Bridging the Gap from Wikipedia to Scholarly Sources: A Simple Discovery Tool

BARBARA ARNETT and VALERIE FORRESTAL

S. C. Williams Library, Stevens Institute of Technology, Hoboken, New Jersey, USA

Abstract: This article discusses the creation and unique implementation of a browser-based search tool at Stevens Institute of Technology. A oneSearch bookmarklet was created to allow users to execute a search of library resources directly from their Internet browser via a JavaScript book mark applet. The article also provides a brief history of similar discovery tools, as well as a look at recent literature highlighting the importance of convenience and innovation for academic researchers.

Keywords: Bookmarklet, discovery solutions, discovery tools, library technology, search tools, Summon

INTRODUCTION

Academic librarians have often lamented the tendency for novice researchers to rely on Internet sources that are not up to the standards required by their professors for college-level research. At Stevens Institute of Technology, in Hoboken, NJ, professors repeatedly complained to library staff that the quality of sources that students use in term papers was not acceptable. According to the professors, it appeared that many user searches were beginning with sites such as Google and Wikipedia. Unfortunately, those users were not only beginning but also ending their search with those Websites, without ever trying the library's subscription databases or even visiting the library's Website.

Stevens recently licensed Summon, a discovery tool that aggregates search results from across the library's online subscriptions, including our online catalog (OPAC) (Sirsi Dynix). To make it easier for students to search the library resources, we created a bookmarklet that eliminates the step of having to go through the library Website to access these resources.

The bookmarklet provides an important bridge between common search behaviors, especially among undergraduates, and the "deep Web" content located in library-funded, proprietary databases, thus easing their transition into scholarly research. The bookmarklet can be dragged-and-dropped into any browser to initiate a search from any Webpage the user visits. When the bookmarklet is clicked, the search terms default to the title of the page, and a prompt is displayed that allows the user to edit the terms used in the search. After the OK button is clicked, the search is automatically executed in Summon.

The bookmarklet is written in simple JavaScript code (see Appendix), which resides on the library's server, so that it can be edited or updated without the user having to reinstall it. In addition to working on all major browsers, the bookmarklet can also be edited to work with various search tools, such as specific databases, library catalogs, or federated search tools, such as EBSCO Discovery Service.

ROLE OF CONVENIENCE IN UNDERGRADUATE RESEARCH BEHAVIOR

Recent studies on undergraduate research techniques have found that convenience plays a major role in the process (Connaway, Dickey, and Radford 2011; Biddix, Chung, and Park 2011). Pressed for time and faced with multiple competing deadlines and obligations, undergraduate students often place a higher importance on efficiency in finding sources than in locating credible and authoritative sources (Biddix, Chung, and Park 2011; Martin 2008). Even more experienced researchers typically use a method of "strategic satisficing," which is a tendency to rely on previously learned and often-used search strategies and only do the minimum amount of research to fulfill a given assignment's requirements (Warwick et al. 2009).

To motivate students to adapt their search behavior to include library subscription databases, a library's online resources need to be built to make use of existing user workflows:

> In order to entice people to use libraries and to change their perceptions of libraries, the library experience needs to become more like that available on the Web (e.g., Google, Amazon.com and iTunes) and to be embedded in individual workflows. The Web environment is familiar to users; therefore, they are comfortable and confident in making the choice to search for information there. One recommendation that can be seen to follow from these results is that librarians need to adapt or seek to purchase services and systems that are designed to replicate the Web environment so that the systems are perceived as convenient and easy to use. (Connaway et al. 2010)

Biddix, Chung, and Park (2011, 180, 181) mention that "students working on specific projects commonly described turning back to the publicly accessible Internet for additional resources" even after using library databases; they call for a tool "that is easy to find, fast, and allows simply [sic] word searches." The Summon bookmarklet was designed as a tool that would embed itself within a student's current workflow by supporting the ability to toggle back and forth between the "free Web" and library subscription resources, without forcing them to navigate away from their current page in order to use the library's Website. Once installed, the bookmarklet button is built into the browser's navigation, and it is not Website-specific, thus making library resources easier for students to find and access.

WIKIPEDIA IN ACADEMIA

A 2010 large-scale survey by Head and Eisenberg found that most college students use Wikipedia for academic purposes, often at the beginning of their research (Lim 2009). Wikipedia use was found to be even more common among engineering and science majors, which was an

important factor for us, since Stevens is an engineering school (Field 2006; Eijkman 2010; Head and Eisenberg 2010).

In addition to the bookmarklet pop-up dialog, we decided to optimize it to work directly with Wikipedia pages. We could have had an empty search box pop up that would allow users to type in their own search terms. Our goal, however, was to further fit into current workflows of students; thus, we wanted to create a direct link between a common starting place for students and our library's scholarly resources.

When a student clicks on the bookmarklet directly from a Wikipedia page, the search box is designed to be prepopulated with the subject of the article the student is reading, thus helping seamlessly direct them from this early-stage search behavior into more advanced, scholarly resources via Summon.

Though professors' opinions on students using Wikipedia for research vary widely, many in the academy do not oppose its use as a starting point in the research process (Eijkman 2010). There is a definite value to Wikipedia as a "presearch" tool that allows students to familiarize themselves with a topic, understand key concepts, and discover important keywords and terminology (Head and Eisenberg 2010), as well as to find links and other resources for further reading in an article's references (Lim 2009; Field 2006). Head and Eisenberg stress that there is a "need for context-sensitive presearch sources and coaching services." They also propose "solutions that logically bridge the early stages of research to the rest of the research process and deliver the kinds of efficiencies students have come to expect" (10).

A BRIEF HISTORY OF DISCOVERY TOOLS

Library bookmarklets and add-ons are not a new concept by any means. The recent launch of meta-search tools like Summon and Ebsco Discovery Service present an opportunity to revisit how such tools have been designed and implemented in the past. Originally, browser-based discovery tools, like HALbar and the LibraryLookup Project, were designed to work strictly with a library's OPAC, which seems restrictive for academic library users with access to a large amount of subscription database content (Bailey and Back 2006).

There are also browser "fixes" such as Greasemonkey scripts, a Firefox extension that allows the use of Javascript to control the behavior of a specific Webpage. In addition, there are "add to search bar" add-ons that allow you to add any search engine, including your library's, to the browserbased search box, as well as automatic proxy-adding services such as the citation managers Zotero and Mendeley. These services rely on having fairly advanced Web users willing to use a compatible browser and able to install extensions/add-ons, which can hog memory and slow a computer down considerably.

Most notably, there is a project/product called LibX, a library resource browser toolbar developed by Virginia Tech. LibX was designed as "a software module that enhances library access for users by integrating access to the library OPAC and to the OpenURL linking server into the Firefox browser" (Bailey and Back 2006). Since its launch in 2005, developers have added Internet Explorer compatibility and, a Google Chrome version is currently in beta (Virginia Tech).

In order to offer users a LibX toolbar, a supported catalog is necessary; one must have already set up the OpenURL resolver and off-campus proxy (Virginia Tech). It is also necessary

to keep track of upgrades/updates and make necessary adjustments to your setup when necessary, which will require a reinstall or update on the user's end.

Consideration was also given to having students just use Google Scholar as a search portal, but given the search engine's lack of sorting, refining, and limiting options for search results, we'd rather encourage students to use our Summon discovery service.

THE ONESEARCH BOOKMARKLET

The bookmarklet (short for "bookmark applet") was modeled after a bookmarklet available on bitly.com, which is used to create short links for long URLs. A bookmarklet is stored in your browser like a bookmark, but it contains JavaScript code instead of a reference to a URL. To install the bookmarklet, the user clicks on the bookmarklet on the library's Webpage and drags it to their browser's bookmark toolbar. In Internet Explorer, the bookmarklet is dragged to the favorites bar or bookmarks folder. When the bookmarklet is clicked, it executes JavaScript code, located in the file search.js, which resides on the library's web server (see Figure 1).

Figure 1: search bookmarklet execution
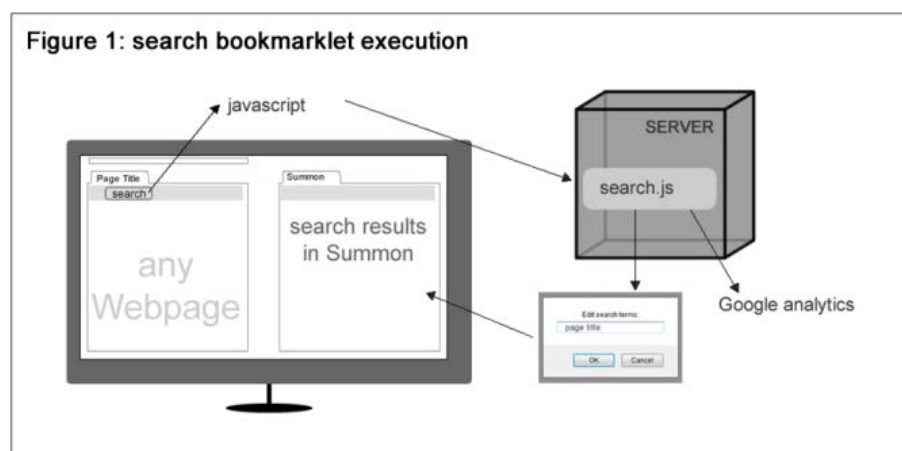
Search.js creates a prompt window that displays a text box where the user can edit their search terms. The text box is prepopulated with the title of the Webpage that the user was on when clicking on the bookmarklet by using the Webpage's document.title field. When the user hits the "OK" button in the prompt box, the search is executed and the results are displayed in Summon, which our library calls "oneSearch." A call to Google Analytics is also executed, recording a page visit every time a search is conducted with the bookmarklet. The file search.js is located on the library's Web server, giving us the ability to go in at any time and change the file. If there is any change that needs to be made to the popup window, the discovery tool search parameters, or Google analytics, the change can be made in the search.js file.

There are many benefits to having the code reside in one place on a server. Browser add-ons and extensions often have code that resides in the user's browser. If a change needs to be made to the code, the user has to install an update to the add-on or extension. Users often have the option of installing, delaying, or skipping the update, giving the add-on or extension developer no control over what version of an add-on or extension a user is executing. Bookmarklets can also be designed with JavaScript code residing only in the user's browser. In this case, the only way the bookmarklet's JavaScript code can be changed is for the user to reinstall or update the bookmarklet themselves. Therefore, having the JavaScript code reside on the library's server allows the library to retain control of any changes that would need to be made to the search execution JavaScript; updates can be made at any time.

USAGE

When a user wants to perform a search, they click on the bookmarklet from whatever Web page they are currently on. There is no need to visit the library's Website to access a

database or online catalog in order to perform a search of library materials. Once clicked, a browser prompt box is displayed containing a text box for the user to edit or enter search terms. The text box takes the title of the Webpage and is populated with the title of the Webpage. The user can update the terms if they wish. When the user hits "OK," the bookmarklet passes the search terms to Summon, which presents the results in a new browser window. The search results can be refined as needed in the discovery tool.

Whenever a search is performed with the bookmarklet, a page visit is recorded in Google Analytics. Figure 2 shows the monthly statistics on the bookmarklet use from its inception in September 2010 through December 2011 (see Figure 2). Getting students to use the bookmarklet for searching requires them to first install it into their browsers by dragging the bookmarklet onto their browser's "toolbar" or "favorites bar." The installation only needs to be done one time. Executing a search is as simple as clicking on the bookmarklet to open the window, which allows users to edit their search terms.

Figure 2: bookmarklet usage statistics
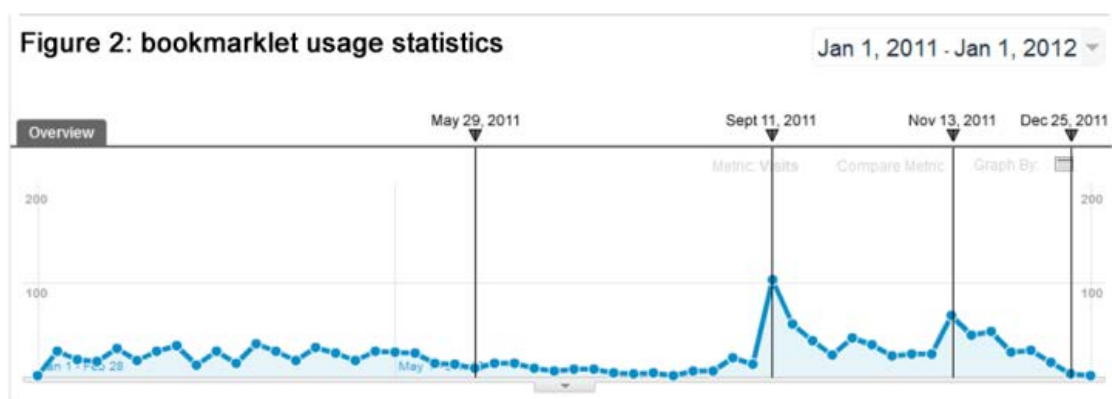
In the fall of 2011, we started asking students to install the bookmarklet in some of the library instruction classes and workshops. Our statistics indicate how many searches are being executed with the bookmarklet, and they show that the use of the bookmarklet has slowly increased over time. The two large increases in use can be attributed first to the bookmarklet

being demonstrated in freshman information literacy classes in September 2011 and secondly to the usage survey we conducted in November 2011. Monitoring the statistics on bookmarklet use will allow us to see if further promotion and education are needed.

TABLE 1 - Survey Question Responses

Questions	
Were you using library resources before installing the search bookmarklet?	No: 32.43% Yes: 67.56%
	Average Response, with 1 = strongly disagree 5 = strongly agree
The search bookmarklet makes it easy to access library resources.	4.26
I am likely to use the search bookmarklet for research projects in the future.	4.16
This search bookmarklet makes it more likely that I will use library resources.	4.05

USER TESTING

To get user feedback, we conducted a very brief survey about the bookmarklet installation and use (see Table 1). The survey was promoted by sending out an announcement included in the campus' student life newsletter, which is targeted to undergraduate students. We received 173 responses over a two-week period. Response breakdown is shown in Figure 3.

Figure 3: bookmarklet survey results

- Undergraduate student (140/173)
- Graduate Student (31/173)
- Staff (2/173)

81%

18%
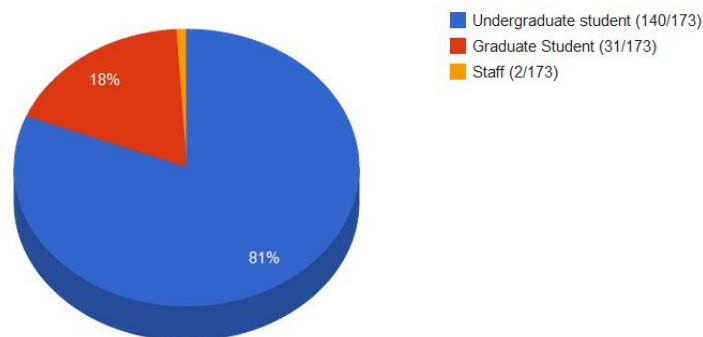
We received fifty-six comments to the open ended question "Please feel free to give us any comments about searching the library resources using the bookmarklet." While the comments were mostly positive, they also provide some insight into ways to make the bookmarklet more user-friendly.

Some comments confirmed the fact that the bookmarklet makes searching easier by saving users a trip to the library's Website before conducting a search:

> *The search bookmarklet makes it easy to navigate to the library page when I am researching. The fact that I just click and type is VERY helpful and saves time. It is very small and compact and does clog up my browser unlike other nonuseful toolbars.*

> *This is great! I normally start my search with OneSearch anyway, so this saves me a trip to the library Website.*

However, a few comments indicated that some users didn't understand how to install the bookmarklet onto their browser:

> *I couldn't understand how to install the bookmarklet.*

> *I couldn't just drag and drop to the toolbar; it would only add itself to my favorites.*

To be used correctly, the bookmarklet is installed on the browser's bookmark toolbar or favorites toolbar, which has to be viewable on the user's browser. If the user does not have their bookmarks or favorites bar visible, they will not be able to drag the bookmarklet to their browser.

Some comments were more about the functionality of Serials Solutions Summon, rather than the about the bookmarklet itself:

I liked the pop [-up] feature that allows one to include and exclude subject matters.

Easy and accessible. Less intimated by all the resources in the library. Helpful in narrowing down by topics.

Three users remarked that they didn't know that the bookmarklet existed, and they suggested more promotion and marketing. Overall, the comments were positive, but as is shown by the statistics, the survey takers may not be consistently using the bookmarklet for their continued research needs.

DISCUSSION

In terms of usability, we are still in the early stages of user testing. The biggest barriers to use currently seem to be simply making students aware of the bookmarklet and prompting them to install it. Having students install the bookmarklet in all library instruction sessions has been helpful, but surveys to find out if those who have installed it ever actually use it again would be beneficial.

We are also still finding other uses for iterations of the bookmarklet. Because the code is so simple (see Appendix for code), it is extremely easy to adapt for specific purposes. For example, students in a recent Freshman-level class were asked to read the New York Times Website daily, but they were hitting a paywall for certain articles or after they had reached the limit for free articles allowed per month. Although the library subscribes to the New York Times through the proQuest database, students liked the visual aspects of the Times' Website as the library's proQuest subscription is text-only.

Two simple tweaks within the JavaScript code transformed the bookmarklet from general search tool to specific article finder: changing the document. title.replace method to remove "-NYTimes.com" from the html document's title tag instead of removing "- Wikipedia, the free encyclopedia"; and using the ProQuest/New York Times search url instead of Summon's. When one is on an article's page within the Times' site and clicks the bookmarklet, it searches for articles of the same title in the ProQuest database, creating a bridge between the Times' Website and our ProQuest subscription, with no extra navigating required.

CONCLUSION

According to a 2010 OCLC report analyzing multiple information-seeking behavior studies, researchers face "a need for a seamless process from discovery-to-delivery" (Connaway et al., 11). Users want systems that will fit into their current workflow and digital ecosystem, i.e., browser-based tools rather than downloads or separate portals. We also must assume that users want to expend minimal effort in terms of time spent installing and updating library and research-related tools, as well as the minimal necessary effort to learn to use a tool. A new tool should also not upset the user's current workflow or be too distracting to other tasks when they are not using it.

Since discovery tools often need to sacrifice some resource-specific functionality for convenience, it should be noted that the main goal is to introduce users to the wealth of scholarly information available to them. Further research instruction and resource guidance by librarians who provide training, tutorials, and guides is still necessary to help users attain a university-level understanding of scholarly research.

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APPENDIX

Javascript code:

```
{

// Google analytics code

var _gaq = _gaq || [];
_gaq.push(['_setAccount', 'PLACE YOUR GOOGLE ANALYTICS ACCOUNT CODE HERE']);
_gaq.push(['_trackPageview']);

(function() {

var ga = document.createElement('script'); ga.type = 'text/javascript'; ga.async = true;

ga.src = ('https:' == document.location.protocol ? 'https://ssl' : 'http://www') + '.google-analytics.com/ga.js';

var s = document.getElementsByTagName('script')[0]; s.parentNode.insertBefore(ga, s);

})();

// Start your code here if you want to omit Google Analytics tracking.

var Ti=document.title.replace('- Wikipedia, the free encyclopedia','');

void(Ti=prompt('Edit search terms:',Ti));

if(Ti) {

var searchString='PLACE YOUR SEARCH URL HERE'+(Ti);

window.location.href=searchString;

// This bookmarklet was written by Barbara Arnett and Valerie Forrestal at the
// Stevens Institute of Technology, 2011. Feel free to use, but just let us know!
// barnett@stevens.edu, vforrest@stevens.edu
}
}
```

CSS (for Bookmarklet button):

```
.bookmarklet a:link {

background-image: url(http://www.fabbabs.com/bookmarkImage.png);
background-repeat: no-repeat;
font-size: 12px;
background-attachment: scroll;
background-position: 0px 0px;
color: #990000;
height: 30px;
display: block;
width: 148px;
text-align: center;
margin: 0px;
text-decoration: none;
padding-top: 4px;
padding-right: 0px;
padding-bottom: 0px;
padding-left: 4px;
font-family: "Trebuchet MS", Arial, Helvetica, sans-serif;
}
```

```css
.bookmarklet a:active {

background-image: url(http://www.fabbabs.com/bookmarkImage.png);
background-repeat: no-repeat;
font-size: 12px;
background-attachment: scroll;
background-position: 0px 0px;
color: #000000;
height: 30px;
display: block;
width: 148px;
text-align: center;
margin: 0px;
text-decoration: none;
padding-top: 4px;
padding-right: 0px;
padding-bottom: 0px;
padding-left: 4px;
display: block;
font-family: "Trebuchet MS", Arial, Helvetica, sans-serif;
}

.bookmarklet a:visited {

background-image: url(http://www.fabbabs.com/bookmarkImage.png);
background-repeat: no-repeat;
font-size: 12px;
background-attachment: scroll;
background-position: 0px 0px;
color: #990000;
height: 30px;
display: block;
width: 148px;
text-align: center;
margin: 0px;
text-decoration: none;
padding-top: 4px;
padding-right: 0px;
padding-bottom: 0px;
padding-left: 4px;
font-family: "Trebuchet MS", Arial, Helvetica, sans-serif;
}

.bookmarklet a:hover {

background-image: url(http://www.fabbabs.com/bookmarkImage.png);
background-repeat: no-repeat;
font-size: 12px;
background-attachment: scroll;
background-position: 0px 0px;
color: #000000;
height: 30px;
display: block;
width: 148px;
text-align: center;
margin: 0px;
text-decoration: none;
padding-top: 4px;
padding-right: 0px;
padding-bottom: 0px;
padding-left: 4px;
font-family: "Trebuchet MS", Arial, Helvetica, sans-serif;
}
```

HTML (to display button on web page):

```html
<table>
<tr>
<td width="100" align="right">click and drag</td>
<td><div class="bookmarklet"><a title="Search"
href="javascript:(function(){document.body.appendChild(document.createElement('script')).src='PUT
THE LINK TO YOUR JAVASCRIPT FILE HERE';})();"> <b>Library Search! </b></a></div></td>
<td class="content">to your toolbar, then search library resources from anywhere!</td>
</tr>
</table>
```