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Faculty Survey 2009: Key Strategic Insights for Libraries, Publishers, and Societies

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INTRODUCTION

Ithaka S+R Faculty Surveys provide a regular examination of key strategic issues facing academic information services providers. Conducted every three years since 2000, these surveys examine a broad sweep of issues affecting academic libraries, publishers, and scholarly societies, among others, to help them serve the changing needs of their faculty constituents.

In the Ithaka S+R Faculty Survey 2009, we examined faculty attitudes and reported practices in three broad areas, finding that:

- Basic scholarly information use practices have shifted rapidly in recent years, and as a result the academic library is increasingly being disintermediated from the discovery process, risking irrelevance in one of its core functional areas;
- Faculty members' growing comfort relying exclusively on digital versions of scholarly materials opens new opportunities for libraries, new business models for publishers, and new challenges for preservation; and
- Despite several years of sustained efforts by publishers, scholarly societies, libraries, faculty members, and others to reform various aspects of the scholarly communications system, a fundamentally conservative set of faculty attitudes continues to impede systematic change.

In planning for the future, attention to the needs, attitudes, and behaviors of faculty is of paramount importance, but these can only be one input into strategic planning processes. As our information environment continues to change, the institutions that serve scholars are challenged not only to keep up with changing attitudes and practices but also to help *lead* scholars, in order to best support and facilitate scholarship as well as to ensure their own continuing relevance.

Methodology

Since 2000, our Faculty Surveys have examined how new technologies are impacting faculty attitudes and behaviors. Every three years, we have conducted large-scale studies of faculty members to learn more about their attitudes toward the transition to an increasingly electronic environment. These surveys have been limited to colleges and universities in the United States that grant bachelor's degrees or higher. They have been designed to allow for stratifications in each of the major arts and sciences disciplines, as well as in a number of professional fields. We conducted these surveys in the fall of 2000, 2003, 2006, and most recently 2009, updating the questionnaire to match the rapidly-changing environment but allowing for powerful longitudinal tracking of change in faculty attitudes and practices.[1] Unless specified otherwise, all findings presented in this report are based on 2009 data.

[1] Findings from the 2006 Faculty Survey can be found in Ross Housewright and Roger Schonfeld, "Ithaka's 2006 Studies of Key Stakeholders in the Digital Transformation in Higher Education," August 18, 2008, http://www.ithaka.org/ithaka-s-r/research/faculty-and-librarian-surveys. See also Kevin Guthrie and Ross Housewright, "Attitudes and Behaviors in the Field of

Following an initial introductory letter, survey questionnaire booklets were mailed to 35,184 faculty members in September 2009. A total of 3,025 complete responses were received and tabulated, for a response rate of approximately 8.6%. Demographic characteristics, including discipline, are self-reported. Table 1 and Table 2 contain information on the breakdown of responses across demographic categories. In 2006, we deposited the dataset with ICPSR for long-term digital preservation and access, and we intend to do so again with the 2009 dataset.[2]

Table 1: Respondents by institution size

Institution Size	Respondents	Share
Very Large	893	29.5%
Large	482	15.9%
Medium	1038	34.3%
Small	361	11.9%
Very Small	251	8.3%

Table 2: Respondents by disciplinary grouping

Disciplinary Grouping	Respondents	Share
Area Studies	191	6.3%
Humanities	652	21.6%
Social Sciences	1154	38.1%
Sciences	791	26.1%
Other	237	7.8%

Ithaka S+R collected thousands of survey responses with hundreds of data points each in 2009 alone, and due to the richness and quantity of the data this summary report can only scratch the surface of the analysis. For example, we have the ability to stratify by most individual disciplines in the arts and sciences and many professional fields, by characteristics such as time in field and faculty rank, by profile as a researcher or a teacher, and by institutional type, along with more sophisticated analyses. If there are survey findings that you believe would benefit from further detail, or where an organizationally customized lens would be helpful, please let us know so that we can respond to your interests.[3]

Economics: Anomaly or Leading Indicator?" *Journal of Library Administration* 48, no. 2 (August 2008), pages 173 – 193, http://dx.doi.org/10.1080/01930820802231369 and Roger C. Schonfeld and Kevin M. Guthrie, "The Changing Information Services Needs of Faculty," EDUCAUSE Review, 42, no. 4 (July/August 2007): 8–9, http://www.educause.edu/EDUCAUSE+Review/EDUCAUSEReviewMagazineVolume42/TheChangingInformationServices/161752.

[2] The dataset for the Faculty Survey 2006 is available at http://dx.doi.org/10.3886/ICPSR22700.

[3] With questions, comments, or requests, please contact us at research@ithaka.org.

CHAPTER 1: DISCOVERY AND THE EVOLVING ROLE OF THE LIBRARY

Scholarly use of information services has changed substantially in recent years. Faculty members' research practices and teaching methods have both shifted, most often at a disciplinary level. Network-level services, such as digital content resources, a variety of new kinds of discovery tools, new services for information organization and use, and scholarly and pedagogical interaction and collaboration tools, have been the most important factor in leading this change. This section examines some of the most important trends in information discovery and use, and, because these services are increasingly provided online rather than locally, the profound challenges they pose for a diverse range of information service providers. Traditional research practices relied heavily on the library itself and on locally implemented library-provided tools for discovery of books, journal articles, and other materials. Today, there are numerous alternative avenues for discovery, and libraries are challenged to determine what role they should appropriately play. Basic scholarly information use practices have shifted rapidly in recent years, and as a result the academic library is increasingly being disintermediated from the discovery process, risking irrelevance in one of its core functional areas. This section examines how patterns of information discovery and usage by faculty members are changing and the implications of these changes for their perceptions of traditional and emerging roles of the library.

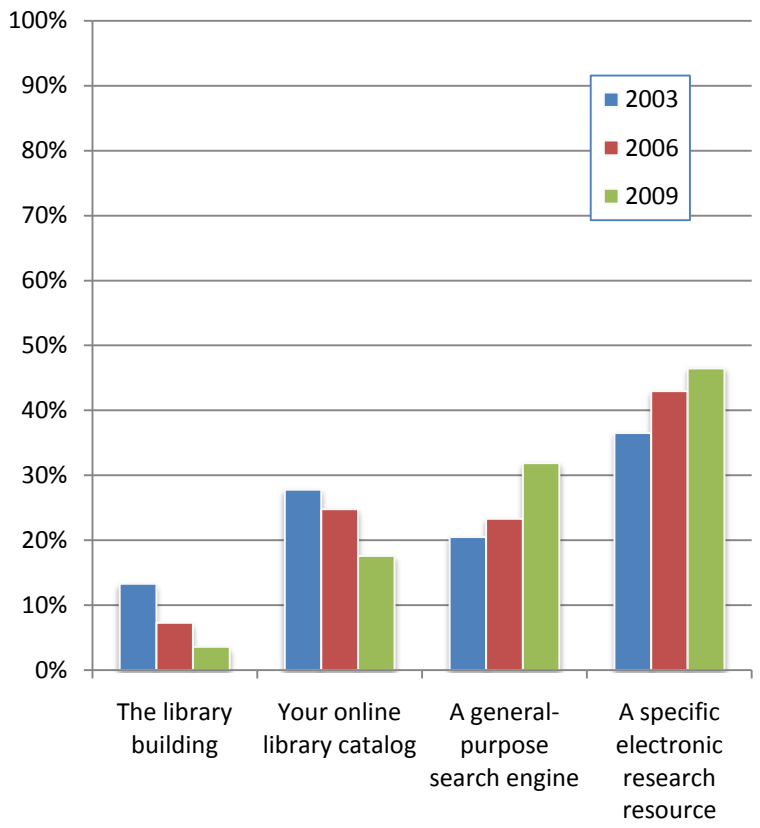
Information discovery and use

Since the first Faculty Survey in 2000, we have seen faculty members steadily shifting towards reliance on network-level electronic resources, and a corresponding decline in interest in using locally provided tools for discovery. This section examines this trend through the lens of several questions posed to faculty about their information discovery and usage behaviors.

Versions of this study since 2003 have asked faculty to select their "starting point" for research from a list of four broad categories:

- The library building
- Your online library catalog
- A general-purpose search engine on The Internet or World Wide Web such as Google or Yahoo
- A specific electronic research resource / computer database

Figure 1: Starting point for research identified by faculty, in 2003, 2006, and 2009



As Figure 1 illustrates, the library's physical edifice and catalog have declined steadily as starting points for research. The research process is no longer likely to begin with a face-to-face consultation with a librarian, a visit to the library's special collections service points, or a search of the online library catalog. Rather, faculty most often turn to network-level services, including both general purpose search engines and services targeted specifically to academia. These services have steadily grown in importance to a growing share of faculty members, and there is every reason to expect this pattern to continue. Although they may rely on resources licensed by the library, their pathway for discovery of these materials no longer goes through the library, except in a very technical sense; their access is only facilitated by the library "behind the scenes."

Of all disciplines, scientists remain the least likely to utilize library-specific starting points; only about 10% of scientists start their research at either of the library-specific starting points, while at about 30% of humanists do so (see Figure 2). Most of this difference comes from their relatively different usage of the online library catalog. This pattern likely stems from humanists' continuing reliance on monographs, which have not made as complete a transition to digital as have the journals that have traditionally been used by social scientists and scientists.

Figure 2: Starting point for research identified by faculty, by disciplinary grouping

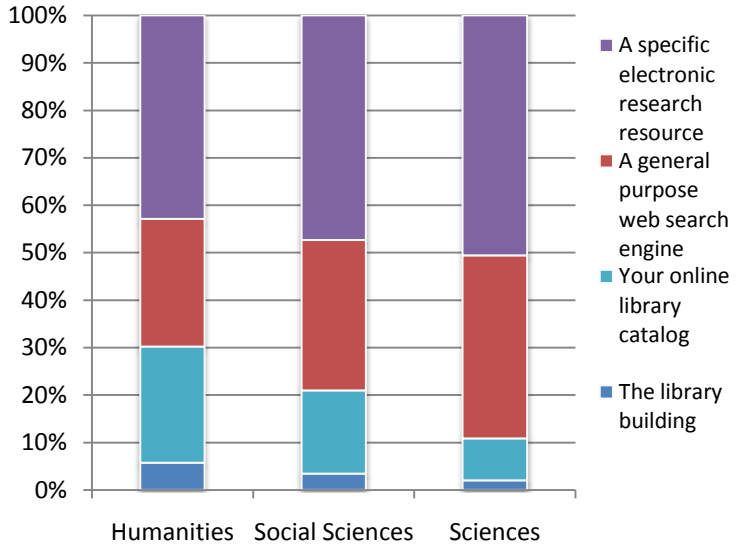
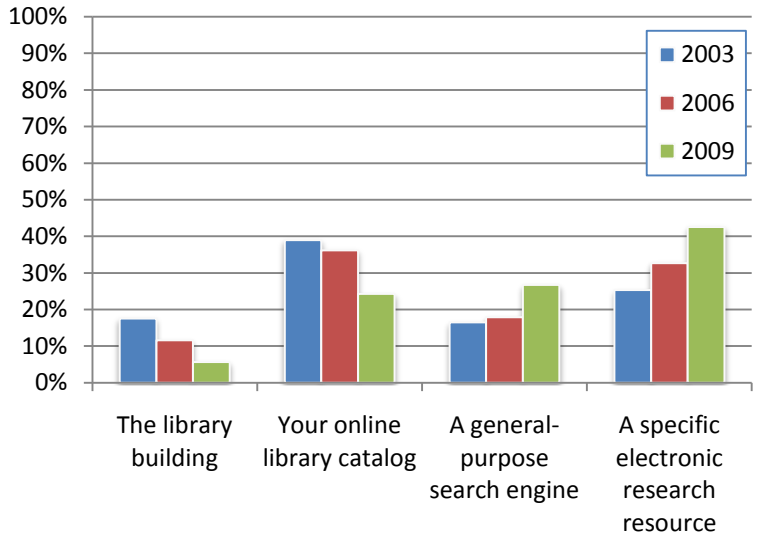


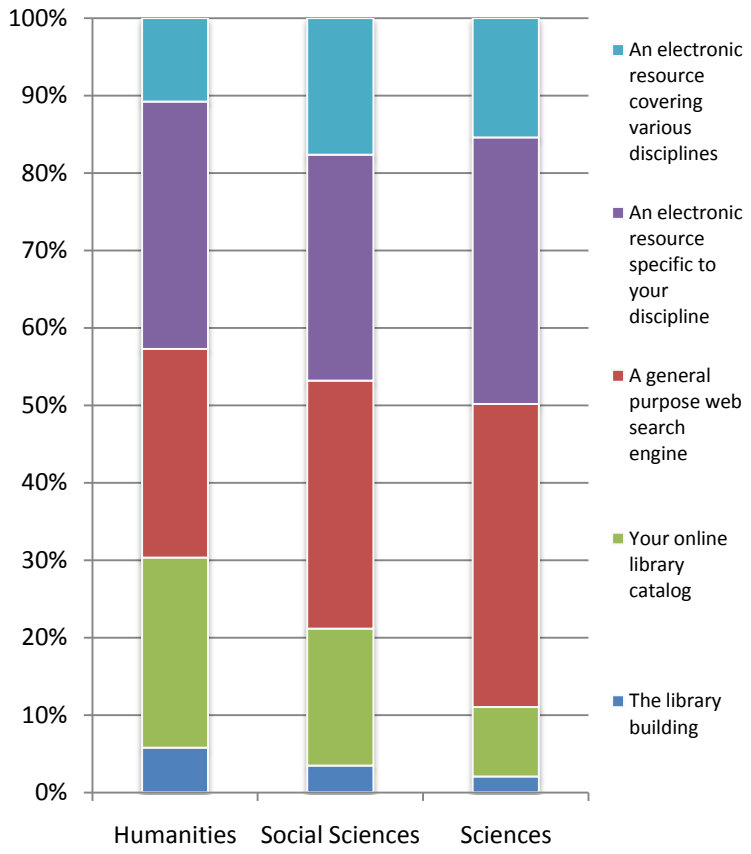
Figure 3: Starting point for research identified by *humanities* faculty, in 2003, 2006, and 2009



Still, humanists have also trended steadily away from library-specific starting points and toward the network level (see Figure 3). Even for more monograph-oriented humanistic scholars, network-level services are increasingly important for discovery, not only of monographs and journals but archival resources and other primary source collections. And, as book digitization projects advance and the opportunities to use full-text search more broadly in the discovery of monographs grow, this pattern seems likely to develop further.

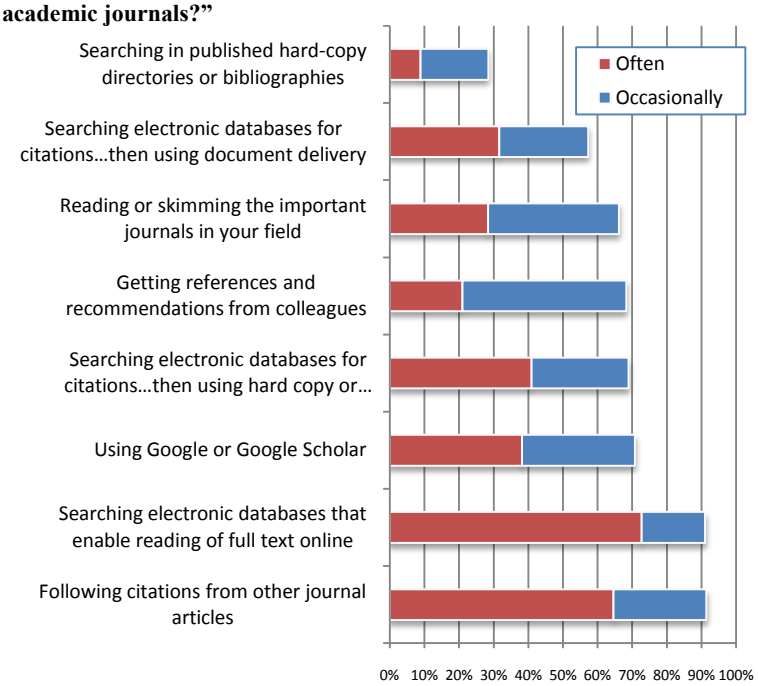
In the 2009 Faculty Survey, we drilled deeper into this issue, asking faculty members who report starting their research with a specific electronic research resource a subsequent question about whether this resource is discipline-specific or covers multiple disciplines. The survey found that scholars tend to prefer electronic resources specific to their own discipline over those that cover multiple disciplines (see Figure 4). This pattern holds across disciplines, although social scientists are relatively more reliant on multidisciplinary resources than either humanists or scientists. The use of resources focused on a specific discipline may simplify the research process for scholars, reducing their need to sift through unrelated materials in their search for items of interest. And targeted resources may be able to offer discovery mechanisms and other tools that speak directly to a discipline's unique research needs

Figure 4: Starting point for research by disciplinary grouping, with responses of "A specific electronic research resource" broken down based on the complementary question "Which of the following types of specific electronic research resources would you be most likely to start with?"



and practices, further facilitating an efficient and effective research process.

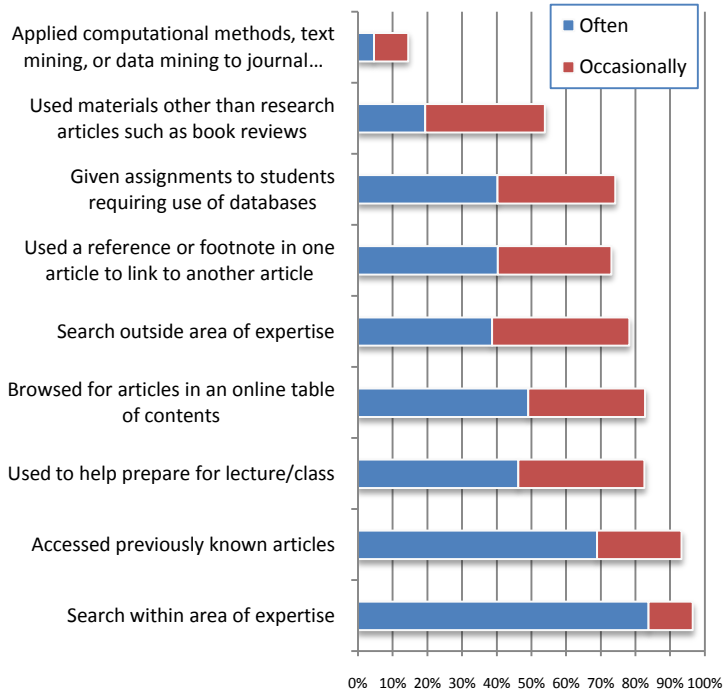
Figure 5: Percent of faculty responding "often" or "occasionally" to "How often do you use each of the methods listed below to find information in academic journals?"



In addition to examining how faculty members begin their research, we also investigated how they discover materials throughout the research process, asking about the methods they use to find information in academic journals. Two of the methods listed were nearly universally used among respondents: following citations from other journal articles and searching online databases that offer full-text access to scholarly articles. As Figure 5 illustrates, discovery through Google and Google Scholar is in a third-place position, virtually tied with a variety of other discovery practices, perhaps because full text is not always easily accessible when discovered through such services.

The survey also asked about a broader set of faculty practices surrounding use of electronic journal literature, including a number of discovery issues. Nearly all faculty use electronic journal resources to search for materials within their area of expertise and to access known articles of interest. A smaller but far from insignificant set of faculty use these same tools to search beyond their immediate field (see Figure 6).

Figure 6: Percent of faculty responding "often" or "occasionally" to "How often have you done each of the things listed below using electronic collections of academic journal articles?"



For all the journal usage tasks that we tracked in 2006 as well as 2009, there has been modest growth, with one exception. A somewhat smaller share of faculty members reported utilizing non-research articles (such as book reviews) at least occasionally in 2009 than did so in 2006, with a drop in share from 59%

to 54%.

More than half of the respondents in 2009 said that they "occasionally" or "often" use electronic academic journal collections in eight of the nine ways laid out in the survey. The one exception was "applied computational methods": less than 20% of respondents said they at least occasionally use computational methods such as text-mining and data-mining with electronic collections of academic journal articles, though the far greater use of these methods in the sciences (19%) than in the social sciences (15%) or humanities (8%) could be interpreted to suggest that these methods will likely grow in prevalence.[4] Further change in methods and behaviors in information discovery and usage can therefore probably be expected.

The changing roles of the library

As faculty research and teaching practices continue to shift in response to their rapidly changing information environment, their uses of the library also change, as does their perception of the value the library offers. Faculty used to rely almost exclusively on the library for the scholarly materials they needed for research and teaching, and librarians guided faculty to and otherwise facilitated the discovery of these materials. As scholars have grown better able to reach needed materials directly online, the library has been increasingly disintermediated from research processes, as the previous section on shifting discovery practices illustrated. The library must evolve to meet these changing needs. To do so effectively requires awareness of how faculty members evaluate different existing library roles and react to potential changes in library services. Since 2003, the Faculty Survey has asked about faculty perceptions of the importance of three traditional functions of the library:

- "The library is a starting point or 'gateway' for locating information for my research" (which we refer to as the "gateway" function)
- "The library pays for resources I need, from academic journals to books to electronic databases" (which we refer to as the "buyer" function)
- "The library is a repository of resources – in other words, it archives, preserves, and keeps track of resources" (which we refer to as the "archive" function)

[4] Recent funding investments may help to draw the interests of humanists in this area. See for example the Digging into Data challenge of the NSF, NEH, JISC, and SSHRC: http://www.diggingintodata.org/.

Figure 7: Percent of faculty rating these roles of the library as important, in 2003, 2006, and 2009

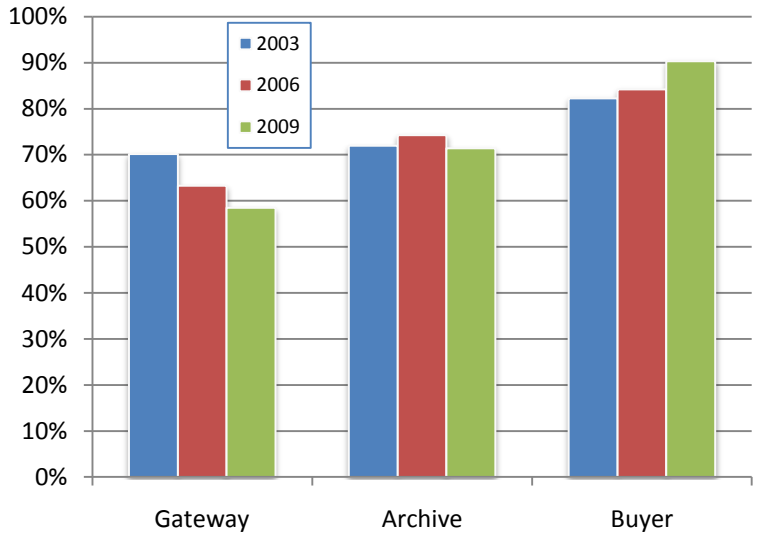


Figure 7 illustrates the gradual decline in the perceived importance of the gateway function over time and the gradual increase in the perceived importance of the buyer function. Over time, the gap between roles has grown substantially. While the buyer role has always been important to the most faculty members, it is now *by far* the most important of the three: while 90% of faculty members view this buyer role as very important, 71% and 59% now view the archive and gateway roles as very important, respectively. As individual faculty subscriptions have declined in favor of an increasingly broad set of library-licensed resources, faculty perceptions of the importance of the library as their "purchasing agent" has steadily increased.

The gateway, archive, and buyer functions are among the core traditional roles of the library. But many believe that these historical roles will not be the main focus of libraries in the future, and envision the transformation of the library from an institution focused on acquiring, maintaining, and providing services centered on a local print collection into a more electronic hub offering a variety of services to support campus needs for research, teaching, and learning.[5] Many libraries have made significant investments in such a transformation, reducing print collections or moving them to less central locations to enable the use of prime real estate for new learning and collaboration services such as information commons.[6] In addition, libraries are taking on new research-support roles, providing digital information curation and management services and even establishing a new professional identity for themselves as "informationists."[7]

[5] For example, see David W. Lewis, "A Strategy for Academic Libraries in the First Quarter of the 21st Century," *College and Research Libraries* 68, no. 5 (September 2007): 418-434; Joseph Esposito, "What if Wal-Mart Ran a Library?," *Journal of Electronic Publishing* 9, no. 1 (Winter 2006); Lyman Ross and Pongracz Sennyey, "The Library is Dead, Long Live the Library! The Practice of Academic Librarianship and the Digital Revolution," *The Journal of Academic Librarianship* 34, no. 2 (March 2008): 145-152.

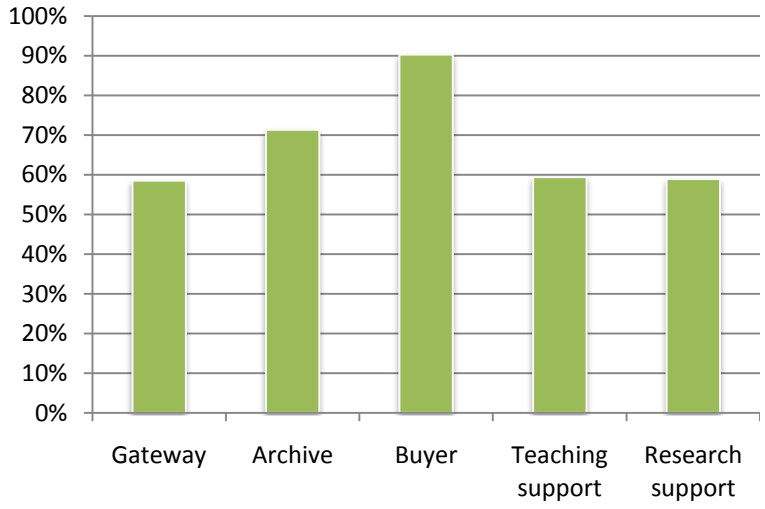
[6] See for example Joan K. Lippincott, "Information Commons: Meeting Millenials' Needs," *Journal of Library Administration* 50, no. 1 (January 2010).

[7] D. Scott Brandt, "Librarians as partners in e-research: Purdue University Libraries promote collaboration," *C&RL News* 68, no. 6 (June 2007); Kathleen Burr Oliver, "The Johns Hopkins Welch Medical Library as Base: Information Professionals Working in Library User Environments," in *Library as Place: Rethinking roles, rethinking space* (Council on Library and Information Resources, 2005).

In order to evaluate the impact of these transformative services, our 2009 Faculty Survey asked faculty about their perceptions of two additional roles for the library beyond the three reviewed above:

- "The library supports and facilitates my teaching activities (which we refer to as "teaching support")
- "The library provides active support that helps to increase the productivity of my research and scholarship" (which we refer to as "research support")

Figure 8: Percent of faculty rating these roles of the library as important

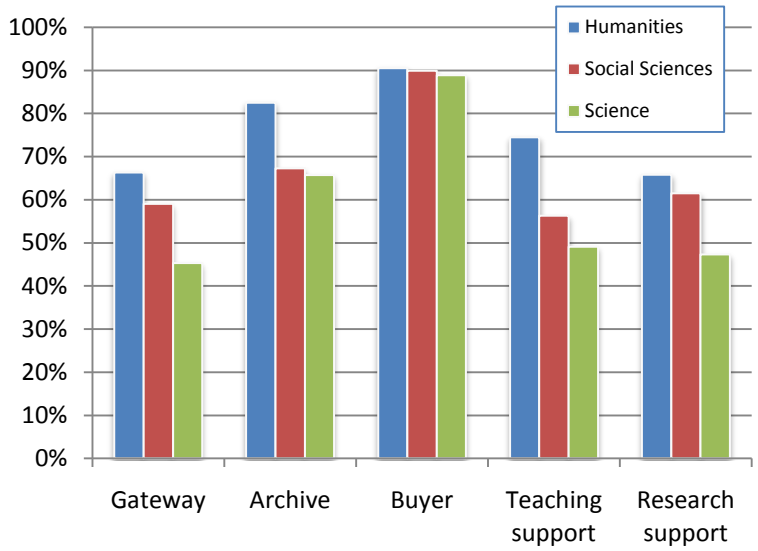


As Figure 8 illustrates, a roughly equal share of faculty members rate these roles as very important, and the importance of both of these roles is rated at almost exactly the same level as the library's gateway function. Neither receives anything close to the universally high importance expressed about the library's buyer role. In the absence of tracking data, it is impossible to speculate whether recent library investment in these roles has positively affected their value to faculty members or if they will over time come to be among the most widely valued roles of the library (although analyses stratified by years in the field or faculty rank do not show noteworthy patterns). It is clear, however, that many libraries will increasingly focus on these roles going forward, both developing new services and seeking to direct faculty attention to existing activities. As libraries continue to invest in developing new emphases on these sorts of services, active evaluation of their impact will be crucial to help libraries direct limited resources to the most valuable activities.

There are several deeper patterns in response to this question that may have important strategic implications for libraries. Significantly more faculty members who consider themselves as "more of a teacher" rather than "more of a researcher" rate both the library's teaching (67% vs. 45%) *and* research (62% vs. 51%) support roles as valuable. And faculty members at the very largest research universities are less likely to appreciate the library's research and teaching support roles. Taken together, these patterns suggest that the relationships built through engaging faculty in supporting their own teaching activities (which have historically proven harder to scale at the largest institutions) may be an especially beneficial way to build relationships with faculty members more broadly. [8]

[8] Karen Williams's forthcoming "Transforming Liaison Roles" report (part of the Association of Research Libraries' *New Roles for New Times* series) may offer valuable insight on these questions, especially in the context of large institutions. See http://www.arl.org/rtl/plan/nrnt/nrntliaison.shtml

Figure 9: Percent of faculty rating these roles of the library as important, by disciplinary grouping



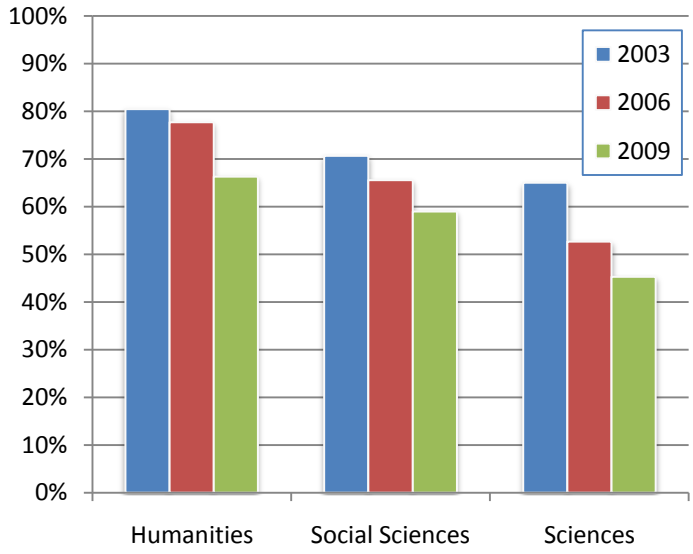
As always with information services, disciplinary stratifications are especially revealing (see Figure 9). Virtually all faculty members in all disciplines uniformly rate the buyer role as very important. A large majority of humanists also value several other library roles highly, but for social scientists and scientists the buyer role is by far the most important role of the library. It is striking how faculty members have come to universally perceive the library role as purchasing agent for institutional information resources as essential.

But for other library roles, there are noteworthy disciplinary differences in faculty perceptions. Almost three-quarters of humanities faculty indicated teaching support is a very important role of the library, while a notably lower share of social scientists and scientists saw teaching support as very important. Is this role really most strongly valued by humanists and if so why? Alternatively, is there some reason that perceptions vary so significantly? As numerous libraries have invested in building information commons over the past decade, are there alterative or additional teaching roles that would be valued by social scientists and scientists?

The library's role as archive is very important to a very high share of humanists (82%), a relatively close second to the buyer function. For social scientists and scientists, however, the archiving role is a distant second, with 66% and 65%, respectively, ranking the archival role as very important. Perhaps this pattern is unsurprising, given the humanities' continuing reliance on print monographs, paper archives, and special collections, which have not yet seen the same dramatic format and preservation shift to the digital and the network level as have journals. Over the next few years, it will be interesting to track this question as more and more monographs are readily available to faculty members as e-books.

Finally, the library's role as a gateway demands attention. Helping users "locate information for their research" has become a far more competitive endeavor than it was in the days of print, and the library now competes with Google, publishers, aggregators, and other network-level services to serve its constituents. The fact that the perceived value of the gateway role has declined is a point that must be factored into libraries' resource allocation decisions; the trend over the last decade makes an even more powerful argument that libraries need to consider very carefully the investments they make in search and discovery services. The decline in the library's perceived role as a gateway matches the shift to network-level discovery and has been steady and consistent over the last 10 years, holding across disciplinary groupings (see Figure 10).

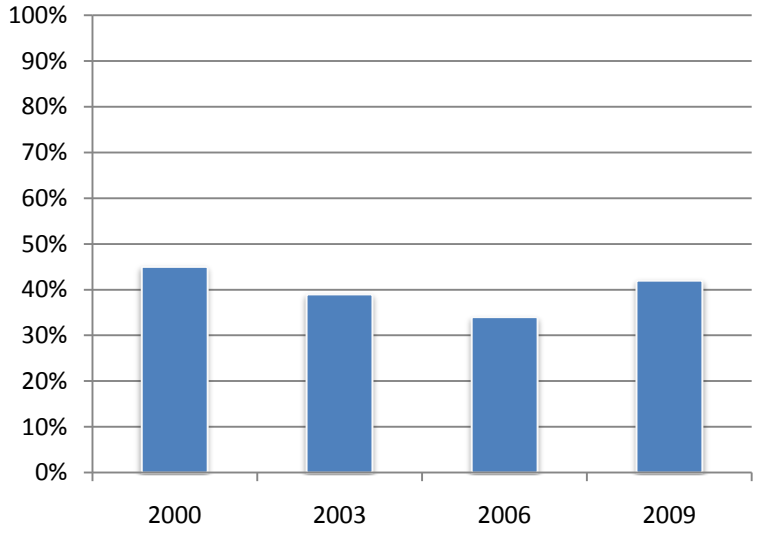
Figure 10: Percent of faculty rating the library's "gateway" role as very important, by disciplinary grouping, in 2003, 2006, and 2009



A particularly small share of scientists (less than half) see this gateway role as very important, and notwithstanding efforts to provide advanced alerting and discovery services to faculty members at some institutions,[9] scientists' support has eroded most dramatically since 2003. Libraries need to regularly assess whether their constituents continue to use and value the gateway services that they provide to ensure that the level of investments being made are justified by the benefits being gained by their constituents. Libraries should also give careful consideration to ways to deliver these services more efficiently through collaboration and participation in services delivered "in the cloud" or at the network level.

[9] Jay Schecker, "The Unseen Scholars: Researching Information in the Digital Age," *1663: Los Alamos Science and Technology Magazine*, December 2008, http://www.lanl.gov/1663/files/documents/Item/627/1663_dec08_dialogue.pdf.

Figure 11: Percent of faculty responding "very dependent" to "How dependent would you say you are on your college or university library for research you conduct?"



Despite the reported declines in importance of all the library's roles other than as a buyer, the 2009 study saw a slight rise in perceived dependence on the library (see Figure 11). In fact, in each disciplinary category, faculty rated their dependence on the library higher in 2009 than they had in 2006, and in some cases at their highest level since 2000. Frankly, we were surprised by this result. We do not have definitive evidence to explain why the trend has reversed, but one possibility is that faculty have become much more aware of the library's role as buyer, and in this economic environment that strikes them as especially important. Furthermore, library efforts to raise awareness of their purchasing role may complement increased scrutiny on the costs of scholarly journals brought on by the open access movement, together making the effort and expense of library purchasing activities clearer to faculty.

We also asked faculty members about their level of agreement with the strongly worded statement, "Because faculty have easy access to academic content online, the role librarians play at this institution is becoming much less important." Although few faculty agreed strongly (an average of just 14%, with 20% of scientists, 15% of social scientists, and 7% of humanists), the share of survey respondents who do hold this belief has grown across disciplines in the last several years (in 2006, it was 8%, with 13%, 8%, and 4%, respectively). Taken together, these findings suggest that this increased perception of dependence on the library may be primarily derived from recognition and appreciation of the library's role as a buyer.

In several disciplines, the library is perceived as becoming more and more exclusively a purchaser of needed resources. And while in tight economic times, faculty awareness and appreciation of the library's role in financially supporting access to needed materials may rise, this is a relatively "background" role for the library. The declining visibility and importance of traditional roles for the library and the librarian may lead to faculty primarily perceiving the library as a budget line, rather than as an active intellectual partner.

Summary

Network-level discovery tools include disciplinary resources and powerful search tools which dramatically improve research efficiency while also increasing effectiveness. As a result, faculty discovery practices across all disciplines have continued their marked shift to the network level. This key finding has important implications for resource providers and libraries alike.

Faculty members are reducing their usage of local library services for discovery purposes and, as a result, put less value on the library's traditional intellectual value-added role as a gateway to information.

Faculty members, by comparison, most strongly support and appreciate the library's infrastructural roles, in which it acquires and maintains collections of materials on their behalf.

The two new roles in our most recent survey, teaching support and research support, suggest unique opportunities for libraries to further develop campus relationships. But notwithstanding noteworthy library investments in everything from the information commons to data curation services, faculty members across disciplines do not yet value the teaching and research support roles nearly as highly as they do the "infrastructural" roles. Developing research and teaching services that are valuable to scholars in the science and social science fields seems to have been a particular challenge for libraries.

All this suggests a key dilemma for the libraries pursuing these directions strategically and their parent institutions. On one hand, the fields whose practices are most traditional also appear to contain the library's greatest supporters; therefore, if the library shapes its roles and activities based on what is currently most highly appreciated by faculty, it may lose a valuable opportunity to innovate and position itself as relevant in the future. On the other hand, if the library develops new and innovative roles and services that address unmet needs, becoming newly relevant and even essential to those scholars who have moved farthest away from it, in the near term it may lose the support of its most ardent supporters. Can the academic library reengage with scientists? If not, is it realistic to expect humanists to remain wedded to it, given that humanists' declining support for the library's gateway role indicates they may be following in the footsteps of their peers in other disciplines, a trend which may only accelerate as a broader range of humanistic scholarly materials is made available in digital form? Addressing this dilemma is perhaps the most urgent strategic challenge facing academic library leaders.

Few libraries possess the resources to pursue every strategic opportunity they perceive. For this reason, many may face a strategic choice between investing to reengage with scientists and certain social science fields or building on their existing strength with humanists to develop durable services for an increasingly online future, or similar kinds of strategic resource prioritization decisions. In contemplating such decisions, it is necessary to examine the range of feasible services needed or wanted at a disciplinary level. Moreover, many libraries will find it useful to consider unique assets and opportunities on their own campuses in the context of this broad strategic backdrop, perhaps investing in individualized strategy analyses for their own institutions.[10] Certainly, in this environment, academic libraries can benefit from a culture of re-investment, experimentation, assessment, and as necessary regular re-direction, which can impact everything from how budgeting exercises are conducted to the types of information gathered from regular stakeholder investigations.

[10] See the University of Minnesota's "A Multi-Dimensional Framework for Academic Support," available at http://www1.lib.umn.edu/about/mellon/UMN_Multi-dimensional_Framework_Final_Report.pdf; the "NYU 21st Century Library Project: Designing a Research Library of the Future for New York University," available at http://library.nyu.edu/about/KPLReport.pdf; and "Studying Students: The Undergraduate Research Project at the University of Rochester," available at http://hdl.handle.net/1802/7520.

CHAPTER 2: THE FORMAT TRANSITION FOR SCHOLARLY WORKS

As more and more new scholarly works are produced in digital form, and as increasing waves of digitization have brought a wide range of primary and secondary scholarly materials online, faculty attitudes and behaviors regarding digital scholarly materials have evolved rapidly, altering needs and expectations for scholarly materials in physical form. Scholarly journals have been at the forefront of this transition. Faculty attitudes suggest that a tipping point has been passed for journal current issues, and, with certain narrow exceptions, that print editions of current issues of scholarly journals are rapidly becoming a thing of the past. And although faculty attitudes on journal backfiles have not yet experienced the same nearly-complete shift, they are changing in parallel with library resource constraints such that backfile print collections will increasingly be replaced exclusively by digitized versions. Our findings raise key strategic questions for publishers and libraries alike on when and how to wind down print publishing and collecting programs and on how digitization will reshape collections management for print collections of journal backfiles.

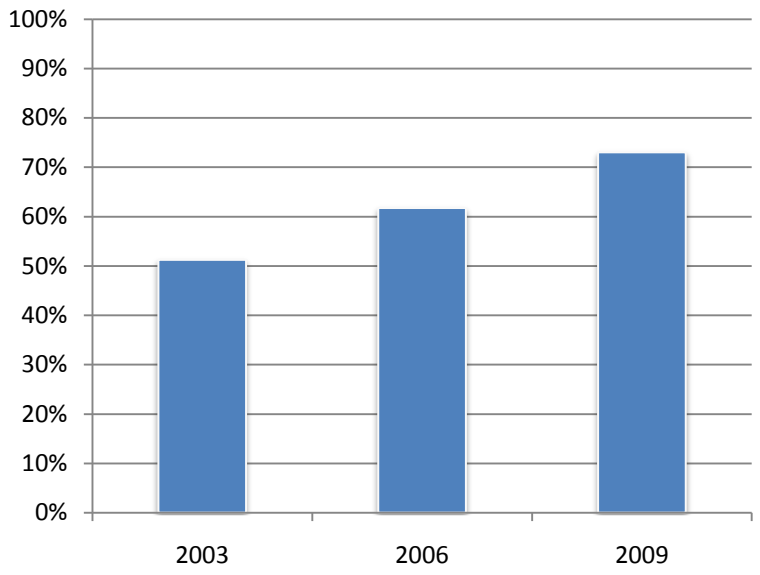
The same transition in faculty attitudes has not yet occurred for other types of materials, perhaps only because digitization and digital dissemination has been a more recent phenomenon beyond journals. While e-books, for example, remain less important than e-journals to faculty research practices, they have come to play increasingly important roles and their preservation is valued. But, while the tipping-point has been passed for scholarly journals and access will ultimately be provided solely in electronic format, there is as yet little evidence to suggest that a print-to-electronic transition for e-books is likely to play out in the same way. Understanding the unique affordances of monographs is an important challenge for libraries and publishers that have successfully pursued the format transition for journals.

Looking broadly across material types, faculty members' growing comfort relying exclusively on digital versions of scholarly materials opens new opportunities for libraries, new business models for publishers, and new challenges for preservation.

Current issues of scholarly journals

Scholarly journals have continued their inexorable transition to digital format, with growing acceptance and in some cases enthusiasm for the substitution of electronic for print journal materials. Long-standing disciplinary patterns continue to hold: humanists remain more attached to print than their colleagues in the social sciences and, especially, the sciences. All signs indicate that faculty are widely prepared for a complete transition away from print to digital-only for current issues of scholarly journals.

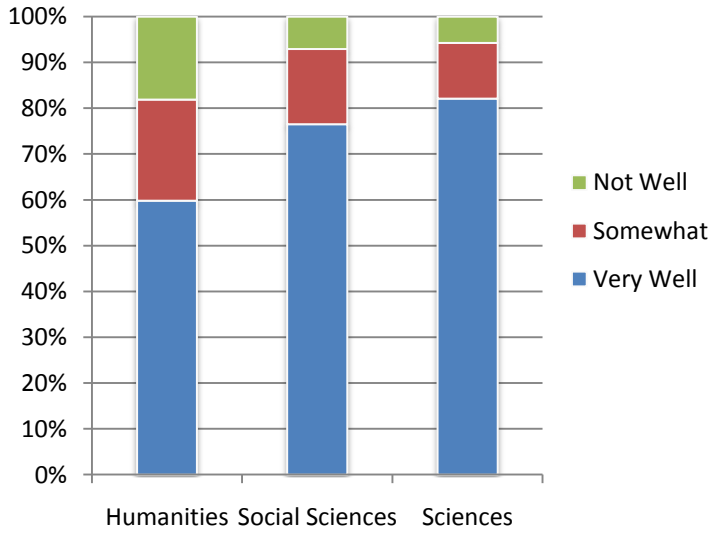
Figure 12: Percent of faculty strongly agreeing with the statement "If my library cancelled the current issues of a print version of a journal but continued to make them available electronically, that would be fine with me," in 2003, 2006, and 2009



On current issues acquisitions, there is widespread agreement that the ongoing transition meets the needs of faculty. Nearly three-quarters of faculty agreed strongly that it would be "fine" with them for their library to cancel current issues of a print version of a journal while continuing to make them available electronically, a figure that has steadily and substantially risen over the years (see Figure 12). As publishers have indicated that electronic is the "version of record" and in many cases added additional content, features, and functionality to their electronic versions that are not available in print, this shift is not surprising.

This attitude is almost universally shared by social scientists and scientists (see Figure 13), with less than 10% of these faculty members holding a negative perception about print cancellations. Even among humanists, strong support for this point of view has continued to grow over time, and a solid majority of humanists have asserted their comfort with such substitution for current issues of journals.

Figure 13: Percent of faculty strongly agreeing with the statement: "If my library cancelled the current issues of a print version of a journal but continued to make them available electronically, that would be fine with me," by disciplinary grouping

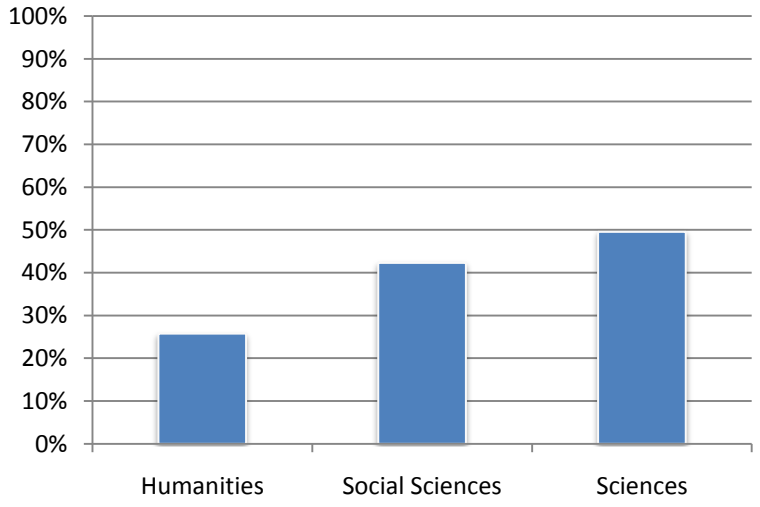


There are, certainly, differences even between humanists. Art historians and Asian studies faculty are the only disciplines in which less than a majority support the transitioning of current issues, while philosophers are relatively more accepting of this transition than are most humanists. But even among more "conservative" faculty, attitudes have continued to shift and comfort with this transition has continued to grow. For example, although still less accepting than their peers, art historians' comfort with the transition has grown at about the same rate as their humanist peers. Although humanists are not yet as uniformly accepting of this transition as the other disciplinary groupings, attitudes are relatively positive; less than

20% of humanists strongly disagree with the assertion that it "would be fine" with them to cancel print current issues in favor of electronic.

This growing acceptance of digital current issue substitution validates the choices of many libraries to transition their subscriptions to electronic-only. Although a sensitive and nuanced approach is needed – as mentioned above, several disciplines remain less comfortable with such a transition even for current issues – these national findings suggest that libraries may be able to move relatively aggressively in switching most remaining print subscriptions to electronic-only with minimal impact on users.

Figure 14: Percent of faculty agreeing strongly with the statement: "I am completely comfortable with journals I use regularly ceasing print versions and publishing in electronic-only form," by disciplinary grouping



But the nature of the print to electronic transition for current issues looks somewhat different if examined not from the campus level but instead from the system-wide level. Although faculty members are broadly accepting of the cancellation of local print subscriptions for current issues of the journals they use, they are less comfortable with the idea of the journals they rely on switching to an electronic-only publishing model (see Figure 14).

Harley et al suggested that, as authors, faculty view the print versions as fulfilling other important purposes, such as setting limits on acceptance rates and thereby establishing the prestige of the journal title itself.[11] It is also possible that lingering concerns about the reliability of e-journal preservation may drive relatively lower faculty acceptance of the cessation of print publishing. While some publishers had envisioned a relatively straightforward winding-down of print publishing programs, these findings suggest that more strategic planning, perhaps engaging publishers and libraries together, might be called for to make a smart and complete transition from print to electronic journal publishing both taking into account library, publisher, author, and reader perspectives.[12]

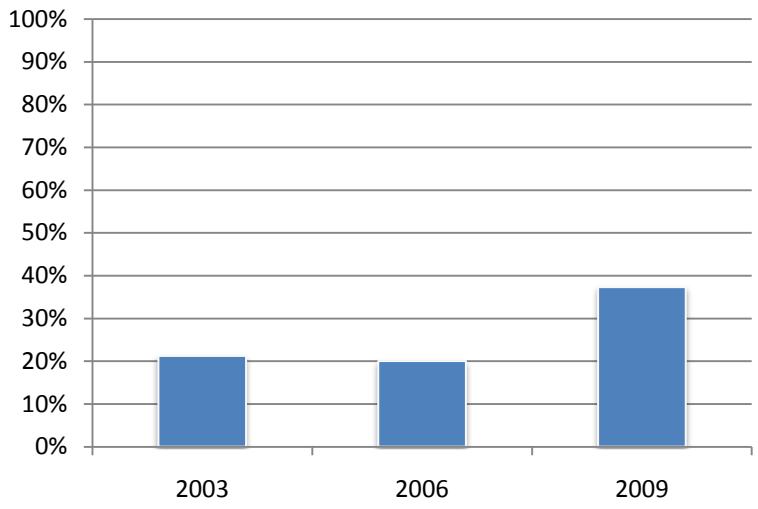
[11] The recent work of the Center for Studies in Higher Education at UC Berkeley corroborates this author impression, especially in certain disciplines such as political science, with faculty describing electronic-only journals as "lack[ing] prestige" or not having "gravitas." Diane Harley et al., "Assessing the Future Landscape of Scholarly Communication: An Exploration of Faculty Values and Needs in Seven Disciplines" (UC Berkeley: Center for Studies in Higher Education, 2010), http://escholarship.org/uc/cshe_fsc.

[12] Some publishers have begun to shift their print publishing to "condensed and rotated" format, continuing to produce a print version at least for the time being while reducing its cost. In the medium term, perhaps there is a role for print-on-demand, potentially driven by the Espresso Book Machines that have been acquired by a number of libraries, in this wind-down.

Backfiles of scholarly journals

While there is great and growing agreement that current issues can be migrated to an electronic-only format, especially now that electronic is often the "format of record," faculty attitudes toward backfiles are somewhat more mixed. For backfiles, a variety of providers, including but not limited to publishers, have digitized thousands of journal titles, at various levels of quality that may at times diverge to at least some degree from the original published print version, with a variety of provisions for digital preservation and post-cancellation access. It is therefore understandably more difficult for faculty members to contemplate removing a resource currently available to them than to consider foregoing purchase of the new digital "format of record," especially if the opportunity costs associated with retaining print are not borne by faculty members but rather by the library. Even so, the trend line indicates that faculty support for a backfiles format transition is increasing.

Figure 15: Percent of faculty agreeing strongly with the statement: "Assuming that electronic collections of journals are proven to work well and are readily accessible, I would be happy to see hard-copy collections discarded and replaced entirely by electronic collections," in 2003, 2006, and 2009



Our study gauged the reaction of faculty to an extremely strongly worded statement, asking if they would be "happy" with their library having "hard-copy collections discarded" and replaced entirely by electronic collections. The notion of anyone being "happy" about any loss, no matter how minor, may seem unlikely. Still, attitudes on this question changed significantly between 2006 and 2009. Although still a minority, more than a third of respondents now agree strongly that they would be "happy" to see hard-copy collections of scholarly journals discarded and replaced entirely by electronic collections (see Figure 15). And exactly half of respondents respond at least somewhat positively to this notion,[13] indicating that although faculty members may not be "happy" to see print backfiles go, many are at least not strongly opposed to the idea.

[13] While we measure "strong agreement" as responses of 8-10 on a 1-10 scale, positive responses include the wider range of responses from 6-10.

Unsurprisingly, social scientists and scientists are far more comfortable with such a substitution than are their colleagues in the humanities, but attitudes have shifted substantially among all disciplinary groups since 2006. Even among scientists, the majority of respondents are still not "happy" about the prospect of wholesale electronic-for-print substitution, but the accelerating rate of change in attitudes on this topic seen in the 2009 study suggests that a tipping point may be in sight even if it has not yet been reached (see Figure 16).

Figure 16: Percent of faculty agreeing strongly with the statement: "Assuming that electronic collections of journals are proven to work well and are readily accessible, I would be happy to see hard-copy collections discarded and replaced entirely by electronic collections," by disciplinary grouping in 2003, 2006, and 2009

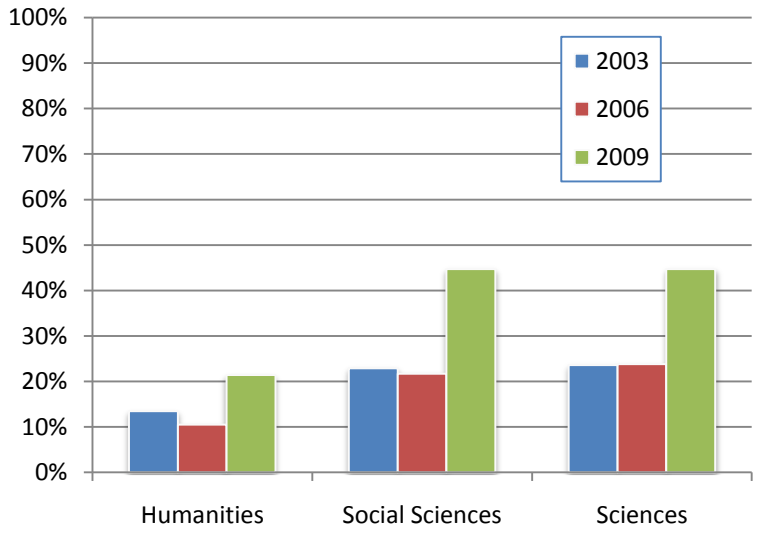
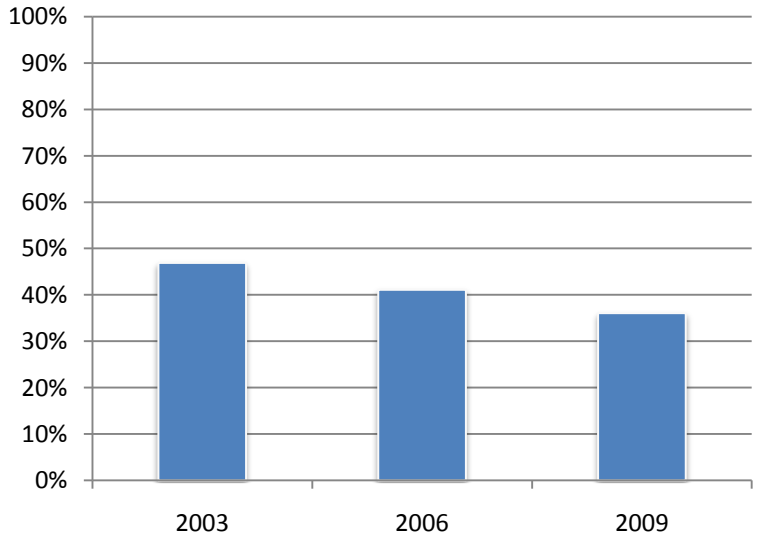


Figure 17: Percent of faculty agreeing strongly with the statement: "Regardless of how reliable and safe electronic collections of journals are, it will always be crucial for my college or university library to maintain hard-copy collections of journals," in 2003, 2006, and 2009.

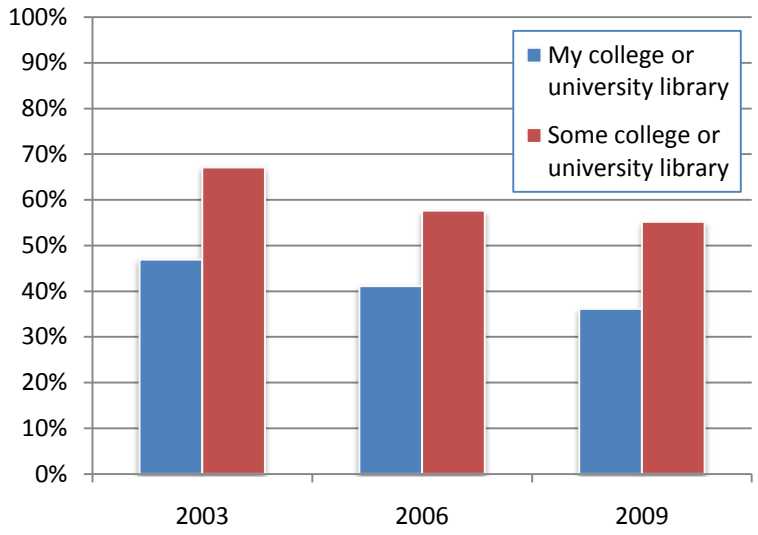


When asked about their continuing need for access to backfiles in print form, a complementary picture emerges: only slightly more than a third of faculty indicated their sense that it would *always* be *crucial* for *their own* college or university library to maintain print journal collections (see Figure 17). These overall figures mask dramatic differences among individual disciplines' reactions to print backfiles deaccessioning. Faculty in business, economics, and several of the sciences are among the most enthusiastic about the transitioning of print backfiles to electronic-only, offering an opportunity for immediate impact, while humanities disciplines like art history and classics are not ready for local print holdings to be replaced with electronic resources.

Declining faculty reliance on local print collections may pose a challenge for libraries, as local investment in print preservation efforts may go unrecognized and unrewarded just as efforts to withdraw local print holdings may elicit controversy. Notably, there is no more interest in local print preservation efforts among faculty at the largest institutions, which are assumed by many to bear the lion's share of responsibility for preservation, than at other institutions. New methods to more efficiently distribute these

responsibilities and costs in ways that better balance with faculty valuation of local investment in print preservation are needed and are the principal motivation behind the library movement to develop print repositories.[14]

Figure 18: Percent of faculty agreeing strongly with the statement: "Regardless of how reliable and safe electronic collections of journals are, it will always be crucial for _____ to maintain hard-copy collections of journals," in 2003, 2006, and 2009



In comparing the previous statement about local retention with a similar question about retention *somewhere* in the library community, it is clear that, while faculty continue to value print preservation, they seem to be feeling less of a need to have immediate access to print journals locally. Both figures have drifted downward over the last decade (see Figure 18). They have varied predictably by discipline – both numbers are substantially higher for humanists than for scientists. Overall, over time and by discipline, concern that print be maintained *somewhere* has consistently trumped interest in local print preservation. These attitudes do not give libraries a clear mandate with respect to print preservation: they neither indicate that local print collections remain functionally relevant to faculty work processes nor suggest that faculty are increasingly willing to see local print collections discarded and rely on remote access; rather, they seem to demonstrate a slowly declining valuation of print preservation in general.

These faculty attitudes may in the long term prove challenging to the print repository strategy that many libraries and consortia are today pursuing. Today, a slim majority of faculty members agree strongly that print collections should be retained remotely following their digitization, but long-term trends indicate a continuing decline in prioritization of these activities. Just as decreasing faculty support for local print preservation activities shapes the environment for library investment in these areas, so the declining mandate from faculty members to support remote preservation activities may have an impact over time. A print repository strategy therefore must also incorporate system-wide efficiencies in print collection management that reduce the burdens of preservation while still prioritizing the responsible maintenance of print.[15]

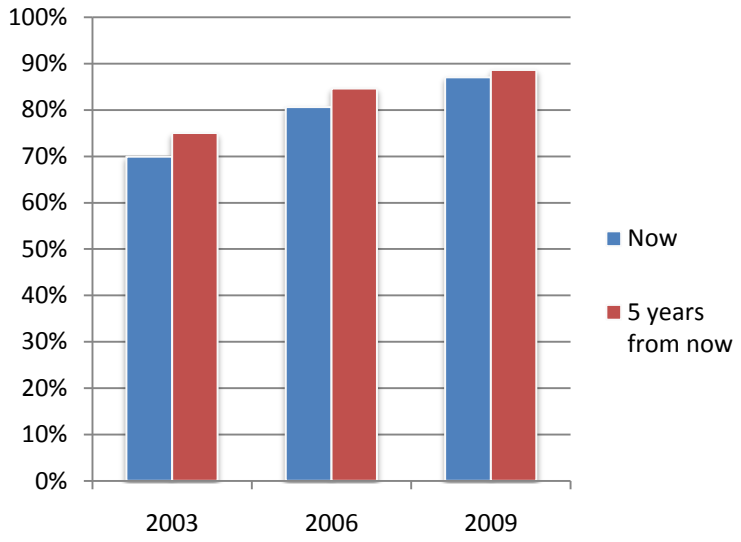
[14] For more on print repositories, see Reilly, Bernard F., Jr. Developing Print Repositories: Models for Shared Preservation and Access. Washington, DC: Council on Library and Information Resources, 2003.

[15] Ithaka S+R's What to Withdraw initiative provides a framework for balancing these considerations from a system-wide perspective to enable library action. Roger C. Schonfeld and Ross Housewright, "What to Withdraw? Print Collections Management in the Wake of Digitization" (Ithaka S+R, September 29, 2009), http://www.ithaka.org/ithaka-s-r/research/what-to-withdraw.

Preservation of electronic journals

Faculty attitudes with respect to electronic preservation of journal materials appear much less complex; faculty members' sense of the significance of long-term preservation of electronic journals has steadily increased over time (see Figure 19). Interestingly, faculty assessments of the importance of these preservation activities have grown even faster than faculty themselves expected. There is now virtually unanimous agreement on the importance of long-term e-journal preservation, suggesting that faculty care most about the preservation of those materials that they make greatest use of today and expect to be important to them in the future.

Figure 19: Percent of faculty responding "very important" to the question "How important is the long-term preservation of electronic journals to you?" today and to the question "Thinking about 5 years from now, how important do you think the long-term preservation of electronic journals will be to you?" in 2003, 2006, and 2009



Libraries may be able to harness this near-unanimous agreement to garner support for a more holistic view of the preservation of the intellectual contents of journals across formats, linking up their diverse preservation activities into a coherent vision. Publishers may also find guidance in these findings, which suggest that a transparent program for long-term electronic preservation of their publications may be viewed positively by, and afford value to, many of their faculty constituents. In any case, effective and sustainable models for the preservation of electronic journals– which will likely look very different from the "preservation by proliferation" approach used in the long-term maintenance of physical materials – must be developed.[16]

[16] See the recent report, "Sustainable Economics for a Digital Planet: Ensuring Long-Term Access to Digital Information" (Blue Ribbon Task Force on Sustainable Digital Preservation and Access, February 2010), http://brtf.sdsc.edu/biblio/BRTF_Final_Report.pdf.

Format & preservation of other scholarly materials

Although scholars across disciplines highly value the electronic format for journals, opinions on the importance of other types of digital materials vary more widely. Broadly speaking, scholars, regardless of field, indicate a general preference that digital materials be preserved. This interest in preservation sometimes outpaces actual use substantially: while there is rough parity in levels of agreement about the importance of e-journals and of their preservation, other formats vary substantially. In the cases of both e-books and digitized primary source collections, far more faculty feel that it is important that these materials be preserved than actually feel that these types of materials are particularly important to their research and teaching at this point in time (see Figure 20).

Figure 20: Percent of faculty responding "very important" to the questions "How important is this item to your research or teaching?" and "How important is the long-term preservation of this type of digital materials?"

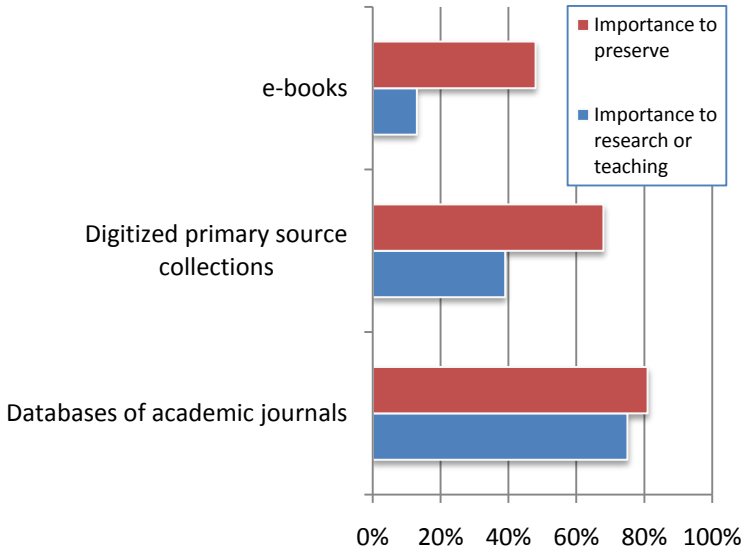
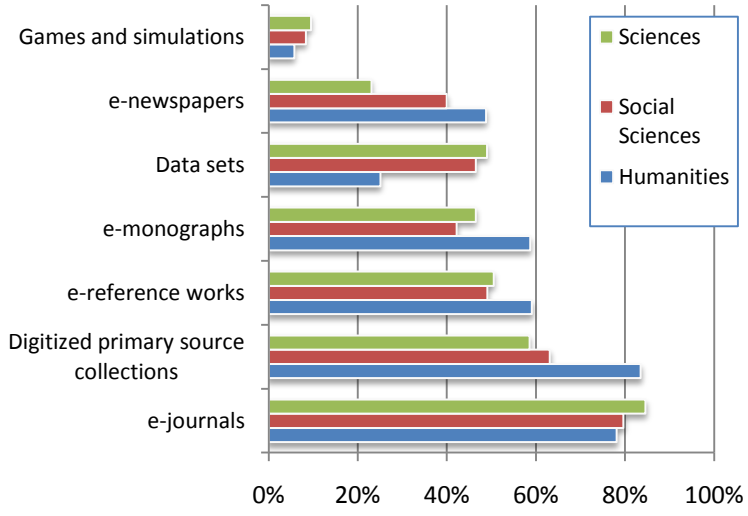


Figure 21: Percent of faculty responding "very important" to the question "How important is the long-term preservation of these types of digital materials," by disciplinary grouping

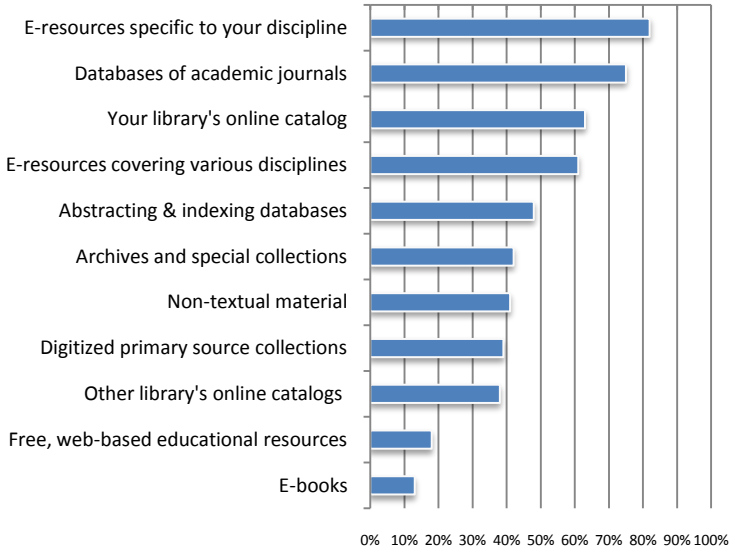


Different disciplines value preservation primarily of the materials that they most value for their research or teaching: reasonably, humanists prioritize preservation of digitized primary source collections and e-newspapers far more than their colleagues in the social sciences and sciences, while scientists and social scientists value the preservation of data sets far more than do humanists (see Figure 21).

If many faculty members think all information sources are trending to digital over time, views on preservation outpacing actual usage may represent a kind of forecasting of expected value. Alternatively, the divergence of concern for preservation from actual use could be interpreted to suggest that much of this demand for preservation is soft – faculty would prefer preservation in the abstract, but ultimately may not yet receive enough real-world value from some materials to support investment in their preservation when this comes at the cost of other and more immediately valuable activities.

The case of e-books draws this contrast into stark relief: while about half of all respondents indicate long-term e-book preservation is very important, only a small fraction of faculty actually make use of e-books in the course of their research or teaching. Balancing apparent faculty demand for the preservation of e-books with their relatively low level of use may pose a future challenge for the library that in some ways parallels current print collections management dilemmas: either invest in redundantly preserving materials that receive relatively little use, or help faculty understand and accept the strategies that underlie deaccessioning decisions. For e-books, if a format migration is eventually expected, dual-format preservation strategies may yield additional value in the long run, but otherwise they may eventually need to be rethought. Some libraries are already electing to pursue digital-only acquisitions for science monographs that have strong digital preservation assurances.

Figure 22: Percent of faculty responding "very important" to the question "For each item that you use, please indicate how important that item is to your research or your teaching."



Despite the arrival of devices like Amazon's Kindle – and about ten percent of respondents indicated that they own an e-book device like the Kindle – e-books have remained marginal to scholars as tools for their research and teaching. When asked to rank a variety of different types of electronic resources according to their importance to research and teaching, faculty placed the e-book solidly in last place, lower than free web-based educational resources (like MIT's OpenCourseWare) and trailing all other resources by a significant margin (see Figure 22). Still, more faculty members expect e-books to be important in five years from now, with 31% expecting that e-books will be valuable in five years as compared to only 13% today, suggesting that it may yet be early days for scholarly monographs in digital format.

Unlike the case of journals, where many faculty members are willing to imagine that within a few years, electronic surrogates will largely replace print originals, virtually all respondents dismiss the notion that e-books will displace print originals in a relatively short timeframe. Only four percent of faculty members expressed strong agreement with the statement "Within the next five years, the use of e-books will be so prevalent among faculty and students that it will not be necessary to maintain library collections of hard-copy books." Given the anticipated growing importance of e-books, it will be important to continue assessing whether a format transition similar to the one which has occurred for journal materials is likely.

Summary

In the eyes of faculty, electronic versions of journals are now utterly mainstream. While print journals may continue to play a limited role for faculty with specific needs that are otherwise poorly met, digital versions are clearly the medium of choice for most faculty members, even among humanists. Bringing together the preservation and business models to wind down print publishing and collections programs wherever appropriate would probably reduce expenditures by publishers and libraries alike.[17]

Especially in the case of backfile journal collections, structural changes in system-wide library collections management processes may be needed in order to facilitate a print-to-electronic transition that will support remaining faculty needs for some print materials and effectively balance local flexibility with system-wide preservation priorities. Beyond preservation of print versions, there are also opportunities for publishers and other backfile suppliers to ensure that their digitized versions not only meet faculty access requirements but can also serve as a substitute for print for a preservation perspective. The time to lay the groundwork for this transition is now.

Other types of scholarly materials have not yet experienced the same type of transition, and careful attention must be paid to the different roles that digitized and born-digital versions of other materials have the potential to play. But as faculty increasingly turn to digital materials such as e-books, new dissemination and preservation models will surely need to be developed.

[17] It certainly would do so for nonsubscription costs for libraries: Schonfeld, Roger C., Donald W. King, Ann Okerson, and Eileen Gifford Fenton. The Nonsubscription Side of Periodicals: Changes in Library Operations and Costs between Print and Electronic Formats. Washington, DC: Council on Library and Information Resources, 2004.

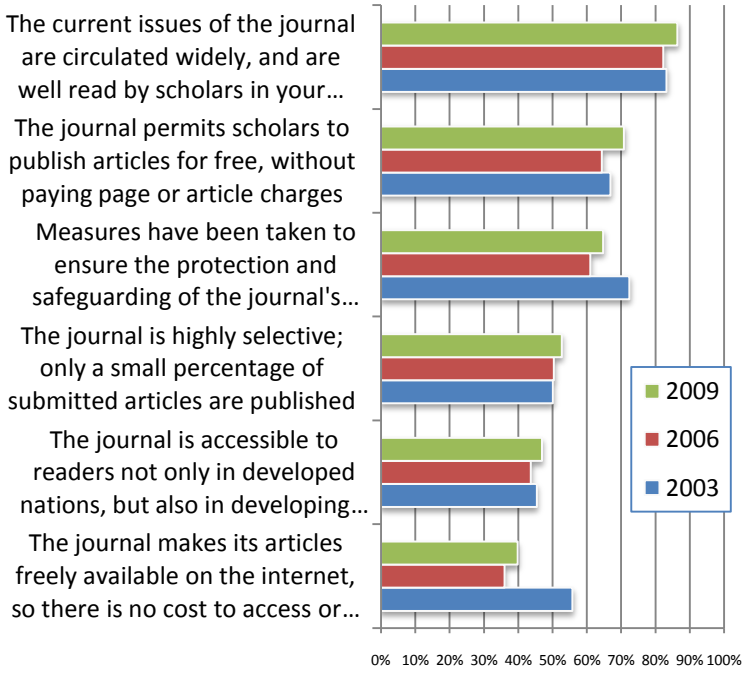
CHAPTER 3: SCHOLARLY COMMUNICATIONS

In both mainstream and academic circles, the potential of new online communications channels – blogs, Twitter, digital content repositories, and more – to transform interactions and level historic barriers has been widely discussed and celebrated. But thus far, our ability to document the impact among faculty of these radical new abilities to communicate has been extremely limited. Traditional channels – often made more efficient by the transition to digital but otherwise largely unchanged – remain the most important ways in which faculty communicate both formally and informally. And unlike many of the other topics this study explored, no clear trajectory of change is indicated. Aside from a few outlier disciplines, there are remarkably few attitudinal or behavioral differences on these issues between scholars, whether humanists or scientists. Despite several years of sustained efforts by publishers, scholarly societies, libraries, faculty members, and others to reform various aspects of the scholarly communications system, a fundamentally conservative set of faculty attitudes continues to impede systematic change.

Faculty objectives

The fact that faculty respondents unambiguously value their professional networks can be seen across a variety of indicators in the survey. For example, over the years and across disciplines, the single most important factor in selecting where to publish is consistently readership within one's own discipline (see Figure 23). Over 80% of faculty rated this as very important. Other factors apply, but a broad circulation among a faculty member's own peers is the ultimate motivating factor in determining where to publish.

Figure 23: Percent of faculty responding "very important" to the question "When it comes to influencing your decisions about journals in which to publish an article of yours, how important is each of the following characteristics?" in 2003, 2006, and 2009



Despite a continuing community-wide discussion about open access, institutionalized in the last several years in the form of open-access deposit mandates, free accessibility online has remained the lowest priority for scholars across disciplines in their selection of a journal for publication; in fact, prioritization

of free availability fell substantially between 2003 and 2006. In addition to reputational concerns about the visibility of their work product to their peers, faculty prioritize paying nothing to publish their own articles over the openness of the resulting article, suggesting that the "author-pays" model favored by many open access journals may not match the preferences of many faculty.

The aggregate data presented above do not mask any significant disciplinary differences. Faculty from disciplines where there is a significant amount of open-access pre-print activity, such as physics and economics, prioritize peer visibility for their articles well above an interest in making them openly accessible, just the same as other fields. In fact, these disciplines fall squarely in the middle of the pack in terms of prioritizing free availability of articles online. The number of faculty indicating "free availability" as a priority is highest in fields like sociology and education, and lowest (by a substantial margin) among chemists. But even among disciplines that prioritize free accessibility of their publications relative to their peers, the relative position of free availability versus other journal characteristics is unchanged: in every case, a journal being well-read among one's peers is the most important characteristic in its selection, and in every case free availability is among the least important. Even those fields that have a significant amount of digital open access activity are no more motivated by reducing the price of articles than are other fields; rather, there appear to be other factors at play.

In general, if faculty members have concerns about the established scholarly communications paradigm, their responses do not indicate a willingness to reshape their behaviors in response to those concerns. For most faculty members, our data seem to be consistent with other research indicating that faculty interest in revamping the scholarly publishing system is secondary to concern about career advancement, and that activities that will not be positively recognized in tenure and promotion processes are generally not a priority (an issue discussed below at greater length).[18] Substantive change to the scholarly communication system is thus unlikely to be driven by faculty attitudes alone; cultural and process changes at the highest level of the university will be needed to realign incentives and institute broad reform. Although faculty attitudes are only one component of policy making for scholarly communications, they may help to explain why policy makers have in some cases turned towards incentives or deposit mandates. Without this kind of interest and investment from university leadership, changes to the scholarly publishing system are likely to happen slowly, if at all.

[18] As Harley et al. describe it, "experiments in new genres of scholarship and dissemination are occurring in every field, but they are taking place within the context of relatively conservative value and reward systems that have the practice of peer review at their core." Harley et al., "Assessing the Future Landscape of Scholarly Communication: An Exploration of Faculty Values and Needs in Seven Disciplines," 12.

Deposit of materials in repositories

With perennial interest from the library community in developing institutional repositories and substantial attention to successful examples of community-driven repositories like arXiv, our study revealed a significant amount of interest in depositing articles, but relatively limited faculty deposit behaviors. Less than 30% of faculty members have deposited any scholarly output or research material into a repository, but nearly 50% have not deposited but hope to do so in the future (see Figure 24). Nearly 80%, therefore, report that they are likely to deposit materials in the future. Whether this is cause for hope that faculty are moving toward depositing more of their work or just an indication of good intentions is hard to tell.

Figure 24: Percent of faculty indicating that they "have deposited materials" or "have not deposited materials but are likely to do so" in an institutional, discipline-specific, or multi-disciplinary repository

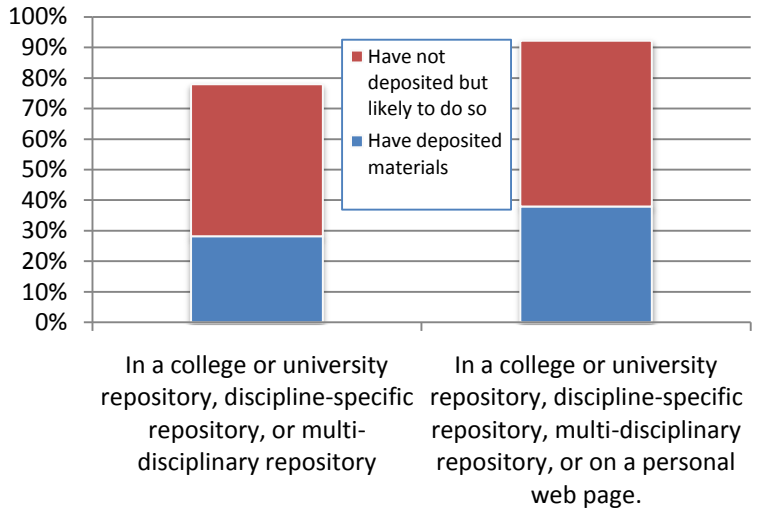
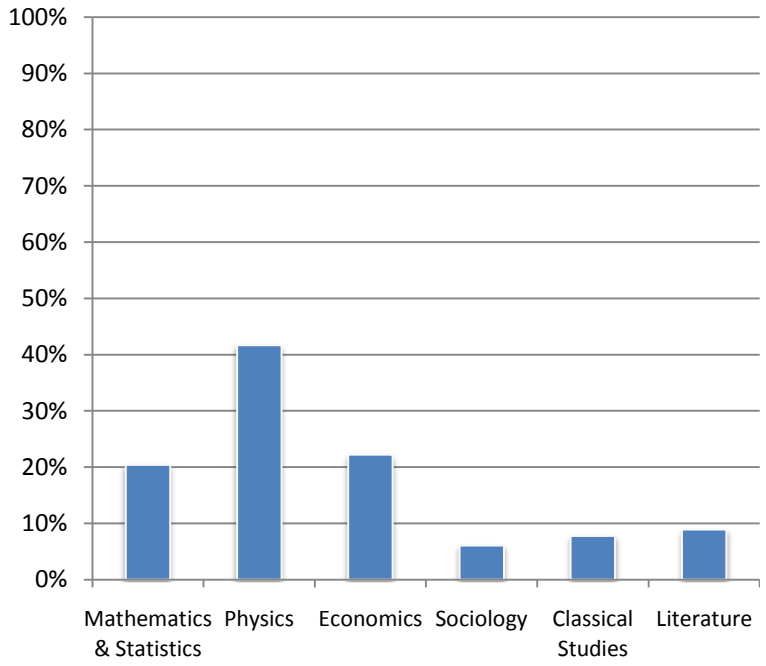


Figure 25: Percent of faculty indicating that they have deposited materials in a repository specific to their discipline, in selected disciplines



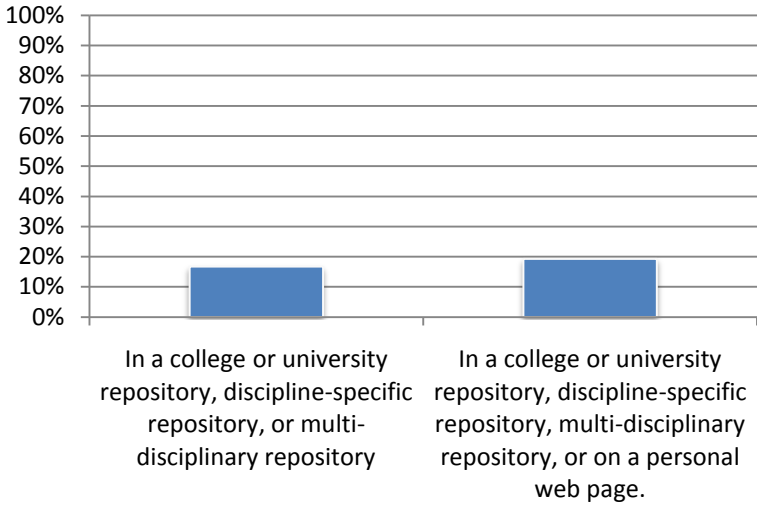
Only about 15% of faculty members, in the aggregate, report having deposited materials into a discipline-specific repository. The only discipline with dramatically greater than average discipline-specific deposit practices is physics, almost certainly due to the presence of the arXiv e-print platform. Physicists are far more likely than scholars in any other disciplines to deposit pre-prints and final versions of articles in a discipline-specific repository. Although prominent disciplinary repositories exist in other fields, such as the RePEc repository serving economists, physicists' deposit practices as facilitated by arXiv have not yet been replicated in any other fields (see Figure 25 for a sample of fields).

Deposit practices in institutional repositories presumably vary by institution, but our national sample found only 15% of faculty members have deposited into an institutional repository. Following a report by the Association of Research Libraries in early 2009 calling attention to some challenges in the design of institutional repositories, a number of institutions have put in place initiatives to better align repository services with author and creator needs.[19] It is too soon to know whether these initiatives will meet user needs in such a way as to encourage additional deposit activity by faculty members.

Use of materials in repositories

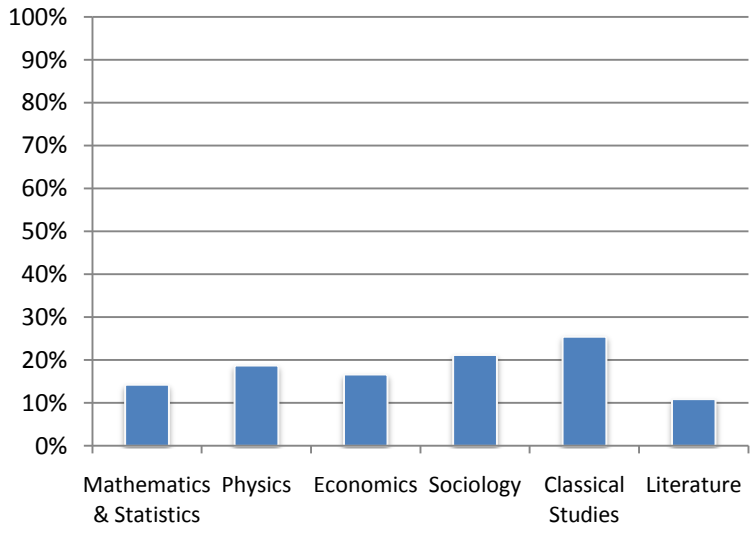
The percentage of faculty that reports having used content from institutional or disciplinary repositories lags the percentage that has deposited content. In the aggregate, use of any type of repository remains remarkably low (see Figure 26). Limited use of deposited data by US faculty members in most fields may indicate that demand for deposited materials remains low, although whether this is due to a challenge with discovery, with quality perceptions, with citability, or something else, is not apparent from the data here.

Figure 26: Percent of faculty indicating that they have used materials deposited by others in an institutional, discipline-specific, or multi-disciplinary repository



[19] The report is "The Research Library's Role in Digital Repository Services: Final Report of the ARL Digital Repository Issues Task Force" (Association of Research Libraries, January 2009), http://www.arl.org/bm~doc/repository-services-report.pdf. For the new services and tools that the University of Rochester has added to its institutional repository, see Steve Kolowich, "Encouraging Open Access," *Inside Higher Ed*, March 2, 2010, http://www.insidehighered.com/news/2010/03/02/repositories.

Figure 27: Percent of faculty indicating that they have used materials deposited by others in institutional, discipline-specific, or multi-disciplinary repositories, in selected disciplines



But even in physics, widespread depositing of articles in arXiv has not dramatically reshaped reported usage behaviors: physicists do not vary substantially from their peers in their *use* of these sorts of materials or repositories (see Figure 27). This is surprising, and requires further exploration. Perhaps this indicates that physicists may be more conscious of their depositing activities than they are of their usage of repositories, either because discovery happens elsewhere or because they do not distinguish repositories from numerous other sources of content.

The published article remains all-important. The material type that most faculty have the greatest interest in both depositing and using is the traditional published article (see Figure 28), which remains the basic unit of scholarship for many faculty members.

Figure 28: Percent of faculty indicting that they have deposited each type of materials in a repository or have used materials of each type deposited by others

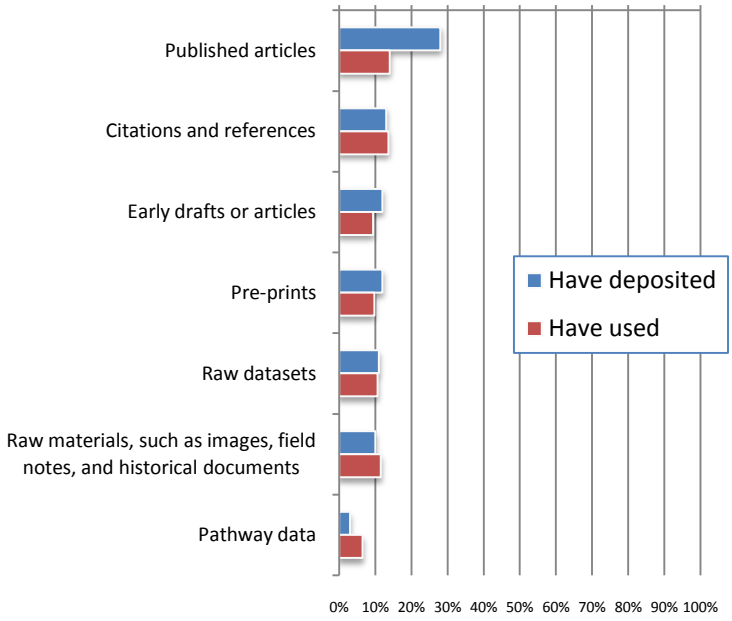
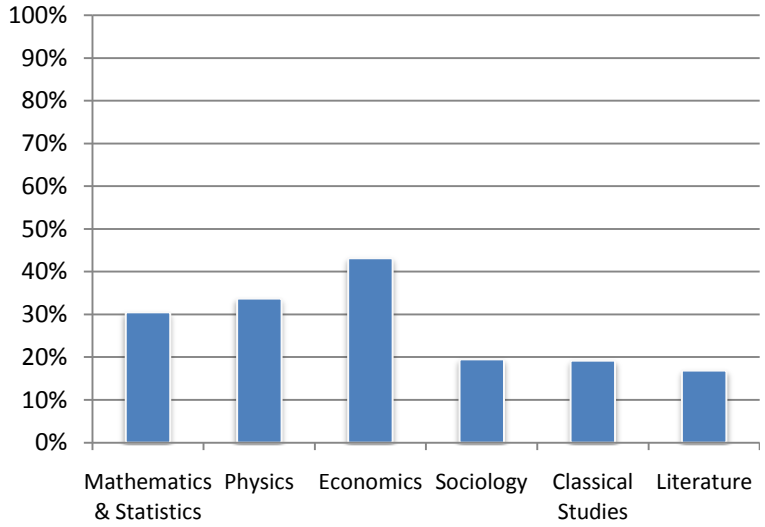


Figure 29: Percent of faculty agreeing strongly with the statement "I continue to use working papers and pre-prints even after the final version of the corresponding article is published," in selected disciplines



Outside of a few specific disciplines – notably economics, math, and physics – only a handful of faculty continue to use pre-prints and working papers after the published version is made available (see Figure 29). The current attitudes and behaviors of faculty demonstrate that traditional publications continue to dominate research practices, in addition to their important reputational and career-advancement roles.

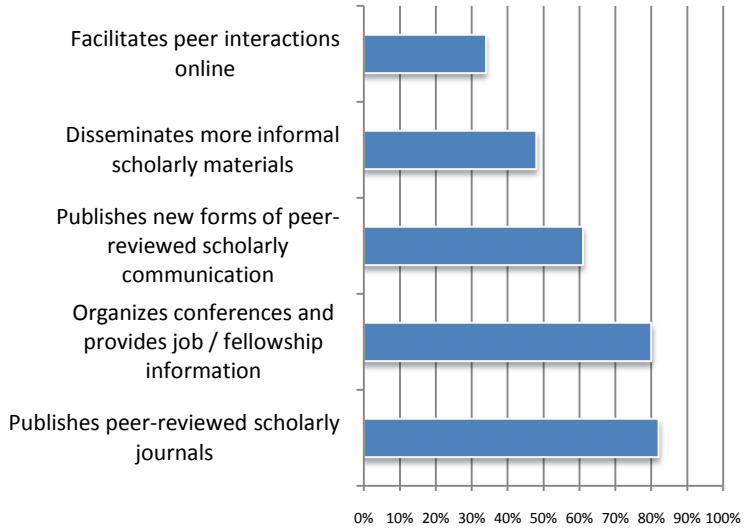
The scholarly society

Further evidence for the importance of professional networks can be seen in an examination of scholars' priorities for their scholarly societies. There is a fairly well-established service model for the scholarly society, built around facilitating interactions among scholars with similar interests. In many cases, one or several core journals serving as some of the most prestigious publishing venues in the field generate at least a modest surplus; this income allows the society to sponsor conferences at which professional networking and job searches coexist equally with the formal delivery of scholarly papers. In an increasingly electronic environment, scale has become all-important, and scholarly societies have increasingly turned to outside partners for their journal publishing. At the same time, the economic recession and the ease of online communication are leading some to question whether annual face-to-face conferences are feasible or appropriate. In sum, the internet has generated new forms of professional networking, scholarly dissemination, and placement services, all of which are generating important strategic questions for the scholarly society.

To take a first step in examining faculty demand for services from their societies, the survey asked faculty how important it is to them that their society:

- Publishes peer-reviewed scholarly journals
- Organizes conferences and other in-person meetings and provides information about fellowships and jobs
- Publishes new forms of discipline-specific or interdisciplinary peer-reviewed scholarly communication
- Disseminates more informal scholarly materials, such as pre-prints, conference proceedings, datasets, images, etc.
- Facilitates peer interactions via listservs, blogs, and other group collaboration tools.

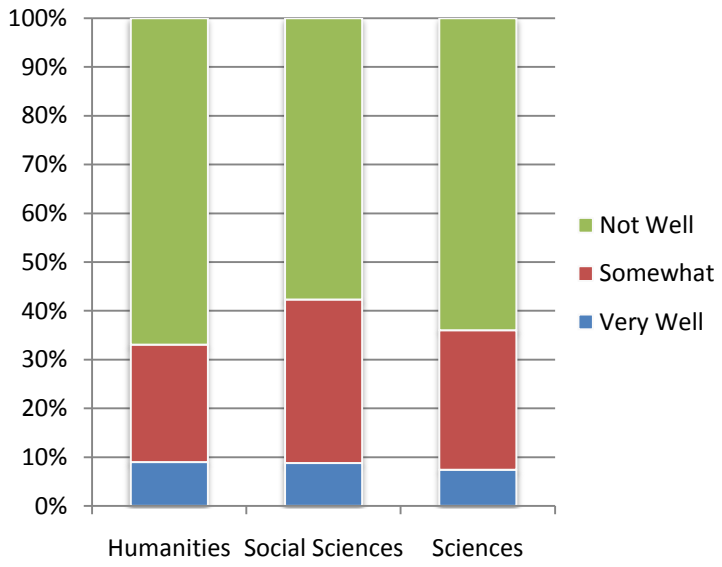
Figure 30: Percent of faculty responding "very important" to the question "How important is it to you that your scholarly society provides each of the functions below or serves in the capacity listed below?"



Publishing peer-reviewed journals and organizing conferences, in-person meetings, and facilitating communication about fellowships and jobs are roles of the scholarly society viewed as having paramount importance by faculty. On the other hand, facilitating peer interactions online is a distant last-place priority. In general, faculty value the most traditional roles of their scholarly societies – traditional publishing and organization of meetings – most highly, and show far greater skepticism about newer roles related to more informal and non-traditional scholarly communications (see Figure 30).

Additionally, the Faculty Survey found that peer networks remain among the most important factors for faculty in learning about and being encouraged to try new electronic research resources. Word of mouth is by far the most common way in which faculty learn about new research resources, and recommendations and awareness of use by peers of a resource are key drivers in motivating faculty to try a new resource.

Figure 31: Percent of faculty agreeing strongly with the statement "I have more valuable interactions with my peers online via listservs, wikis, and blogs than I do in more traditional formats such as scholarly conferences and symposia," by disciplinary grouping



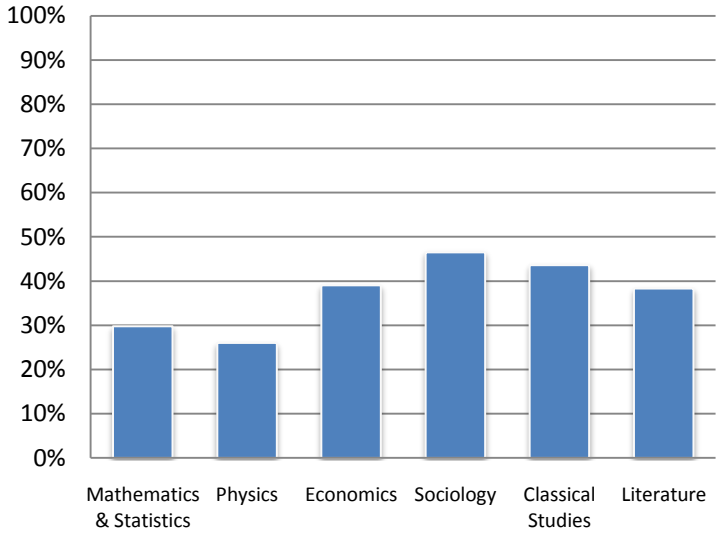
But despite the importance of these networks, there is little indication that online connections have begun to encroach on traditional forms of communication. Faculty preferences would drive scholarly societies to focus on traditional meetings over facilitating online peer interactions. And, in response to a newly introduced baseline question, virtually no faculty members find their online interactions with peers among their most valuable (see Figure 31). These patterns do not vary substantially based on discipline or seniority in the field. Although there can be no doubt that online communications technologies have changed and will continue to change how faculty relate and interact, the evidence provided by this study suggests that, as yet, these changes have remained relatively marginal, and faculty members cannot imagine traditional forms of interaction being supplanted by online mechanisms. Still, today's preferences

among faculty members is only one ingredient in the strategic planning process for the future of a scholarly society in an environment of tremendous change.

Tenure & promotion

The tenure and promotion system is said to enforce a set of relatively conservative norms for faculty research and publishing practices. Traditional publications continue to dominate dissemination practices, in large part due to their important reputational and career-advancement roles. The recent work led by Diane Harley is the most prominent and complete documentation of this important constraint on reform.[20] In our survey, roughly one-third of faculty members strongly agree that tenure and promotion practices "unnecessarily constrain" their publishing choices, which suggests that a non-trivial share of faculty members would take different approaches to the dissemination of their work if they could. This belief is stronger among social scientists and humanists than among scientists (see Figure 32). Despite the concerns of faculty with the unnecessary constraints of tenure and promotion practices around publishing and dissemination choices, career incentives based on traditional practices are likely to continue unless there is an overall cultural shift and structural change driven from the highest levels of academic administrators.

Figure 32: Percent of faculty agreeing strongly with the statement "Tenure and promotion practices unnecessarily constrain the publishing and dissemination choices made by scholars in my field," in selected disciplines



Summary

Many of the issues examined elsewhere in this study focus on ways in which digital technologies can enable faculty to work more efficiently or effectively, but the topics discussed in this chapter are even more central to scholars' self-interests, relating directly to how scholarly work is recognized and reflects

[20] Harley et al., "Assessing the Future Landscape of Scholarly Communication: An Exploration of Faculty Values and Needs in Seven Disciplines."

upon its author. On these core issues, faculty members are generally unwilling to experiment in ways that might negatively affect their ability to make an impact in their field and advance their own career, especially when there is relatively little concrete reward associated with such a risk. Traditional models of scholarly communications are transitioning to the digital realm, but for scholarly communications to be *transformed* will require new models. The 2009 Faculty Survey clearly shows that in the aggregate faculty members cannot be expected to lead the transformative change in scholarly communications that many believe to be necessary or even inevitable. The direction forward, if desirable, is probably to offer clear and direct benefit to faculty members, in conjunction with structural change in how scholarly work is recognized and rewarded. Further exploration of the possible ways in which information services organizations can help faculty to maximize the value and impact of their research is certainly called for.

CONCLUSION

Although scientists and, to a lesser degree, social scientists generally express greater interest in and use of digital technologies, it is clear that their potentially transformative impact is not limited to any discrete group of scholars. Humanists have been later and slower to change in many ways than their peers in the sciences, to be sure. But a wide variety of responses throughout the Ithaka S+R Faculty Surveys conducted since 2000 have demonstrated that they are on basically the same trajectory as scientists, simply less far along. Disciplinary differences will of course remain, and research and teaching patterns in the humanities will likely never converge entirely with those in the sciences, but many of the behaviors and attitudes about digital technologies that have grown pervasive in the sciences are increasingly visible in the humanities. There is every indication that these behaviors and attitudes – even in the most conservative disciplines of the humanities – will continue to evolve along the trail blazed by early adopters in the sciences as more and more content is available in digital formats.

Many institutions in academia have been reluctant to lead an aggressive agenda of change, but they are facing real strategic dilemmas. How can publishers enable faculty members to maximize the visibility of their research outputs in an environment where almost limitless information competes for our attention? Will faculty members continue to value traditional services from their societies as the digital revolution continues, and what new services might evolve? Can the academic library reengage with scientists and economists? If not, is it realistic to expect humanists to remain wedded to it? And, will faculty be able to move beyond publishing practices that are "unnecessarily constrained" by tenure and promotion processes?

Faculty attitudes and practices are at the strategic core of all information services organizations, and ongoing focused research is needed to enable these organizations to plan and adapt. Greater engagement with and support of trailblazing faculty disciplines may help these institutions develop the roles and services that will serve a growing range of faculty needs into the future. The institutions that serve faculty must be responsive to faculty needs, but they must also anticipate them, both to ensure that the 21st century information needs of faculty are met and to secure their own relevance for the future.

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