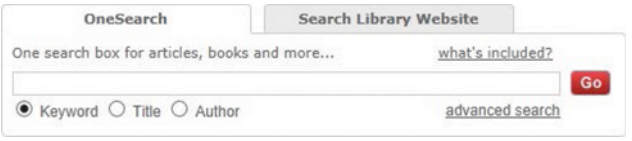


FIGURE 3 OneSearch search box with link to "what's included?"

A screenshot of the list of databases that HS/HSL chose to include in the pre-harvested content as of April 2013 is provided in Figure 5.

STATISTICS

EDS provides statistics via its administration site. Given the way that searches are processed, some figures are more significant than others. For example, total searches by database are not meaningful since all databases are searched by EDS in each session. What is more relevant is the number of times full text is accessed. These figures are maintained both by database and as a total for each month. A comparison of full text accesses was conducted for the months of September through April for both the year prior to implementation, "pre-EDS" (2011–12), and the subsequent year, "post-EDS" (2012–13). Full text views in EBSCO databases were selected since EDS is an EBSCO product and the statistics were the most readily available. In the future, it will be useful to compare journal usage pre- and post- implementation, but in this early stage the EBSCO databases information was a readily available indicator of how the tool was impacting the use of resources.

Graph 1 illustrates an increase in database usage for September 2012 through April 2013 in comparison with the same months in the previous year. The percentage change ranges from 11 percent in January, typically the lowest month, to 35 percent in April. The mean of the increase, excluding January and April, was 24 percent. It was evident that users were discovering the tool on the homepage and using it during the soft launch period. Usage is expected to rise when the search box is placed in a more prominent position on the library's homepage in the upcoming web redesign.

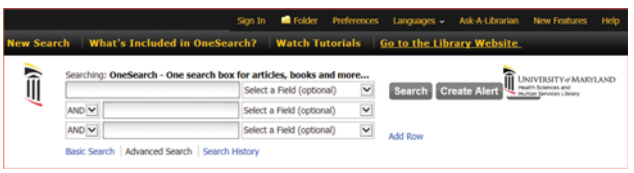
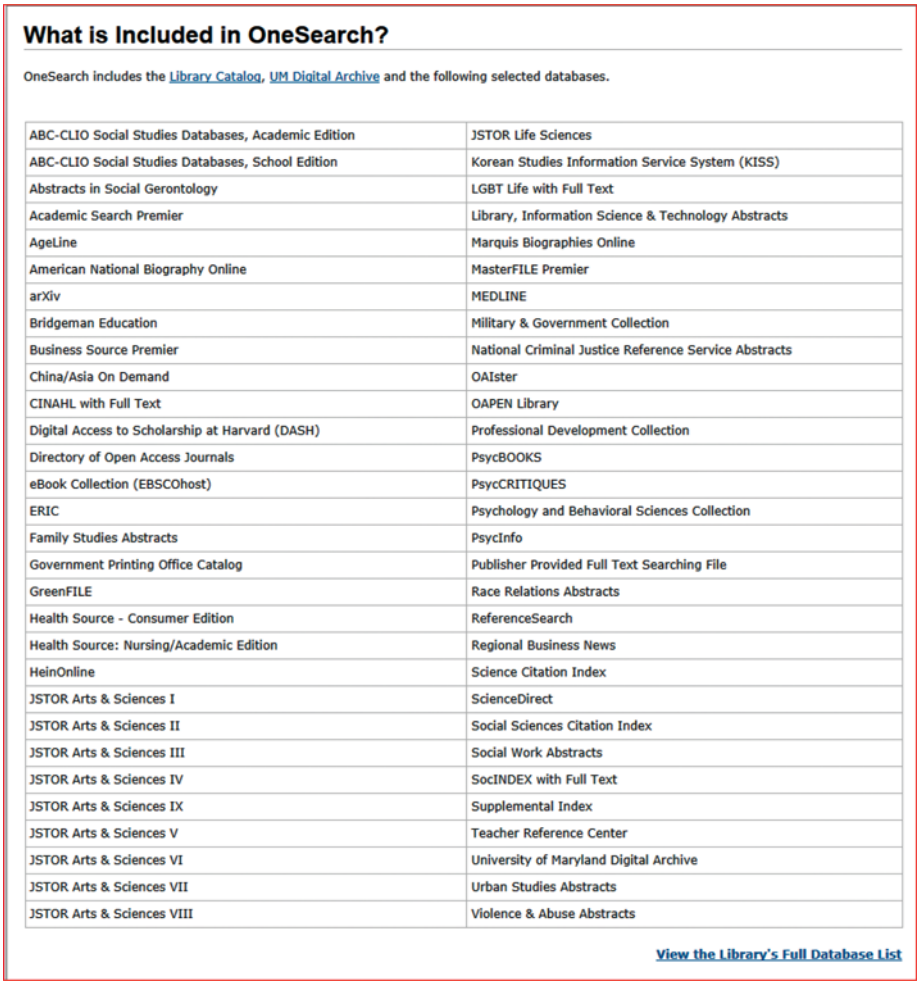


FIGURE 4 "What's Included in OneSearch?" as it appears in header of EDS search page. © [EBSCO Health]. Reproduced by permission of Tracey Bahia, Director of Medical Sales, EBSCO Health. Permission to reuse must be obtained from the rightsholder.



What is Included in OneSearch?

OneSearch includes the Library Catalog, UM Digital Archive and the following selected databases.

ABC-CLIO Social Studies Databases, Academic Edition	JSTOR Life Sciences
ABC-CLIO Social Studies Databases, School Edition	Korean Studies Information Service System (KISS)
Abstracts in Social Gerontology	LGBT Life with Full Text
Academic Search Premier	Library, Information Science & Technology Abstracts
AgeLine	Marquis Biographies Online
American National Biography Online	MasterFILE Premier
arXiv	MEDLINE
Bridgeman Education	Military & Government Collection
Business Source Premier	National Criminal Justice Reference Service Abstracts
China/Asia On Demand	OAIster
CINAHL with Full Text	OAPEN Library
Digital Access to Scholarship at Harvard (DASH)	Professional Development Collection
Directory of Open Access Journals	PsycBOOKS
eBook Collection (EBSCOhost)	PsycCRITIQUES
ERIC	Psychology and Behavioral Sciences Collection
Family Studies Abstracts	PsycInfo
Government Printing Office Catalog	Publisher Provided Full Text Searching File
GreenFILE	Race Relations Abstracts
Health Source - Consumer Edition	ReferenceSearch
Health Source: Nursing/Academic Edition	Regional Business News
HeinOnline	Science Citation Index
JSTOR Arts & Sciences I	ScienceDirect
JSTOR Arts & Sciences II	Social Sciences Citation Index
JSTOR Arts & Sciences III	Social Work Abstracts
JSTOR Arts & Sciences IV	SocINDEX with Full Text
JSTOR Arts & Sciences IX	Supplemental Index
JSTOR Arts & Sciences V	Teacher Reference Center
JSTOR Arts & Sciences VI	University of Maryland Digital Archive
JSTOR Arts & Sciences VII	Urban Studies Abstracts
JSTOR Arts & Sciences VIII	Violence & Abuse Abstracts

View the Library's Full Database List

FIGURE 5 HS/HSL list of scope resources available through EDS.

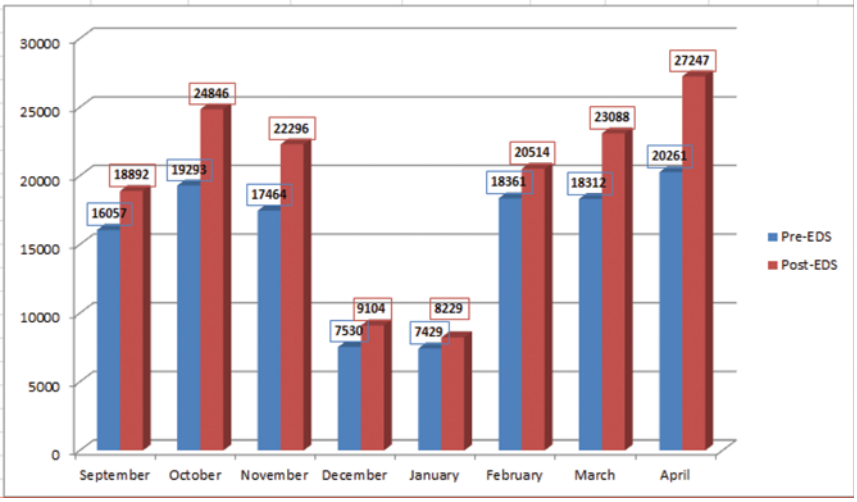
PRELIMINARY FEEDBACK

In addition to library staff, users also had the opportunity to provide feedback through a survey located on the search page labeled, "Tell us what you think." The overall number of responses was disappointing, although there were some positive comments. One user stated, "I love the new discovery service! I can't even describe how much it simplifies my research and how much time and frustration it saves me. I love being able to search all the databases at once." Instruction librarians noted that, without prompting, many students automatically went to the OneSearch box from the homepage when asked to look for journal citations during a class. Reference staff reported similar experiences when

EBSCO Databases Full Text Usage Report Site: UNIV OF MARYLAND HSHSL Period: September 2011 - April 2013

Year	Month	Total Full Text
2012	September	18892
2012	October	24846
2012	November	22296
2012	December	9104
2013	January	8229
2013	February	20514
2013	March	23088
2013	April	27247
Totals with EDS		**27247**

Year	Month	Total Full Text
2011	September	16057
2011	October	19293
2011	November	17464
2011	December	7530
2012	January	7429
2012	February	18361
2012	March	18312
2012	April	20261
Totals before EDS		**20261**



GRAPH 1 Comparison of full text usages before and after the EDS soft-launch.

providing assistance with searching. Many users had already begun the process with OneSearch. To obtain more structured input on the functionality and the interface of the tool a usability study was conducted in January 2013.

USABILITY STUDY

The special projects, assessment and research librarian and the HS/HSL web developer were responsible for conducting the study. The plan was to recruit a representative sample of users from across the campus to perform a series of tasks to be observed and recorded. Volunteers were asked to commit to one hour to perform eight searches and respond to several follow-up questions. In return for their time, they would receive a $5 gift card to a campus café. Promotion for the study began two weeks before testing started. The study took place January 29–February 13, 2013.

Demographics

A total of 16 participants were scheduled representing three of the five schools served by the HS/HSL. Users came from a range of disciplines including physical therapy, molecular medicine, and informatics.

The breakdown was as follows:

School of Medicine–6
School of Nursing–6
School of Social Work–4
(School of Dentistry and School of Pharmacy were not represented)

Participants identified themselves with these statuses:

Faculty–4
Research Fellow–1
Students–9
Staff–2

Testing Process

The volunteers viewed a wall-mounted computer screen, used a wireless keyboard, and wore a headset with microphone. Camtasia software was loaded on the computer and recorded keyboard, cursor strokes, and voice as participants navigated through assigned tasks. A facilitator and an observer conducted each session. It is important to note that users worked through the exercises on their own without prompting or aid. Each volunteer conducted a total of eight searches, one of which was on a topic chosen by them to evaluate how the discovery tool performed for their specific area of interest. Participants evaluated the EDS search experience in comparison to tools with which they were the most familiar, primarily PubMed and Google Scholar.

Analysis

The 16 video recordings were organized so that responses to each question were grouped and available for analysis side by side. This enabled the testers to become thoroughly familiar with user behaviors for each question. A report was issued identifying commonalities witnessed during the sessions, including occurrences of similar problems completing tasks, information missed in searches, confusion in labeling, and which databases volunteers tended to select. Specific 'like' and 'dislike' comments by users were included and a list of recommendations for immediate changes or enhancements was presented.

Overall, testing was a success. The quality of the participants was high; that is, there was clear interest in exploring the product, testing its limitations, learning its functionality, and commenting on results. The group provided valuable feedback which resulted in informed revision and further customization of the tool.

CUSTOMIZATIONS RESULTING FROM USABILITY STUDY

Several of the recommendations from the usability study were implemented in-house. Others required assistance from EBSCO and/or USMAI's Information Technology Division that works with the backend of the HS/HSL online catalog. Changes included:

- Addressing confusion caused by unrelated links in the header, several of which were replaced by EDS-specific links such as "What's Included?" and "Watch Tutorials" (on searching and saving in EBSCO databases).
- Establishing a consistent view of options in both the Basic and Advanced Search screens.
- De-cluttering the screen's left pane by collapsing all facets except "Refine your results"
- Changing the status designation of "On Shelf" to "Available" for both print (not checked out) and electronic resources.

An important issue to be addressed in the future is the user perception that the link resolver button labeled "Find It" is solely for interlibrary loan and not for access to full text. The participants in the usability study tended to click on rich links or the pdf for the full text if available. If these options were not visible users often erroneously assumed the item was not available. Some items are only accessible by clicking on the "Find It" link. A decision was made to consistently use the link resolver button throughout the tool instead of EDS Custom Links (rich links) that appear on some resources and not on others.

FORMAL LAUNCH

On April 15, 2013, with the branding "OneSearch," the EBSCO Discovery Service was formally launched. It was promoted through venues including online newsletters, campus digital displays, posters, emails sent by the liaison librarians to each school, and an announcement to the Faculty Senate. A banner on the HS/HSL homepage alerted users to the new tool. Figure 6 is a screenshot of the Library's homepage following the formal launch.

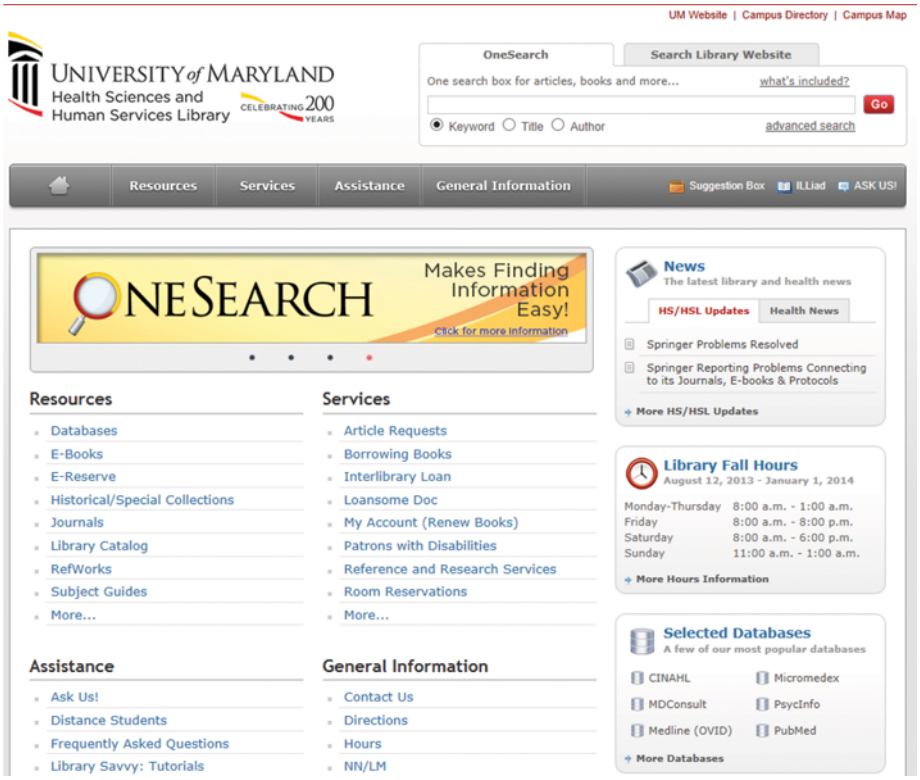


FIGURE 6 HS/HSL's homepage with OneSearch banner following the formal launch.

CONCLUSION

Although the extent of user satisfaction with OneSearch functionality has yet to be fully determined, feedback thus far has been overwhelmingly positive. A number of essential elements are involved in the successful selection and implementation of a discovery product. Documenting vendor-provided information especially in the initial steps of the process is important particularly with regard to extra cost for specific content. Continuous communication with colleagues and vendor representatives is of critical importance. Display and functionality issues require persistence and patience in advocating for changes considered vital for optimum performance. Comprehensive testing of the tool is crucial not only for ascertaining its usability among diverse user populations, but for assessing its treatment of all types of resources. HS/HSL staff continue to evaluate and refine the tool.

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