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# Including External Repositories in the Discovery Experience: Librarian Perspectives and Trends

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# Including External Repositories in the Discovery Experience: Librarian Perspectives and Trends

## **Abstract**

The transition to a more unified discovery environment that encompasses both traditional library catalog content along with articles, streaming media, institutional repository content, and other additional resources, has resulted in changes to the management of library resources and the research experience. A survey was conducted to assess librarian's and library personnel's attitude toward and experience with the inclusion of this additional content in their discovery tools' search results, as well as to learn what content is being searched and who is involved in maintaining these systems. Respondents generally reported being satisfied with the discoverability of these additional resources in their discovery tools and that this shift has had a positive impact on the research experience.

## **Introduction**

*What is discovery?*

The online public access catalog (OPAC) was the standard tool for searching and discovering library collections for decades. When a library's collection is primarily print or physical items, such as print books and journals, physical copies of media, and microforms, the OPAC was as close to a "one stop shop" for finding library materials as was possible at the time. Libraries cataloged their physical holdings using MARC records, and library users could search by title level metadata (such as book or journal title, subject headings, or tables of contents).

As libraries have incorporated more and more online content into their collections, search needs and possibilities also changed. Libraries increasingly have access to open access and subscription online content, including books, journals, streaming audio, streaming video, and research data, among others. At the same time, libraries have been curating their own local online collections. Online institutional repositories, digital image archives, locally hosted online journals, institutional data sets, and a myriad of other content, often in separate, distinct repositories. In an OPAC environment, these various online collections and resources needed to be searched separately, often with very different user experiences. For a library user, this would mean searching the OPAC to find physical materials, searching multiple different open access or subscription online databases (often from different providers, with different interfaces and search experiences), searching local digitized archival or other collections using specialized search tools, navigating the library's website to find help or research guides, and other distinct search tools to more comprehensively search a library's collections.

As online content has become more prevalent, easier to acquire, and in some cases, the expected format, the ability to support the discovery of that content is increasingly important.<sup>1</sup> Federated searching, which allowed the real-time searching of multiple electronic resources

simultaneously, was one attempt at addressing this issue. Unfortunately, federated search resulted in a less convenient and more complex user experience.<sup>2</sup> And despite allowing library users to search multiple online resources simultaneously, they were still separate from the OPAC. Enter next generation catalogs, web-scale discovery tools, and the discovery experience. Next generation catalogs seek to facilitate the discovery of both physical and online collections in one tool and with a user experience more similar to the search tools and web browsers that Internet users had become accustomed to. For example, they allow the harvesting of metadata from external online collections so resources from those collections can be discovered along with the library's physical holdings. They also provide enriched metadata (such as cover images and narrative summaries), faceted navigation to refine search results, keyword searching, relevancy ranking for results, and "more like this" recommendations, among other features.<sup>3</sup> Web-scale discovery tools incorporate the features of a next generation catalog, but where they differ substantially is that in addition to the ability to harvest metadata from external sources, web-scale discovery tools also have their own integrated, prepopulated metadata index. Ideally, these web-scale discovery tools would index all of a library's online content and local holdings, thus serving as a single point of entry into the entirety of the library's collection.<sup>4</sup>

## **Literature Review**

### *Impact of Discovery*

Web-scale discovery tools have made it easier for academic libraries to provide access to mainstream scholarly content, which may allow them more opportunities to "invest more in rare books, manuscripts, archives, and mainstream publications supporting crucial subject areas, as well as other resources, such as audio, video, and data sets, that serve the needs of researchers in a particular area of focus."<sup>5</sup> In this environment, discovery tools are increasingly essential to facilitate access to the variety of resources available to library users.<sup>6</sup> At the same time, there are discrepancies between the discovery tools used and how or if a library's local resources will be prominent in search results.<sup>7</sup> Regardless, it seems that discovery tools are at a point where they are able to compete with Google, and can increasingly provide more immediate access to a library's content than Google can.<sup>8</sup>

With the transition to a more Google-like approach to searching and discovering library resources, library users' have begun to expect the increasingly seamless ability to discover and access them. When Florida Atlantic University implemented their web-scale discovery tool, they focused on traditional library resources, such as print and electronic resources, special collections, and digital repositories.<sup>9</sup> However, after their initial implementation, they recognized the need to include a variety of non-traditional content, such as LibGuides research guides, the database A-Z list, and subject databases.<sup>10</sup>

A comparative analysis of staffing models in a traditional integrated library system environment and a next-generation library system concluded that next-generation systems would result in changing library user needs and staff responsibilities.<sup>11</sup> In practice, libraries have found that the shift to web-scale discovery tools has impacted a variety of library services and functions. After implementing EBSCO discovery service, Eckerd College found a 34 percent decline in overall

volume of reference activity, but an 18.5 percent increase in the most complex reference services and consultations.<sup>12</sup> Penn State found a progressive reduction in Interlibrary Loan requests for their licensed content by undergraduate students after implementing their web-scale discovery tool, with a 57 percent reduction in those requests two years after implementation.<sup>13</sup> Technical Services work has also seen changes after the implementation of discovery tools. The discovery environment has prompted changes to bibliographic description and control work due to a variety of factors, including the quality and accuracy of discovery bibliographic records, the level of granularity in those records, and the integration of user-generated metadata into descriptive records in a discovery environment.<sup>14</sup> The batch loading of bibliographic records becomes less necessary where discovery tools are implemented, as the metadata in their central indexes are used to facilitate discovery.<sup>15</sup>

Academic libraries are frequently involved in publishing and supporting the publishing of a variety of institutionally hosted materials such as journals, conference papers and proceedings, and monographs. Back in 2007, 80 percent of Association of Research Libraries (ARL) members reported providing publishing services, many of which are online.<sup>16</sup> This environment combined with the transition to next generation catalogs and web-scale discovery tools has created additional opportunities and responsibilities for libraries. University of Western Ontario library works with their web-scale discovery tool vendor to harvest locally hosted student-run journals' article metadata to improve their discoverability at the article-level, and plan to try to work with vendors to include this metadata in their central indexes.<sup>17</sup>

### *User Studies and Experience*

There have been a number of studies examining how library users navigate discovery tools, their ability to find library resources, and their perception of the discovery experience. A Ryerson University Library study found that 52 percent of undergraduates reported being extremely satisfied and very satisfied, and a total of 89 percent were at least moderately satisfied with their experience using the library's Summon discovery tool.<sup>18</sup> That study found that even though students had difficulty differentiating between book reviews and books, confusion about formats, and issues with the high number of search results, their satisfaction rating was similar to those using Google and other multidisciplinary databases and that Summon's Google-like search experience was meeting their students' needs.<sup>19</sup> A 2016 study of EBSCO Discovery Service at University of Toledo Libraries found that while more than 92 percent were able to complete a variety of search tasks, only 32 percent were able to find a particular print book in their library.<sup>20</sup> Keyword searching was the most common search strategy used, regardless of what resource users were trying, and researchers rarely looked beyond the first page of search results.<sup>21</sup> A 2013 analysis of researcher behavior using Google Analytics and EBSCO Discovery Service found similar results.<sup>22</sup> After reviewing the "specific searches made, data on search terms, search strings and search revisions, and whether a user included search parameters such as quotation marks for phrase searching, Boolean search terms and truncation symbols," librarians at Okanagan College found that natural language searches were the most common and that most of their library users did not continue to the second page of search results.<sup>23</sup> They also found that their discovery tool's search box was regularly used to search the names of databases, as well as many searches containing acronyms and citations styles, highlighting the need for information literacy programs in the discovery environment.<sup>24</sup>

Other research has highlighted that using a discovery tool may actually change the type of resources library patrons use for their research due to inherent biases present in any type of collection querying tool.<sup>25</sup> A 2018 study on scholarly content seeking found that discovery tools are not passive actors in the search process, and that they may direct researchers to certain types of scholarship.<sup>26</sup> Research by Bucknell University at Illinois Wesleyan University found that researchers who used EBSCO Discovery Service tended to use more journal articles, library users who used Google Scholar and the traditional library catalog used more books, and that those who used Summon relied on more newspaper and magazine articles in their research.<sup>27</sup> Across a variety of discovery tools, there has been an increase in the use of electronic resources over physical ones where discovery tools have been implemented.<sup>28</sup> A study at University of California, Berkeley found that after implementing EBSCO Discovery Service, rather than increasing electronic resource use universally, there were both increases and decreases in the use of particular online content publishers and electronic resource types, attributable to a variety of factors.<sup>29</sup>

Research has also been done on the librarian's perspective and experience with discovery tools. In a 2016 study, Association of Research Libraries librarians reported directing students to their discovery tools' one-box search on the library's home page slightly more often in 2016 than in 2011, but only 13.5 percent doing so.<sup>30</sup> The researchers concluded that "while the allure of a one-box search option is certainly understandable from the perspective of both users and librarians, the idea of a simple search being convenient continues to be questioned."<sup>31</sup> According to a 2016 survey, while many librarians reported using web-scale discovery tools with their undergraduate library users, they prefer subject-specific databases for their own research because of the context-based vocabularies and specialized features that facilitate their research.<sup>32</sup>

Library personnel and library users do not necessarily share the same preferences. George Washington State University's Himmelfarb Health Science Library conducted a survey in 2015, which revealed that their library staff preferred the traditional library catalog for their work, while their library users preferred their unified discovery experience.<sup>33</sup> However, a different study of librarians and information professionals found that a plurality of participants begin their search using discovery tools, followed by the traditional catalog, subject-specific databases, Google, and Google Scholar.<sup>34</sup> That study also found that their participants' satisfaction with discovery tools was positively correlated with their attitude toward and openness to using discovery tools for their research needs.<sup>35</sup>

Though library users frequently report being satisfied with the unified discovery experience, that does not necessarily correspond to effective searching, and highlights the need for information literacy instruction instead of just more sophisticated search tools.<sup>36</sup> The user study at Bucknell University and Illinois Wesleyan University noted that students using discovery tools had difficulty evaluating their research results and relied heavily on default settings, which suggests the importance of information literacy in the discovery environment.<sup>37</sup> A survey at Oregon State University found that 38 percent of responding librarians felt that Summon discovery tool had a mixed or neutral effect on information literacy, but 23 percent determined that Summon was detrimental to information literacy for a variety of reasons, including that students were confused by search results, struggled to distinguish different resource types, and had difficulty refining searches.<sup>38</sup>

## **Methodology**

In order to assess librarians' attitudes toward and experiences with the content that can be searched using their next generation or web-scale discovery tools, a survey was developed and distributed to a variety of library focused email lists in July 2020 after approval by University at Albany's Institutional Review Board (Appendix A). The survey consisted of multiple-choice questions, Likert-style responses, and free text comments. The distribution lists chosen were focused toward academic librarians, though not exclusively, and spanned a variety of librarian interests, including technical services, library systems, collections, reference and information literacy.

There were 71 responses to the survey. Respondents who indicated that they do not use a discovery tool or next generation catalog, or who were unsure, did not continue beyond that question to the rest of the survey. All subsequent questions were optional, and not every respondent answered every question.

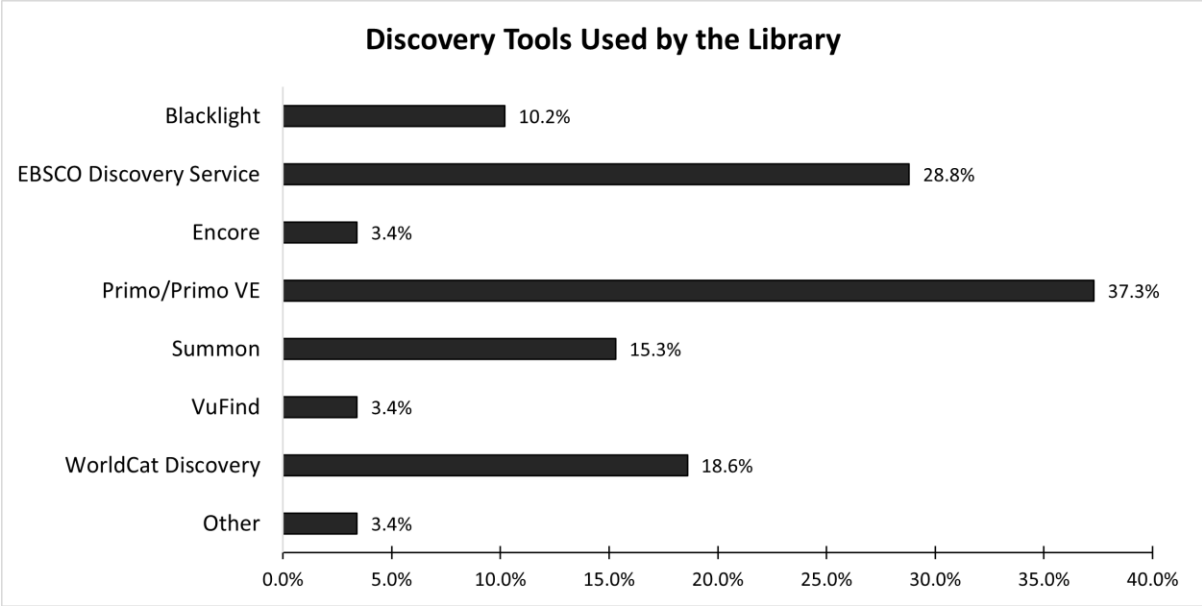
## **Results & Discussion**

### *Survey Participant Profile*

More than half of the respondents (53.1 percent) identified their institutions as doctoral granting colleges or universities, while 31.3 percent are affiliated with 4-year colleges or universities. The rest of the participants identified their institutions as special libraries (6.3 percent), community colleges (4.7 percent), or public libraries (4.7 percent).

Overwhelmingly, participants in this survey do use a discovery tool at their library. 95.3 percent indicated there is a discovery tool in use at their institution, while 4.7 percent were not sure. No participants reported not using a discovery tool at their library. Of those who were not sure about the use of a discovery tool at their library, 1 was from a public library, 1 was from a special library, and 1 was from a 4-year college or university.

There was a wide variety of discovery tools in use across the responses. Participants were able to select all discovery tools in use at their libraries, and several respondents indicated using two or more discovery tools (Figure 1).



**Figure 1.** Discovery tools implemented by percentage of responses.

The two respondents who selected Other indicated they use SirsiDynix Enterprise discovery tool.

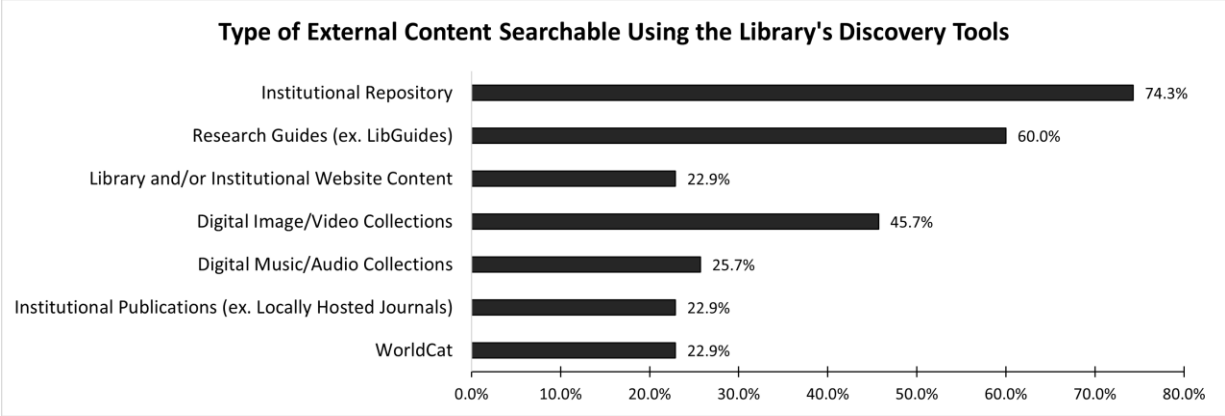
*The Discovery Experience*

Nearly two-thirds of respondents (64.4 percent) reported the ability to search external content using their discovery tool, while 20.3 percent said they do not, and 15.3 percent were not sure.

Doctoral and 4-year colleges and universities reported to be among the most likely institutions to use discovery tools to search external repositories or online collections. 78.8 percent of libraries in doctoral institutions and 58.8 percent of libraries in 4-year institutions reported using discovery tools for this purpose. Of community college and special library respondents, 33.3 percent of each report searching this content with their discovery tools. No respondents from public libraries reported including this type of content in their discovery tools.

Respondents reported a wide variety of external content being searchable through their library’s discovery tools. Institutional repositories and research guides were the most common responses, with 74.3 percent and 60.0 percent, respectively. Digital media was the next most common, with 45.7 percent searching digital image/video collections and 25.7 percent searching digital music/audio collections with their discovery tools. 22.9 percent of participants reported using their discovery tools to search library or institutional website content, institutional publications, or WorldCat.

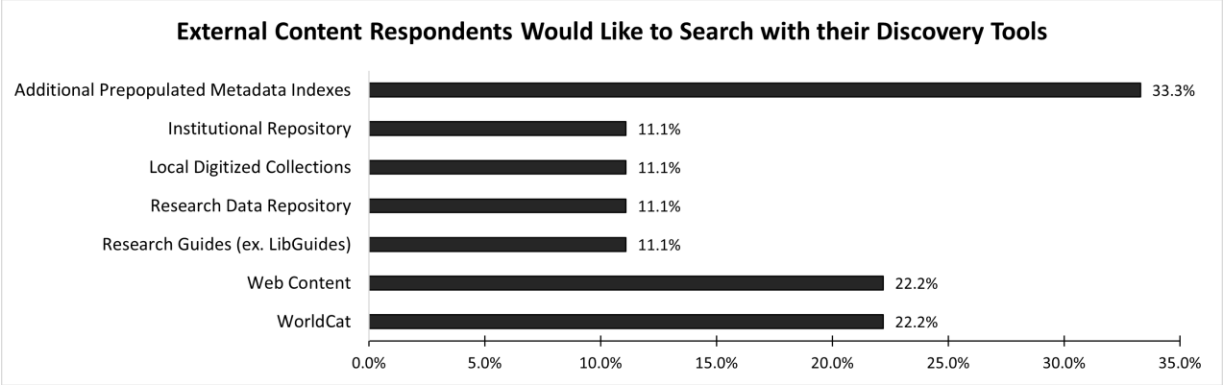




**Figure 2.** Types of external content that can be searched using the library’s discovery tools by percentage of responses.

Only Doctoral and 4-year colleges and universities reported searching institutional repositories with their discovery tools. This result is not surprising considering a 2018 survey found that Research Universities and 4-year colleges and universities comprise the majority of institutional repository users.<sup>39</sup>

Participants widely reported being satisfied with the additional content searchable with their discovery tools. 72.7 percent indicated there are no additional collections or repositories they would like included in their discovery experience. Among the 27.3 percent that indicated that there is additional content they would like to be searchable using their discovery tools, there were some common wishes (Figure 3).



**Figure 3.** External content participants cannot currently search with their discovery tools, but would like to see incorporated by percentage of responses.

Not surprisingly, metadata from additional database collections or content providers was named as something respondents would like to search with their library’s discovery tools. The fact that not all open access and subscription database metadata that institutions have access to is searchable or discoverable in discovery tools has long been a concern for librarians and library users.<sup>40</sup> WorldCat integration and website content were the next most requested. Local archival collections, research guides, external research data repositories, web archives, such as Internet

Archive, and institutional repository content were also identified as content respondents would like to be able to search using their discovery tool, but are not currently.

Survey participants were asked to rate how strongly they agreed or disagreed with a series of statements related to their perception and satisfaction with the inclusion of external content in their library's discovery tools (Figure 4).

	Strongly Disagree	Disagree	Agree	Strongly Agree	I'm not sure
Too much external content can be searched in our discovery tool	16.7%	76.7%	3.3%	3.3%	0.0%
I am pleased that researchers can discover content from external repositories in our discovery tool	0.0%	0.0%	43.3%	56.7%	0.0%
I believe researchers are pleased with the inclusion of external repositories in the discovery experience	0.0%	0.0%	78.3%	21.7%	0.0%
The amount of searchable content from external repositories is overwhelming to researchers	12.5%	45.8%	41.7%	0.0%	0.0%
The inclusion of content from external repositories in the discovery experience makes discovering traditional library resources too difficult	10.0%	60.0%	23.3%	6.7%	0.0%
The inclusion of content from external repositories is valuable for researchers	0.0%	0.0%	66.7%	33.3%	0.0%
Library personnel and researchers have needed additional education and training related to including external repositories in the discovery experience	3.6%	21.4%	57.1%	17.9%	0.0%
I wish additional external content could be searched in our discovery tool	8.0%	28.0%	40.0%	24.0%	0.0%
The move toward a more “one stop” search experience has been beneficial for researchers	0.0%	4.2%	70.8%	25.0%	0.0%

**Figure 4.** Respondents’ perception of the inclusion of external repositories in their library’s discovery tools.

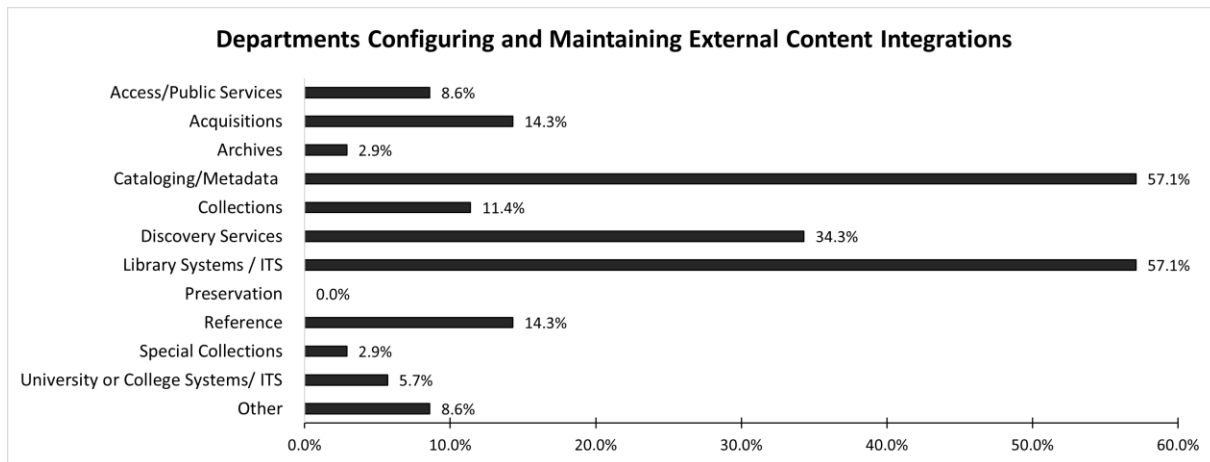
Respondents across all types of libraries broadly disagreed or strongly disagreed that there is too much external content discoverable through their discovery tools, are largely pleased with the inclusion of additional, external content, and feel that this is valuable to library users. There was also general agreement among respondents that library users are pleased with the discoverability of external content using their discovery tools.

Though these responses indicate that library personnel generally perceive the inclusion of external content in their discovery tools as a positive service, respondents were split in their assessment of whether or not the resulting discovery experience is overwhelming to researchers. Community college and 4-year colleges and universities were much more likely than Doctoral colleges and universities to agree that their discovery experience is overwhelming to their library users. All community college and two-thirds of 4-year college and university respondents reported perceiving this discovery environment as overwhelming to their library users. In contrast, just 23.1% of doctoral college and university respondents agreed with that statement, and 61.5% disagreed and 15.4% strongly disagreed with that statement.

Despite any concerns related to the inclusion of additional content in the discovery experience, 95.8% of respondents agreed or strongly agreed that the transition to more of a “one stop” search experience has been beneficial to library users, including all community college and 4-year college and university respondents. In fact, the only respondents who disagreed were from doctoral colleges and universities. This survey did not ask respondents to comment on their rationale for their responses, but this could be related to the increased need for exhaustive research results at research institutions, and the ambiguity and uncertainty related to the comprehensiveness of search results from discovery tools.

*Staffing / Administrative Responsibility*

The harvesting of metadata from external sources into a discovery tool typically requires some level of initial configuration or set up on the part of the library, and may require ongoing maintenance or monitoring. This responsibility may lie with more than one department, so participants were asked to select all departments involved in this process (Figure 5).



**Figure 5.** Departments responsible for configuring and maintaining external content harvesting by percentage of responses.

The responsibility for setting up and maintaining the harvesting of external content into the library's discovery tools most often lies with the Cataloging/Metadata Services (57.1 percent), Library Systems/ITS (57.1 percent), or Discovery Services Departments (34.3 percent) (Figure 5). Participants were able to select multiple departments as appropriate. Far fewer indicated that other departments played this role in their libraries. In addition to these options, respondents also reported that their library's Electronic Resources (2.9 percent) and Digital Services (2.9 percent) departments take on this role.

## **Conclusion**

The introduction of discovery services has allowed libraries to make a variety of resources discoverable and accessible in a single discovery interface in a way that was impossible before. This has greatly impacted the research experience using discovery tools in libraries that have chosen to integrate this external content into their search results. Survey respondents generally reported being satisfied with the inclusion of this external content in their discovery experience, and found it to be beneficial to researchers.

While this research began to evaluate the user experience related to external content and discovery, it was focused on the perspective of librarians, and their impression of the user experience. Future research would benefit from more directly soliciting student, faculty, and if appropriate, community feedback on the discovery experience and external resources.

## **Appendix A**

### *Survey Instrument*

#### Discovery and Searching External Repositories

Which of these best describes your institution?

- Public library
- Special library
- Community college
- 4-year college/university
- Doctoral college/university
- Other. Please specify: \_\_\_\_\_

Does your library use a discovery tool/next generation catalog?

- Yes
- No
- I'm not sure

What discovery tool(s) do you use? (Select all that apply)

- Blacklight
- EBSCO Discovery tool
- Encore
- Primo/Primo VE
- Summon
- VuFind
- WorldCat Discovery
- Other. Please specify: \_\_\_\_\_
- I'm not sure

Does your library's discovery tool search any external repositories/collections (such as an institutional repository or research guides), in addition to your traditional library catalog records?

- Yes
- No
- I'm not sure

What additional external content is searchable in your library's discovery tool? (Select all that apply)

- Institutional repository
- Research guides (ex. LibGuides)
- Library and/or Institutional website content
- Digital image/video collections
- Digital music/audio collections
- Institutional publications, such as locally hosted journals
- WorldCat
- Other. Please specify: \_\_\_\_\_

Are there external repositories/collections you would like to search with your discovery tool, but are not currently?

- Yes. Please specify: \_\_\_\_\_
- No

What departments are responsible for setting up and/or monitoring these integrations? (Select all that apply)

- Access/Public Services Department
- Acquisitions Department
- Archives
- Cataloging/Metadata Department
- Collections Department
- Discovery tools
- Library Systems/ITS
- Preservation
- Reference Department

- Special Collections
- University or College Systems/ITS
- Other \_\_\_\_\_
- I'm not sure

How strongly do you agree or disagree with the following statements [Strongly disagree; Disagree; Agree; Strongly agree; I'm not sure] :

- Too much external content can be searched in our discovery tool
- I am pleased that researchers can discover content from external repositories in our discovery tool
- I believe researchers are pleased with the inclusion of external repositories in the discovery experience
- The amount of searchable content from external repositories is overwhelming to researchers
- The inclusion of content from external repositories in the discovery experience makes discovering traditional library resources too difficult
- The inclusion of content from external repositories is valuable for researchers
- Library personnel and researchers have needed additional education and training related to including external repositories in the discovery experience
- I wish additional external content could be searched in our discovery tool
- The move toward a more “one stop” search experience has been beneficial for researchers

Additional comments to share?

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## ENDNOTES

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