Introduction
The Ithaka S+R Faculty Survey has examined the attitudes and behaviors of scholars at four-year colleges and universities across the United States on a triennial basis since 2000. It provides the higher education community with a regularly updated snapshot of its faculty members at a moment in time, as well as a trend analysis of changes. In the sixth triennial cycle fielded in fall 2015, we surveyed a random sample of US higher education faculty members in the humanities, social sciences, sciences, and medical fields.

Ithaka S+R’s Faculty Survey is a tool for tracking attitudes and self-reported practices of scholars on a variety of issues over time. The survey’s broad coverage of the faculty member population across the US, and its ability to provide disciplinary and institutional type stratifications, provide for an unusual depth of analysis. Given levels of response to the survey, findings can be analyzed by discipline, institution type, and other demographic characteristics.

In this sixth cycle of the survey, we observed key shifts in the way that scholars discover academic literature, use print and electronic versions of resources, and view the role of the library. While faculty members have expressed a strong preference for starting their research with specific electronic resources and databases in previous cycles of the survey, they are now increasingly and equally using their academic library’s website or catalog as their starting point. There appears to be no observable trend towards a format transition for monographs; faculty members’ preference for using scholarly monographs in print format rather than digital format has only increased since the previous cycle of the survey. And, since the previous cycle of the survey, there have been increases in the share of faculty members who believe their undergraduate students have poor research skills and in the share that perceive the role of the library in helping undergraduate students develop these skills as highly important.

Additionally, Ithaka S+R included medical scholars in our population for the first time in the 2015 cycle, and found that while respondents sometimes have attitudes and practices that parallel their colleagues in the social sciences and physical sciences, they often are unique in the way that they discover and access information, conduct and disseminate research, teach, and use the library.

Methodology
The Ithaka S+R US Faculty Survey 2015 was designed to continue tracking critical trends in higher education from previous survey cycles while at the same time introducing new questions to address issues of current strategic importance. New questions were tested through a process that included pre-tests and a pilot survey.

The population for this survey was faculty members from all of the arts and sciences fields and most professions at colleges and universities in the United States that grant a bachelor’s degree or higher. As medical faculty members were added to the survey population for the first time in this cycle, they are included in our disciplinary analysis but are excluded from all measures of aggregate response, so that appropriate aggregate comparisons can be drawn against previous survey cycles.

The survey was fielded in fall 2015 to a sample of 145,550 faculty members, and we received a total of 9,203 responses, for an aggregate response rate of 6.3%. Invitations and reminder messages were sent from a variety of sources, including Ithaka S+R, a number of scholarly societies, and several colleges and universities. Response patterns varied to some degree by discipline, and to adjust for this we have weighted the aggregate results from our sample proportionally to match population parameters.

Many questions in the survey posed strongly worded statements, such as “My undergraduate students have poor skills related to locating and evaluating scholarly information,” and asked scholars to rate
from 1 to 10 how well each statement describes their point of view, where a 10 equals “extremely well” and a 1 equals “not at all well.” In our reporting here, we have aggregated responses to simplify the presentation of findings; responses of 8, 9, and 10 are grouped together for analysis and characterized as “strongly agreeing” with the statement; responses of 1, 2, and 3 are grouped together for analysis and characterized as “strongly disagreeing” with the statement; and responses of 4, 5, 6, and 7 are grouped together and characterized as relatively neutral responses.

We also asked scholars other questions with 1–6 answer ranges, such as when we asked them to rate the importance of a given library role from “not at all important” to “extremely important.” Again, we segmented responses as strongly negative responses (1–2), neutral responses (3–4), and strongly positive responses (5–6).

Datasets from the 2006, 2009, 2012, and 2015 cycles of the Faculty Survey have been deposited with ICPSR for long-term preservation and access.¹

Findings
The following section highlights key findings from the Ithaka S+R Faculty Survey 2015, presented at the 2016 Library Assessment Conference. The full public report of findings is available on the Ithaka S+R website.²

Discovery starting points in flux
As research and teaching practices evolve in the context of substantial environmental change within higher education, the ways in which faculty members discover resources for these practices have shifted. In addition to providing traditional print resources, libraries have more recently supported these changes with a variety of digital tools including the library website, catalog, and discovery services. Outside of the library, mainstream search engines (e.g., Google or Yahoo) and targeted academic discovery products (e.g., Google Scholar) offer their own systems to enable discovery.

One of the longest-running questions in the Ithaka S+R Faculty Survey asks respondents where they begin their research (see Figure 1 and Figure 2). Since this question was first posed in 2003, we have seen a steady decline in the reported use of the library building as the starting point for conducting academic research, along with a clear increase in the use of general purpose search engines. The 2015 findings are consistent with these trends.

However, starting in 2012, we have seen a reversal of the trends for beginning with an online library website or catalog, which had been declining prior to 2012, and for a specific electronic research resource/computer database, which had previously been on the rise. The increase in the use of the library website or catalog in recent years has been driven primarily by the practices of scientists and social scientists, while the decrease in the use of specific electronic resources/databases has been driven by social scientist behavior.³ These trends, driven by scientists and social scientists, may be reflective of library investments in discovery tools which are especially of use to faculty members in these fields due to the types of materials they use in their research (e.g., journals) and the interdisciplinary nature of social science research, which is particularly aided by discovery services.

As might be expected, given their training, medical faculty members most closely resemble scientists in the way they begin their research, with nearly a majority gravitating towards a specific electronic resource/database, followed by a large share starting with a general purpose search engine.
Figure 1: Below are four possible starting points for research in academic literature. Typically, when you are conducting academic research, which of these four starting points do you use to begin locating information for your research? Percent of respondents who indicated that each option is the starting point for their research.

- A specific electronic research resource/computer database
- Your online library website or catalog
- A general purpose search engine on the internet or world wide web
- The library building
Figure 2: Below are four possible starting points for research in academic literature. Typically, when you are conducting academic research, which of these four starting points do you use to begin locating information for your research? Percent of respondents who indicated that each option is the starting point for their research.

- Gateway: “The library serves as a starting point or ‘gateway’ for locating information for my research.”
- Buyer: “The library pays for resources I need, from academic journals to books to electronic databases.”
- Archive: “The library serves as a repository of resources; in other words, it archives, preserves, and keeps track of resources.”
- Teaching support: “The library supports and facilitates my teaching activities.”
- Research support: “The library provides active support that helps to increase the productivity of my research and scholarship.”
- Undergraduate support: “The library helps undergraduates develop research, critical analysis, and information literacy skills.”

The gateway, buyer, and archive roles are collections-oriented roles and have been tracked.

Increased interest in supporting students
Understanding how perceptions of the role of the collections and service-oriented functions of the library have evolved over time has been one of our longest-running areas of interest addressed in the Faculty Survey.

We asked respondents to rate the importance of various functions of their college or university library. This question has been asked for a number of years and has allowed us to track changing perceptions of the role of the library. We recognize that the list of library functions may not address all of the roles of the library, but we believe that these functions cover many of the broad faculty-facing roles played by the library. The below list presents these six functions, each identified by a shorthand name used in this document (but not presented to respondents in the survey) for convenience:

- Gateway: “The library serves as a starting point or ‘gateway’ for locating information for my research.”
- Buyer: “The library pays for resources I need, from academic journals to books to electronic databases.”
- Archive: “The library serves as a repository of resources; in other words, it archives, preserves, and keeps track of resources.”
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The gateway, buyer, and archive roles are collections-oriented roles and have been tracked.
since the 2003 cycle of the survey, whereas the teaching, research, and undergraduate support roles are more service-oriented roles that have been added to the questionnaire more recently. Prior to the 2015 survey, these collections-oriented roles consistently represented the top three functions as identified by faculty members, but this is not the case in the 2015 findings (see Figure 3, Figure 4, and Figure 5).

**Figure 3:** How important is it to you that your college or university library provides each of the functions below or serves in the capacity listed below? Percent of respondents who identified each function as highly important.
Figure 4: How important is it to you that your college or university library provides each of the functions below or serves in the capacity listed below? Percent of respondents who identified each function as highly important.
Since 2012, there has been a substantial increase in the perceived importance of the undergraduate support role, which is now the second most important role for respondents. We observed increases for this role across disciplines since 2012, with the share of humanists increasing from 70% to 84%, social scientists from 58% to 76%, and scientists from 44% to 69%. Similarly, we saw increases across institution types, with respondents from baccalaureate colleges increasing from 70% to 85%, from master’s colleges and universities from 53% to 80%, and from doctoral universities from 51% to 73%.

Furthermore, 54% of respondents strongly agreed that their undergraduate students have “poor skills related to locating and evaluating scholarly information,” which represents an observable increase since the 2012 Faculty Survey (47%). This increase is consistent across the disciplines, with humanists reporting the highest level of agreement in 2015 (see Figure 6). Respondents from master’s colleges and universities indicated higher levels of agreement with this statement as compared to respondents from baccalaureate colleges and doctoral universities (see Figure 7).

The increase in perceived importance of the undergraduate support role, in conjunction with the increased share of faculty members agreeing that their undergraduate students have poor research skills, demonstrates that the role of the library is
undoubtedly changing, and that libraries will need to continue paying attention to and supporting the needs of scholars as they continue to evolve.

Figure 6: My undergraduate students have poor skills related to locating and evaluating scholarly information. Percent of respondents who indicated that they strongly agree.

Figure 7: My undergraduate students have poor skills related to locating and evaluating scholarly information. Percent of respondents who indicated that they strongly agree.
Lack of a format transition for monographs
As many academic libraries transition to investing in and utilizing a greater share of electronic resources and a smaller share of print resources, the Ithaka S+R Faculty Survey has examined how faculty members’ attitudes and behaviors have shifted in response to these changes.

While faculty members seem to be embracing the transition from print to electronic journals, our findings on perceptions of transitions to electronic monographs are a bit more nuanced.

As compared to print versions of scholarly monographs, a slightly larger share of faculty members strongly agree that electronic versions play a very important role in their research and teaching. Humanists report the highest levels of importance regarding print versions and report slightly lower levels of importance regarding electronic versions when compared with their peers in other disciplines (see Figure 8).

Figure 8: Please use the 10 to 1 scales below to indicate how well each statement below describes your point of view. Percent of respondents who strongly agreed with each statement.

A small share of faculty members (only 18% overall) strongly agree that within the next five years, the use of e-books will be so prevalent among faculty members and students that it will not be necessary to maintain library collections of hard-copy books. Not surprisingly, as humanists have expressed the important role that print versions of scholarly monographs play in their research and teaching, they have the lowest levels of agreement with this statement as compared to their peers (see Figure 9). Since 2012, we have seen a negligible increase in agreement for humanists and social scientists, with a slightly larger (but still small) increase for scientists. Medical faculty members exhibit a substantially higher level of agreement than faculty members from other disciplines, with 32% of respondents strongly agreeing.
Respondents were asked to rate a variety of common activities performed with a scholarly monograph on a continuum between “much easier in print form than in digital” and “much easier in digital form than in print” (see Figure 10). Overall, there is a clear preference for print over digital format for most activities. However, over half of respondents identified that searching for a particular topic and exploring references was easier to do in digital format.
Figure 10: Below is a list of ways you may use a scholarly monograph. Please think about doing each of these things with a scholarly monograph in print format or in digital format, and use the scales below to indicate how much easier or harder it is to perform each activity in print or digital format. Percent of respondents who indicated that each of these practices is easier or harder in print or digital formats.

In comparing the results from 2015 to those from 2012, we have observed a curious shift in perceived ease of use of these formats (see Figure 11). For nearly all of the activities, with the exception of “reading cover to cover in depth,” we have seen an increase in the share of faculty members that identify that it is much or somewhat easier to perform the activities in print format as opposed to digital format and, similarly, are seeing an across-the-board decrease in the share that finds it easier to perform the activities in digital format.

Figure 11: Change in percentage points of respondents indicating how much easier or harder it is to perform each activity in print or digital format from 2012 to 2015.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Much/somewhat easier in print format than digital</th>
<th>About the same in print and digital format</th>
<th>Much/somewhat easier in digital format than print</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading cover to cover in depth</td>
<td>-2.18</td>
<td>1.89</td>
<td>0.29</td>
</tr>
<tr>
<td>Reading a section in depth</td>
<td>5.84</td>
<td>-2.53</td>
<td>-2.91</td>
</tr>
<tr>
<td>Comparing treatment of ideas between monographs</td>
<td>8.54</td>
<td>-7.65</td>
<td>-0.89</td>
</tr>
<tr>
<td>Activity</td>
<td>Much/ somewhat easier in print format than digital</td>
<td>About the same in print and digital format</td>
<td>Much/ somewhat easier in digital format than print</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>--------------------------------------------------</td>
<td>------------------------------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>Skimming in whole or in part</td>
<td>8.82</td>
<td>-1.88</td>
<td>-6.83</td>
</tr>
<tr>
<td>Exploring references</td>
<td>10.29</td>
<td>-1.60</td>
<td>-8.70</td>
</tr>
<tr>
<td>Searching for a particular topic</td>
<td>1.20</td>
<td>-0.21</td>
<td>-0.99</td>
</tr>
</tbody>
</table>

As humanists have expressed an affinity for print versions of monographs generally, it is perhaps unsurprising that a larger share of these faculty members find it easier than their colleagues to perform all these activities in print format than digital format. Conversely, medical faculty members indicated a preference for digital format over print format as compared to their colleagues.

**Concluding remarks**
The findings from this cycle of the Faculty Survey demonstrate key shifts in the way that scholars discover academic literature, use print and electronic versions of resources, and view the role of the library in supporting students. As preferences and behaviors continue to shift, academic libraries, learned societies, scholarly publishers, and academia broadly will need to plan accordingly with appropriate support and strategy.

While findings from this cycle are a strong indication of the value of an ongoing tracking survey like this one, it is of great importance for colleges and universities to examine the specific needs of faculty members on their campuses. In this study, we observed a number of substantial differences in reported attitudes and behaviors depending on the respondent's type of institution, and when this questionnaire has been run on individual college and university campuses, we also see responses that deviate from what we have observed nationally.

Furthermore, beyond querying faculty on their practices and preferences, examining and analyzing actual behavior can provide institutions with additional crucial data for informed decision making. As academic libraries make important strategic decisions around investments in discovery services, maintenance of existing collections, and student support services, assumptions on the applicability of these national findings to one's own college or university should be examined and tested.

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---Endnotes---

1. Datasets from Ithaka S+R's series of surveys may be found at [http://www.icpsr.umich.edu/icpsrweb/ICPSR/series/226/studies](http://www.icpsr.umich.edu/icpsrweb/ICPSR/series/226/studies).


3. Prior to 2015, this response option was “your online library catalog.” In 2015, this option was revised to incorporate the library website.