

UK Scholarly Reading and the Value of Library Resources: Summary Results of the Study Conducted Spring 2011



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Executive Summary

The Scholarly Reading and the Value of Library Resources project measures the value and outcomes from access to scholarly publications in six universities in the UK. It seeks to answer questions such as: How do academic library collections support research and teaching activities? What is the value and outcome of scholarly reading for academic staff? How do reading patterns of articles, books, and other materials differ? It provides evidence that the library has an integral role in the university's mission of research and teaching, not just a supporting one, with scholarly journal provision benefiting staff and students alike. It provides further evidence that a well-resourced library may have a correlation to the overall strength and success of the institution.

The study is based on academic readership surveys conducted since 1977 by Tenopir and King. The surveys measure purpose, outcome and value from scholarly reading by focusing on the critical incident of last reading.

Some of the advantages of the methodology include:

- Respondents' memories of details are enhanced by focusing on a single recent incident of reading.
- All sources of reading (from the library and other sources) are included.
- It considers both use value (the outcome of the reading) and exchange value (time spent obtaining and reading).
- It focuses on the more qualitative aspects of 'return on investment' and makes some of the implicit value of scholarly reading more explicit.
- The 'value added' of library-provided resources are seen in a wider context.

In spring 2011 a survey was launched at six participating institutions: Cranfield University, Durham University, Imperial College London, University of Dundee, University of East Anglia, and the University of Manchester. JISC Collections funded the project, with the analysis and data collection led by the University of Tennessee.

Academic staff members at these universities spend the majority of their work time on research and writing, and scholarly reading supports their work. Successful academics, those who publish more and have earned an award in the past two years, read more. The average academic staff member spends approximately thirty-seven hours per month on scholarly reading, eighteen hours of which are spent reading scholarly articles. Time spent represents an 'exchange value,' assuming they spend a large portion of their work time on reading because they consider it valuable. Of the thirty-seven hours per month spent on scholarly reading, sixteen of those hours, on average, are

spent reading library-provided material. The resources provided by the libraries are a central part of the academic environment at the universities.

While academic staff members read a variety of materials, they read more scholarly articles than books or other publications, approximately twenty-two articles per month. In particular, journal articles are the principal sources of substantive information for research, and the library is the primary source of article readings. Two-thirds of the last article readings were obtained from the libraries' collections, mainly from its electronic collections. Journal readings obtained from the library account for a significant proportion of academics' reading activity and often directly facilitate research and teaching. In particular, academics report that typical outcomes from these scholarly readings include: inspiring new thinking, improving research results and changing the focus of research.

Another reason why the library is the primary source of article readings is because the library's search tools and e-journal collections save the readers' time in terms of obtaining quality material more rapidly. Electronic sources allow the reader to obtain the article from their office or lab, and they rarely read in the physical library. Since the library has been dedicating resources and budget to its electronic services, this shows a good return on investment. Academics spend less time travelling and other steps involved in obtaining articles, and are then able to spend more time on their work.

Another method of showing value is whether the respondent would obtain the information from another source if the original source were not available. Seventeen percent of the readings obtained from the library would not otherwise be obtained if they were not available from the library. This is a lost opportunity, and the value of the academic work would suffer if the library sources were unavailable. In addition, if the library were unavailable, the respondents stated that they would expect it would take them more time and money to obtain the information from another source. With the stress already placed on the academics' work time, this would have a negative impact on their work.

Not only would the academic staff miss out on information in articles if the library were not available, but the information they would obtain would not be as important or valuable. While nearly all the article readings, regardless of the source, are considered at least 'somewhat

important' to the principal purpose, the readings from the library are considered more important. In this respect the academic library is a convenient and valuable source of high-value article readings, and based on the value academics place on scholarly reading and the percentage obtained from the library, the library adds significant value to the academic work at the universities.

Although not asked directly, the findings about academics' use of journal articles implies that library-provided resources are also adding value to the REF (Research Excellence Framework) in terms of enhancing the quality of papers and the number of references and citations included.

By contrast, the library is not the primary source for books for academic staff. Even though book readings are often considered even more important to the principal purpose than article readings, book readings are less likely to come from the library's collections (26%). This is not necessarily surprising because the surveyed libraries focus much of their expenditures on books for students and early career academics. In fact, younger academics are more likely to obtain books from the library than older academics. This illustrates that the library supports the work and research of younger academics. However, as with all academics, younger academics obtain books more often from another person, direct from a publisher, or purchase their own copy.

The findings suggest that there may be unfulfilled needs for academic staff in terms of library access to books. This is especially important as book readings are considered valuable to their work. Libraries must ask themselves if there would there be benefit in providing more books for academics to help to enhance research-led teaching.

The reasons for the library not being the source for a larger percentage of books are not entirely clear from the survey, but reasons could include all or some of the following:

- The library may not contain the desired material.
- Publishers often provide free 'review' copies to academics.
- Academics may see books as a better value for money compared to buying individual journal articles, and are therefore willing to pay.
- The process of obtaining the book/book chapters from the library may not be as efficient in comparison with journal, especially e-journal, articles.
- The library may not be able to acquire books quickly enough.
- Academics may not always inform the library about the books they want.

- It may be too expensive for the library to meet all the needs of academics in terms of book provision.

The study shows the library provision of books, in particular e-books, for academics is clearly an area for further research.

However, while the library is not the main source of book readings, it is the most likely alternative if the original book source were unavailable. This suggests the library often has the desired information, but because of time or convenience the academic staff members may prefer other sources. This is an area of opportunity for the library to assess its monograph collection to see how to make it more convenient for the reader; one possibility is through building a larger collection of electronic books to help address some of the issues around timeliness and convenience of access. Given the clear value to academics of material in electronic journal format, it may be worth investing in electronic books to support academics and students.

On an additional note, 14% of the book readings obtained from the library would not be obtained from another source if the library was not available. The value of the academic work would potentially suffer if the library book collections were not available.

Academic staff members are also reading from other publications, including government documents, magazine/trade journals, and conference proceedings. The library faces stiff competition from online sources, such as government websites, and from publishers as the sources academics use for accessing other publications. Only 14% of the last 'other publication' readings were obtained from the library. Unlike with articles and book readings, the library is not the most likely alternative of the information if the original source were unavailable. It is unclear why: either this is because the library does not provide the material or because the academics do not know that the library does hold it. Again there may be opportunities here for the library to make its 'other publications' more visible and convenient to access. This may involve revisiting how best to display, or link to, official publications and statistical information etc.

Academic staff members come into contact with multiple sources of information every day from scholarly articles, books, other publications, and even non-traditional information sources, such as social media. As a result, time has become an increasingly important deciding factor for where to

obtain desired material. In order for the library to maintain its function as a central source of information at the university it must strive to keep its collections as accessible and convenient as possible. The library may be providing more core content than people are aware of because often it is not possible to distinguish library-provided resources from free ones.¹ There may be a perception that more content is “free on the web” than is actually the case. Especially as the library’s role in providing access to content becomes less visible, it is more difficult for users, funders, and librarians to judge the library’s value using solely traditional criteria.

Academic staff members spend a large portion of their work time on scholarly reading. They value the outcomes these reading have for their research and teaching. The amount of time they spend on reading from the library’s collections is evidence of the importance of library-provided scholarly materials to academic work. The value academic reading has on the work of the university is apparent, and the university library, especially for article readings, is essential to the quality of the academic enterprise.

Key Findings:

Scholarly Journal Article Reading

1. The library is more often the provider of scholarly articles as the number of personal journal subscriptions declines. More than half the respondents do not have a personal subscription.
2. Academics read scholarly journals as the principal source of substantive information for research work.
3. Over half of article readings are from articles that are at least 18 months old, and 17% of readings are from articles that are ten years old or older. This suggests that big deals

¹ As library systems become more transparent to users, for example, when an academic searches in his or her office or home as a university-affiliated user and retrieves e-resources, the fact those resources are coming from a library-provided subscription is not always evident. Therefore, academics may not realize that their access to resources is as a result of their library.

(which often include content back to 1996) and backfiles (pre 1996) are a key investment in addition to current subscriptions.

4. Including all browsing and searching methods used to become aware of articles, academics read on average seven articles in addition to the one they located. This suggests another value-added aspect of the library's online search and discovery services—allowing discovery of additional relevant articles.
5. The library's subscriptions are the primary source of article readings, 94% of which are obtained from the library's e-journal collections.
6. If the library were unavailable, value to academic work would be lost as 17% of the information obtained from the library would not be obtained from another source.
7. Electronic collections allow academics to access information from outside the physical library. This saves time in locating and obtaining articles and increases the time they are able to spend on work.
8. The majority of article readings support the principal purposes of research and writing.
9. Article readings obtained from the library are considered significantly more important to the principal purpose than those from other sources.
10. Successful academics, that is those who published more and earned an award in the past two years, read more articles. While we cannot conclude a cause and effect relationship, this demonstrates that scholarly reading is a valuable part of their work activities.

Scholarly Book Reading

11. The library is not the main source of book readings; instead, academics are more likely to purchase books or receive them from a publisher.
12. The library is the most likely alternative for book reading if the original source is unavailable. The library, therefore, often has the desired material but it is not regarded as

the most convenient source since academics expect they will have to spend more time on the process of obtaining the book from the library.

13. The library supports the work of younger academics, as they are more likely to obtain books from the library.

14. Academics who have earned an award in the past two years read more books and spend more time per book reading.

Other Scholarly Publication Reading

15. Academics are more likely to obtain other publications through a website or a purchase, rather than from the library.

Overall Scholarly Reading

16. Successful academics, defined as those who earned an award and published more in the past two years, read more of all types of scholarly material.

17. Academics invest a significant time commitment in scholarly reading each year, an average of 56 eight-hour work days.

Social Media

18. Academics are getting information from many sources, and those who participate or create social media also read more articles and books. Academics who are engaged with information are engaged with all types of information.

Role of Library Collections

19. The majority of library-provided materials support research and writing.

20. Of the 448 hours per year spent on scholarly reading, the average academic staff member spends 187 hours reading library-provided material, confirming the value of the library's collections.

Introduction

The project in context: previous studies and methodology

The *Scholarly Reading and the Value of Library Resources* project measures the value and outcomes to academic staff members from access to scholarly publications in six universities in the United Kingdom. It seeks to answer questions such as: How do academic library collections support research and teaching activities of academic staff? What is the value and outcome of scholarly reading for academic staff? How do reading patterns of articles, books, and other materials differ? What is the role of the academic library collections in teaching and learning? Six higher learning institutions—Cranfield University, Durham University, Imperial College London, University of Dundee, University of East Anglia, and the University of Manchester—participated in the 2011 survey of scholarly reading by their academic staff members. The study was funded by JISC Collections and led by the University of Tennessee. This report includes information based on a compilation of all six institutions’ survey results, with separate reports created for each of the participating UK institutions. The survey builds on reading surveys conducted by Carol Tenopir and Donald W. King in the U.S. since 1977² and in Australia and Finland in 2005 and 2006.³ Together these studies track the continued contribution of academic library collections to the academic enterprise.

Previous Studies

Surveys examining article reading by academics conducted over the past thirty-five years provide a useful examination of scholarly reading patterns and information-seeking behavior. The surveys began in 1977 and 1984 with a national survey of scientists in the US.⁴ Since 1984, the

² Tenopir, C. and King, D.W. *Towards Electronic Journals: Realities for Scientist, Librarians and Publishers*. Washington D.C: Special Libraries Association, 2000.

³ Tenopir, C., S. Wilson, P. Vakkari, S. Talja, and D.W. King. “Cross Country Comparison of Scholarly E-Reading Patterns in Australia, Finland and the United States.” *Australian Academic & Research Libraries (AARL)* 41, no. 1 (2010): 26-41.

⁴ King, D.W., D. McDonald, and N.K. Roderer. *Scientific Journals in the United States: Their Production, Use and Economics*. Stroudsburg, PA: Hutchinson Ross Publishing Company (Division of Academic Press), 1981.

surveys were conducted regularly in non-university settings. In 1993 the first readership survey was conducted solely in a university setting.⁵ In 2000, the surveys began to focus on changing patterns of journal use due to e-journal publishing, and have been repeated in the US, Australia, Japan, and Finland.⁶

Reading patterns of science and non-science academic staff members through the 1990s are summarized in Tenopir and King⁷ and King and Tenopir.⁸ These two sources provide extensive literature reviews and serve as background for the data presented in this report. Other multi-university studies focus on how academic staff uses electronic journals, online resources, and libraries.⁹ Further studies show that staff members in the sciences prefer and read more electronic journal articles than in humanities or social science disciplines.¹⁰ Access and convenience, especially electronic access, are important to academic staff.¹¹ A 2011 study by the Research Information Network (RIN) found a link between the library and the institution's research performance.¹² The results from the UK in 2011 confirm the earlier results and trends. For the first time, the 2011 survey includes sections on reading from books and other publications and questions on use of social media.

⁵ Belefant-Miller, Helen and Donald W. King. "How, What and Why Science Faculty Read," *Science and Technology Libraries* 19, no. 2 (2001): 91-112.

⁶ Tenopir, C., S. Wilson, P. Vakkari, S. Talja, and D.W. King. "Cross Country Comparison of Scholarly E-Reading Patterns in Australia, Finland and the United States," 26-41.

⁷ Tenopir, C. and King, D.W. 2000. *Towards Electronic Journals*.

⁸ King, D.W. and Carol Tenopir. "Using and Reading Scholarly Literature." In *Annual Review of Information Science and Technology* 34, edited by M. Williams, 423-477. Medford, NJ: Information Today, Inc., 2001.

⁹ Healy, Leigh Watson, Lynn Dagar, and Katherine Medaglia Wilkie. Custom Report Prepared for the Digital Library Federation/Council on Library and Information Resources. Burlingame, CA: Outsell, 2002.

¹⁰ Brown, Cecelia M. "The Role of Electronic Preprints in Chemical Communication: Analysis of Citation, Usage and Acceptance in the Journal Literature," *Journal of the American Society of Information Science and Technology* 54, no. 5 (2003): 362-371.

¹¹ Maughan, P.D. "Library Resources and Services: A Cross-Disciplinary Survey of Faculty and Graduate Student Use and Satisfaction." *Journal of Academic Librarianship* 25, no. 5 (September 1999): 354-366.

¹² Research Information Network. *The Value of Libraries for Research and Researchers*. A RIN and RLUK Report. March 2011.

Methodology

Earlier surveys examined just the reading of scholarly articles. This survey includes those questions, but expands the survey to look at reading of articles, books and book chapters, and other scholarly materials, including conference proceedings, government documents, and other web sites. We have tried to maintain a consistent core of questions and maintained similar questions in the expanded sections of this survey in order to compare the survey results over time. We base the questions on two principal sections—reader-related (demographics) and reading-related. Reader-related questions are based on the background of the respondent; the questions include age, gender, percentage of work time spent on various activities, number of personal subscriptions, and two measures of recent academic success—publication record and record of recent awards. The reading-related questions are based on the “critical incident technique” first developed by Flanagan¹³ (1954), which has since been applied to many contexts, including libraries and readings (Bradford¹⁴, 2006; Andrews¹⁵ 1991). We focus on the last scholarly reading as the “critical” incident of reading (Griffiths and King¹⁶, 1991). This allows us to ask questions about a specific most recent reading, so the respondent will have a better memory of that reading, rather than having to reflect back on multiple readings over a longer period of time. We make it clear to the respondent that the last reading may not be representative of a typical reading, but it allows us to find details and patterns of reading and use. The questions cover many details of that reading, including time spent on the reading, source of reading, purpose of reading, and value of the reading to the purpose. A complete survey instrument is found in the appendix of this report.

Starting in March 2011, the head librarian or library correspondent at the six UK universities sent an e-mail message with an embedded link to the survey instrument housed on the

¹³ Flanagan, J.C. “The Critical Incident Technique,” *Psychological Bulletin* 52, no. 4 (1954): 327-358.

¹⁴ Bradford, M.L. “The Critical Incident Technique and the Qualitative Evaluation of the Connecting Libraries and Schools Projects,” *Library Trends* 55, no. 1 (2006): 46-64.

¹⁵ Andrews, J. “The Use of the Critical Incident Research Technique in an Academic Library,” *Library & Information Research News* 14, no. 50 (1991): 22-27.

¹⁶ Griffiths, J.M. and Donald W. King. *A Manual on the Evaluation of Information Centers and Services: NATO, AGARD*. New York: American Institute of Aeronautics and Astronautics, 1991.

University of Tennessee’s server. We received 2,117 responses by the official closing date of June 9, 2011 (Table 1). Approximately 12,600 invitations were distributed in total, providing an overall estimated response rate of 16.8%.¹⁷ Since we allowed respondents to skip any question, including the question about their institutional affiliation, we have 709 respondents for which we do not know their affiliation. We originally placed the question asking the respondent to identify their institution at the end of our survey; several weeks after the survey was released we moved the question about institutional affiliation to the beginning of the survey, thus improving the response rate to this question.

Table 1. Response Rates of Participating UK institutions

Institution	Responses	Total Academic Staff	Percentage	Hypothetical Response Rate¹⁸
Cranfield University	110	702	15.67	19.5
Durham University	225	1500	15	21.1
Imperial College, London	266	3527	7.54	13.3
University of Dundee	321	1442	22.26	28.6
University of East Anglia	156	1108	14.08	22.3
University of Manchester	323	4321	7.48	12.2
Other	9			
Missing ¹⁹	707			
TOTAL	2117	12600	16.8	

If we redistribute the missing responses to the institutions based on total academic staff population, the response rates are in likelihood higher, as shown by the redistributed hypothetical response rate (See Table 1). Since respondents were allowed to leave the survey at any time, skip questions, or were timed out automatically if they began the questionnaire and did not complete it, most of the questions have a lower number of responses than the total of 2,117 who answered at least one question. All respondents for a particular question equal 100% for that question. The

¹⁷ Assumes all invitations were sent to valid and active e-mail addresses.

¹⁸ Hypothetical response rate is figured by redistributing the missing institutional affiliates based on the size of the university’s total academic staff population.

¹⁹ Missing includes respondents who did confirm their institutional affiliation.

survey was comprised of four sections: Demographic Information, Journal Article Reading, Book or Book Chapter Reading, and Other Publication Reading.

Demographics of Respondents

Work Responsibilities

Academic staff members at the six UK institutions spend the largest portion of their work time on research and writing activities. Table 2 reflects this, showing that half of the respondents spend 45% of work time on research and writing. Teaching and administrative activities make up the other large sections of respondents' work time, 23% and 16% respectively.

Table 2. Percentage of Work Time Spent by UK Academic Staff Respondents

	Teaching	Research & writing	Administrative	Service	Knowledge transfer/enterprise activities	Consulting /advising	Other
Mean	23	52	16	5	3	3	4
Median	20	45	10	2	0	0	0
Mode	0	30	10	0	0	0	0
Percentiles	25	5	30	5	0	0	0
	50	20	10	0	0	0	0
	75	40	80	20	5	5	0

Academic Discipline

Of the 1102 respondents who chose to give their academic discipline, about a third is either from the life or physical science fields. Humanities, social sciences, and medical science each account for approximately 10% and the rest of the respondents are from a variety of other academic disciplines (Table 3A).²⁰ For analysis we collapsed the disciplines into six categories represented in Table 3B. We combined the disciplines based on similarities in their fields, and redistributed the “other” disciplines into a corresponding category. Fine arts were combined with humanities; law, psychology, business, and education were combined with social sciences. The remaining “other” disciplines are interdisciplinary fields (i.e. “humanities and health”) or disciplines that did not clearly fit into one of the larger categories (i.e. architecture).

²⁰ The results for academic discipline and for the other demographic questions are not weighed because we do not know the exact demographics of the total population.

Table 3A. Academic Disciplines of UK Academic Staff Respondents

	Frequency	Percent
Life sciences	182	16.5
Physical sciences	167	15.2
Medical science	121	11.0
Computer science	22	2.0
Mathematics	41	3.7
Engineering	113	10.3
Social sciences	122	11.1
Business	46	4.2
Psychology	27	2.5
Education	43	3.9
Humanities	113	10.3
Fine Arts	4	.4
Law	20	1.8
Other	81	7.4
Total	1102	100.0

Table 3B. Academic Disciplines of UK Academic Staff Respondents (Grouped)

	Frequency	Percent
Social Science	265	24.0
Sciences	369	33.5
Humanities	123	11.2
Engineering/Technology	179	16.2
Medical/Health	146	13.2
Others	20	1.8
Total	1102	100.0

Position, Age, and Gender.

Professor, lecturer, and research associate/assistant/officer/associate tutor each make up about 20% of the responses. The other 40% of the respondents are either associate professor/reader, senior lecturer, honorary lecturer/teaching fellow, or “other” (Table 4). The other positions include research fellows, PhD candidates, postdoctoral fellows, and professor emeritus.

Table 4. UK Academic Staff Respondents' Positions

	Frequency	Percent
Professor	218	19.9
Associate Professor / Reader	56	5.1
Senior Lecturer	150	13.7
Lecturer	257	23.4
Honorary Lecturer / Teaching Fellow	23	2.1
Research Associate / Assistant / Officer / Associate Tutor	249	22.7
Other	143	13.0
Total	1096	100.0

The majority of respondents who chose to identify their age are between 30 and 60 (75.5%, 804 of 1064), evenly split between the three decades. The other respondents are under 30 or over 60 (Table 5).

The age range within each discipline has a similar distribution to the total respondents (See Table 5). In social science, humanities, and medical/health disciplines approximately three-quarters of respondents are between 30 and 60, with an even distribution between the three decades. In sciences and engineering/technology approximately half of the respondents are under 40 and less than a quarter are over 50 years of age.

As would be expected, nearly two-thirds (64.9% or 135 of 208) of professor respondents are over 50 years of age and 81% (110 of 139) of research associate/assistant/officer/associate tutor respondents are under 40 years of age. Over a quarter (27.3% 2 of 22) of honorary lecturer/teaching fellow respondents are over 60 years of age.

Table 5. Range of UK Academic Staff Respondents' Ages

	Frequency	Percent
Under 30	189	17.8
31-40	312	29.3
41-50	276	25.9
51-60	216	20.3
Over 60	71	6.7
Total	1064	100.0

According to the Higher Education Statistics Agency (HESA) the gender breakdown of all academic staff employed in UK higher education institutions in 2009/10 is 44% female and 56% male.²¹ This study has a similar breakdown of gender (60% male), showing that our respondents are reflective of the general population (Table 6). The genders are equally present in each age range, except for respondents over 60 years, who are predominately male (81.7% male, 58 of 71).

Table 6. UK Academic Staff Respondents' Gender

	Frequency	Percent
Male	652	60.0
Female	435	40.0
Total	1087	100.0

The majority of professor, associate professor/reader, and senior lecturer respondents are male (79.3%, 62.5%, and 67.3% respectively). The other positions have a more even split by gender, but male respondents still outnumber female respondents (e.g. 54% male to 46% female for research associate). Female respondents represent a higher percentage of “other” discipline respondents (51.8% female).

Female respondents account for about half of the social sciences (50.8%, 132 of 260), humanities (52.5%, 64 of 122), and medical science disciplines (51.4%, 74 of 144). In sciences and engineering/technology male respondents represented 67.7% (247 of 365) and 78.7% (137 of 174) respectively. Our findings are congruent with the total UK academic staff population.²²

Productivity as Measured by Authorship and Awards.

In past surveys of research universities and in non-university research settings, authorship was used as one measure of productivity. Over the years it has been shown that academic staff members

²¹ HESA (Higher Education Statistics Agency). Statistics-Staff Employed at the UK HE Institutions. Last modified 12 October 2011. http://www.hesa.ac.uk/index.php?option=com_content&task=view&id=1898&Itemid=239.

²² HESA (Higher Education Statistics Agency). Statistics-Staff Employed at the UK HE Institutions.

who publish more journal articles tend to read more.²³ Over 80% of the respondents have published at least one article in a refereed journal in the past two years, and over half of staff members published at least two refereed journal articles. Fewer have published in non-refereed journals or entire books, but almost 40% have published chapters in books (See Table 7). Taking all of these methods of publication together for the last two years respondents have published on average (mean) eight publications and nearly all (88%) have published at least one scholarly work.²⁴ Approximately 70% of respondents have published at least 3 or more scholarly works in the past two years (See Table 8).

²³ King, D.W., Carol Tenopir, Carol H. Montgomery, and Sarah E. Aerni. "Patterns of Journal Use by Faculty at Three Diverse Universities." *D-Lib Magazine* 9, no. 10 (October 2003).
<http://www.dlib.org/dlib/october03/king/10king.html>.

²⁴ The mean excludes outliers over 100.

Table 7. Number of Items Published in the Last 2 Years by UK Academic Staff Respondents

	Frequency	Percentage
Refereed Scholarly Journals	1065	100.0
0	198	18.6
1 ~ 2	297	27.9
3 ~ 4	225	21.1
> 4	345	32.4
Non-Refereed Journals	961	100.0
0	632	65.8
1 ~ 2	233	24.2
> 2	96	10.0
Chapters in Books	989	100.0
0	610	61.7
1 ~ 2	287	29.0
> 2	92	9.3
Conference Proceedings, etc.	979	100.0
0	459	46.9
1 ~ 2	288	29.4
3~4	94	9.6
> 4	138	14.1
Entire Books	955	100.0
0	797	83.5
1 ~ 2	143	15.0
> 2	15	1.6

Table 8. Total Numbers of Publications in the Last 2 Years by UK Academic Staff Respondents

	Frequency	Percent
0	108	11.8
1-2	140	15.3
3-4	129	14.1
5-10	310	34.0
11-20	152	16.6
Over 20	74	8.1
Total	913	100.0

Significant differences are found between gender and total number of publications ($t=2.355$, $p<0.0001$). Approximately 31% of male respondents and only 15% of female respondents

published 10 or more publications in the past two years. Sixty-two percent of female respondents and 80% of male respondents published at least three scholarly publications in the last two years. Male respondents average ten publications (mean), while female respondents average seven publications (mean) in the past two years. Many of the gender differences may be a result of discrepancies in the disciplines, as the disciplines with a higher percentage of male staff members tend to produce more journal articles (e.g. sciences and engineering/technology) or in the differences in positions between genders.

Respondents in the medical/health disciplines average the highest number of publications in the past two years ($M=14.89$, $SD=44.06$), followed by sciences ($M=8.73$, $SD=12.49$), engineering/technology ($M=8.44$, $SD=7.69$), and social sciences ($M=7.75$, $SD=8.79$). Humanists produced the fewest total publications ($M=4.98$, $SD=4.49$). This could be explained by the type of publication, assuming that books take more time to produce than articles. Forty-four percent of humanists and over a quarter (26%) of social science respondents published at least one book in the past two years, while less than 9% of the other discipline respondents published at least one book in the past two years.

Position also affects the number of total publications. Professors produced the most publications in the past two years ($M=16.48$, $SD=13.75$), followed by associated professor/readers ($M=13.71$, $SD=9.05$), senior lecturers ($M=9.83$, $SD=13.54$), lecturers ($M=8.72$, $SD=32.94$), honorary lecturer/teaching fellow ($M=4.05$, $SD=7.85$), and research associate/assistant/officer/associate tutors (5.34, $M=6.44$).

We asked how the last publication was funded (could select more than one). Fifty-five percent of the publications received only one source of funding, while 12% have two sources of funding. Research council grants (e.g. Scottish Funding Council, Research Councils UK) account for 34% of funding (Table 9). Twenty-nine percent of the publications are not funded.

Table 9. Funding of UK Academic Staff Publications

	Frequency	Percent*
Government research grant	103	11.9
Funding council grant	78	9.0
Research council grant	292	33.8
University provided	84	9.7
Foundation or charity grant	131	15.1
Industry grant/contract	70	8.1
Not specifically funded	253	29.2
Other	59	6.8

*could select more than one.

Another measure of productivity is whether respondents received awards or recognition for their work. We asked if they have received any awards or recognition in the past two years; they were then prompted to describe the award or recognition. Approximately 19% (206 of 1071) of respondents report receiving awards in the past two years. Their responses range from teaching excellence recognition, grants, fellowships, best paper awards, and prizes for their research and/or work. Not every respondent specified the award they received, but of the 193 responses we received, 74 respondents earned an award based on their research or work, including fellowships (38.3%); 36 respondents received an award for a best paper, poster, or book submission or nomination (18.7%); 21 respondents won recognition for excellence in teaching (10.8%); and fifteen received funding or a grant (7.8%). The remaining 47 respondents' awards could not be identified or classified based on their written responses.

Respondents of a higher rank (position) are more likely to have received an award ($\chi^2=39.283, p>.0001$). Thirty-four percent of professors received an award in the past two years (73 of 213), while only 17% of lecturers (44 of 254) and 13% of research associate/assistants (32 of 248) received such recognition. Academic staff members who received an award are more likely to have published at least one refereed journal article in the past two years ($t=2.022, p=.043$) and, on average, publish more material ($t=2.166, p=.031$). Respondents who received an award in the past two years published on average six refereed articles ($M=6.09$) and twelve publications of any

type (M=11.67), while respondents who did not receive an award published on average five articles (M=4.50) and eight publications of any type (M=8.23).

There is a growing trend in UK Higher Education Institutes (HEI) to collaborate with multiple authors or institutions, including co-authorship. By 1994, 88% of all UK HEI papers involved two or more authors.²⁵ We asked respondents to list the number of co-authors they have on the last refereed scholarly article they published. The average number of co-authors is three (M=2.76, SD=2.54). Only 20% of respondents who published a refereed article in the past two years report having no co-authors (181 of 866) and 19% have five or more co-authors. There are some variations on co-authors by discipline. Sciences (M=4.10, SD=2.58) and medical/health disciplines (M=4.28, SD=2.62) average four co-authors per refereed journal article, and engineering/technology disciplines average two co-authors (M=2.29, SD=1.63), while humanists (M=.20, SD=.617) and social scientists (M=1.43, SD=1.63) average just one co-author per refereed journal article.

Personal Subscriptions.

One last demographic question asked how many personal subscriptions to professional journals (in print or electronic form) are received by each respondent, including those paid by him or herself, received free, or purchased by a grant or other source for personal or shared use. Forty-four percent of the respondents have no subscriptions, with an average of under two subscriptions per respondent (M=1.732, SD=2.47). As with previous surveys, print subscriptions are still predominant for personal subscriptions.²⁶ Less than half (42%) of respondents report having one or more print subscriptions, while under a quarter (23%) report having at least one

²⁵ Smith, David and Sylvan Katz. "Collaborative Approaches to Research: A Report to the HEFCE within the Fundamental Review of Research Policy and Funding." *HEFCE Publications*, no. 37 (2000): 1-117, <http://www.hefce.ac.uk/research/review/consult/collec.pdf>.

²⁶ Tenopir, C., D.W. King, Sheri Edwards, and Lei Wu. "Electronic Journals and Changes in Scholarly Article Seeking and Reading Patterns." *Aslib Proceedings: New Information Perspectives*, vol. 61 (2009): 5. DOI: 10.1108/00012530910932267.

electronic subscription and over a third (36%) have a subscription that includes an electronic and print version (Table 10). The average (mean) for each type of subscription is one.

The number of personal subscriptions has been declining steadily in surveys over the past thirty-five years among US academics,²⁷ and the trend continues with UK academics. The decrease over the past thirty-five years may be a result of an increase in free web and open access material, though we cannot rule out that there are different factors in the UK than in the US academic societies.

Key Finding 1

The library is more often the provider of scholarly articles as the number of personal journal subscriptions declines. More than half the respondents do not have a personal subscription.

One factor influencing the number of personal subscriptions is age of the respondent ($p=.287$). Respondents under 40 average just one subscription ($M=1.15$, $SD=1.94$), while respondents over 50 average nearly three subscriptions ($M=2.93$, $SD=3.16$) (Table 11). Age does not, however, influence whether the personal subscriptions are print or electronic.

²⁷ Ibid.

Table 10. Number of Personal Subscriptions for UK Academic Staff Respondents

	Frequency	Percentage
Print-only Subscriptions	958	100.0
0	551	57.5
1	156	16.3
2	131	13.7
3	58	6.1
4	27	2.8
5	17	1.8
6	13	1.4
> 6	5	.5
Electronic-only subscriptions	901	100.0
0	690	76.6
1	116	12.9
2	49	5.4
3	23	2.6
>3	23	2.6
Print and Electronic Subscriptions	945	100.0
0	608	64.3
1	150	15.9
2	90	9.5
3	45	4.8
4	20	2.1
5	24	2.5
>5	8	.8

Table 11. Personal Subscriptions by UK Academic Staff Respondents' Age

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Under 30	165	.99	2.21	.17	.648	1.328	0	21
31-40	262	1.26	1.74	.11	1.044	1.468	0	10
41-50	195	1.79	2.27	.16	1.469	2.111	0	12
51-60	147	2.93	3.28	.27	2.391	3.459	0	18
Over 60	55	2.87	2.65	.36	2.156	3.590	0	11
Total	836	1.73	2.47	.09	1.565	1.899	0	21

Last Information Source Used.

While the UK academic staff members use a variety of sources to inform their work, they may rely more on one type of material. We asked, “*What was the last information source you used that substantively informed your research work?*” Overwhelmingly, they use journal articles for the last information source (78%) (Table 12). A book or book chapter is used by 12% of the respondents.

Table 12. Last Information Source Used by UK Academic Staff Respondents

	Frequency	Percent
Journal article	853	78.1
Conference proceeding	20	1.8
Web site	24	2.2
Magazine article	5	.5
Book or book chapter	135	12.4
Personal contact	36	3.3
Other	19	1.7
Total	1092	100.0

Key Finding 2

Academics read scholarly journals as the principal source of substantive information for research work.

There are no significant differences between the discipline and the last information source used, but humanities scholars rely more on books or book chapters (53.7%, 65 of 121), while 91% (132 of 145) of medical/health science respondents say they used a journal article most recently and 89% (325 of 366) of the science disciplines used a journal article. For all disciplines, except humanities, journal articles are the most frequent source for the last substantive piece of information.

Scholarly Journal Article Reading

Total Amount of Article Reading per Academic Staff Member.

One of the questions in all of the Tenopir and King surveys from 1977 to the present is an estimate of the total number of articles read in the last month by each respondent. While it relies on personal recollection and the assumption that the last month is an accurate representation of a typical month of reading, it gives an approximation of how many articles a respondent reads in a year, and allows us to compare over time and across populations.

To aid the respondent's memory, we ask for a relatively short period of time (one month) and define articles and reading carefully. The first question states, "*In the **past month (30 days)**, approximately how many scholarly articles have you read? (Articles can include those found in journal issues, Web sites, or separate copies such as preprints, reprints, and other electronic or paper copies. Reading is defined as going beyond the table of contents, title, and abstract to the body of the article).*" The actual number is not as important as the relative amounts among types of respondents and over time. For convenience we often report results as readings per year, by taking the monthly number reported by the respondent and multiplying it by 12. In the current study, we also asked the number of books or book chapters and other publications read in the past month, which we will discuss later in this report. By combining all three approximations, we can gather a better sense of the total amount of reading by a UK academic staff member.

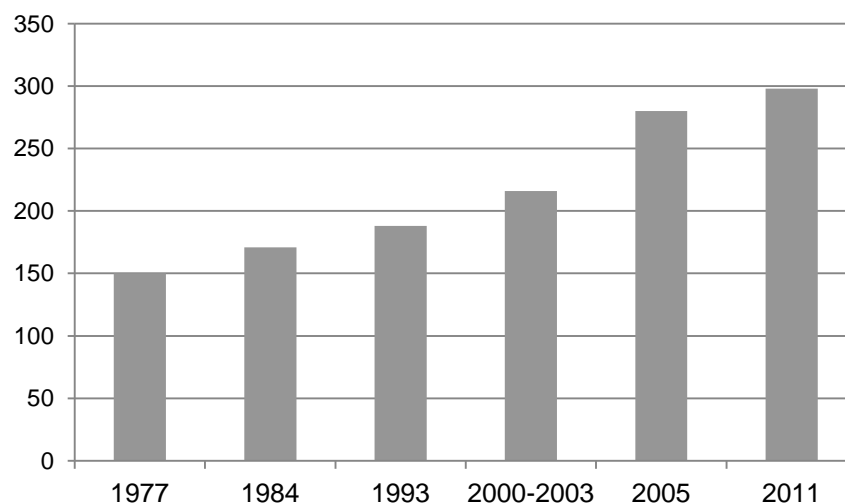
In the past month UK academic staff read, on average, twenty-five articles ($M=24.84$, $SD=38.32$). If outliers (over 150) are excluded the average is 22 ($M=22.32$, $SD=22.844$).²⁸ Extrapolated to an entire year, the average number of articles read per UK academic across disciplines is 267,²⁹ or 298 excluding humanities (in order to compare over time with other Tenopir & King surveys which did not include humanities staff).

²⁸ For all figures, outliers are numbers over three standard deviations from the mean. By excluding outliers we achieve a more representative average, rather than allowing a significantly higher number to skew the data.

²⁹ Including outliers the average number of articles read by UK academic staff is 298.

Since the first scholarly reading surveys completed by King in 1977, we have seen a continual increase in the number of scholarly article readings all non-humanities academics each year. In 1977, a survey of scientists and social scientists in the US found an average of 150 article readings per year, with an increase in each subsequent set of surveys. In 2000-2003 the average reading had increased to 216 articles per year and by 2005-2006 reading had increased to over 250 articles per year.³⁰ Combined with the 298 articles read by the non-humanities UK staff in 2011, we have seen a continuous increase in amount of journal article reading since 1977 (Figure 1). In an earlier report we concluded, “Reading by faculty is substantial and, perhaps, increasing as shown in the section on 25-year trends in university scientists' use patterns.”³¹ The trend seems to continue, although at this point we cannot be certain that reading patterns reflect national differences or a continuing trend.

Figure 1. Article Readings 1977 to Present by Scientists³²



Last Incident of Reading and Date of Publication.

After asking about the amount of article reading, we ask respondents to focus on the last scholarly article they read. This is a variation of the “critical incident” technique, where the last

³⁰ Tenopir, C., D.W. King, Sheri Edwards, and Lei Wu. “Electronic Journals and Changes in Scholarly Article Seeking and Reading Patterns” (2009).

³¹ King, D.W., Carol Tenopir, Carol H. Montgomery, and Sarah E. Aerni. “Patterns of Journal Use by Faculty at Three Diverse Universities” (2003).

³² 1977-2005 are figures from the U.S. and 2011 is from the UK.

article reading is assumed to be random, and gives us detailed information on a random sample of the readings by the UK academic staff. As with the previous question we try to be explicit in our instructions; we ask, “*The following questions in this section refer to the SCHOLARLY ARTICLE YOU READ MOST RECENTLY, even if you had read the article previously. Note that this last reading may not be typical, but will help us establish the range of reading patterns across a range of academic staff, disciplines, and institutions.*” We then ask for the title or topic of the journal article from which the last reading took place in order to focus their minds on the article for the rest of the survey questions. This question is merely to focus and guide their minds on the reading.

In the surveys from 1977 to 2005 in the US, we have seen an increase in reading of articles older than the first year of publication, though reading is still skewed to the most recent articles.³³ There are, of course, some differences based on subject discipline, with medical staff reading a higher proportion of current articles. In the surveys in the US and Australia in 2005 we found an increase in the reading of older articles, with just half of readings within the first year of publication. This differs from older studies, which found about two-thirds of reading within the first year of publication.³⁴ The change may be a result of availability of electronic back files, an increase in the respondent’s searching capabilities to identify older articles, and/or search system features such as relevance ranking that allows older articles to be more accessible.

The findings in the UK follow the same trend we first saw in the 2005 US and Australia studies. Nearly one-half of the readings are from articles in their first eighteen months of publication (Table 13). The year of publication ranges from as early as 1890, with thirteen articles

³³ King, D.W., C. Tenopir, S. Choemprayong, and L. Wu. “Scholarly Journal Information Seeking and Reading Patterns of Faculty at Five U.S. Universities,” *Learned Publishing*, 22 (2) April 2009: 126-144. DOI: 10.1087/2009208.

³⁴ Tenopir, C., D.W. King, P. Boyce, M. Grayson, and K.L. Paulson. “Relying on Electronic Journals: Reading Patterns of Astronomers.” *Journal of the American Society for Information Science and Technology (JASIST)* 56, no. 8 (June 2005): 786-802.

published before 1950. Over two-thirds of readings are within five years of the article’s publication (68.9%).

**Table 13. Age of Article Read by UK Academic Staff Respondents
Arranged by Date Groupings**

Year	Frequency	Percentage
Over 15 years (Before 1996)	128	11.1
11 years ~ 15 years (1996-2000)	72	6.3
6 years ~ 10 years (2001-2005)	157	13.7
2 years ~ 5 years (2006-2009)	253	22.0
1year ~ 1 ½ year (2010-June 2011)	539	46.9
Total	1149	100.0

Key Finding 3

Over half of article readings are from articles that are at least 18 months old and 17% of readings are from articles that are ten years old or older. This suggests that big deals (which often include content back to 1996) and backfiles (pre 1996) are a key investment in addition to current subscriptions.

Studies done by Guthrie³⁵ (2000), Odlyzko³⁶ (2000), and Herman³⁷ (2004) provide further research on the life of a journal article and its half-life. They found many older articles are heavily used when they are conveniently accessible; however, academics tend to cite more recent articles in order to seem current and up-to-date in their field. Their research further suggests that backfiles are a key investment in addition to current subscriptions.

³⁵ Guthrie, Kevin. 2000. Revitalizing Older Published Literature: Preliminary Lessons from the Use of JSTOR. Ed. J MacKie-Mason and W Lougee. *Economics and Usage of Digital Library Collections Conference*. MIT Press. <http://www.si.umich.edu/PEAK-2000/guthrie.pdf>.

³⁶ Odlyzko, A. M. (2000). “The rapid evolution of scholarly communication.” *Conference on the economics and usage of digital library collections* (March 23–24, 2000).

³⁷ E. Herman, “Research in progress: Some preliminary and key insights into the information needs of the contemporary academic researcher. Part 2,” *Aslib Proceedings*, 56 (2004): 118-131. DOI: 10.1108/00012530410529495.

Novelty of Information in the Reading.

Since this is a random sample of journal article readings, the article could be a re-reading or a first time reading. In this study, three-quarters (75%, 898 of 1203) of the article readings are first time readings. We also wanted to determine the reader’s knowledge of the article content before this reading (i.e. was the information familiar to them before the reading). Together, these questions provide an indication of the novelty to the reader of information provided in articles. Nearly two-thirds (64%) of the respondents say they knew parts of the information in the article prior to this reading, but only 2% (19 of 1199) knew all (or a majority) of the information. To further determine the novelty and value of articles as sources of new information, we asked those who knew about all or part of the information in the article reading where they originally found it. Another journal article, informal discussion with colleagues, conferences, and workshops are the main sources of information found in articles (Table 14). The “other” responses include information from collaborative research, a combination of the listed sources, a book, a lecture, and could not remember.

Table 14. Source of Information Not Obtained Through Last Article Reading by UK Academic Staff Respondents

	Frequency	Percent
Conference or workshop	84	11.0
Informal discussion with colleagues	163	21.4
Listserv or news group	16	2.1
Journal article	258	33.9
E-mail from colleague	41	5.4
Preprint/e-print service (e.g. arXiv.org)	7	.9
Web site of author	15	2.0
An Institutional Repository	7	.9
Other	171	22.4
Total	762	100.0

Thoroughness of Last Article Reading and Time Spent Reading.

To get an indication of the ‘exchange value’ of reading, we asked respondents to describe the thoroughness of their last scholarly article reading and how much time they spent on the

reading. Approximately two-thirds (66%, 788 of 1202) of the readings are read with great care and attention to all or parts of the article. Only 4% of the readings are skimmed (Table 15).

Approximately 71% (217 of 305) of re-readings and 64% (574 of 898) of first time readings are read with great care and attention to all or parts of the article. Just 10% of re-readings and 5% of first time readings are readings only of specific sections or figures. There is no significant difference between whether a reading is a first time reading or re-reading and thoroughness of the reading.

Table 15. Thoroughness of Last Article Reading by UK Academic Staff Members

	Frequency	Percent
I read all of it with great care	356	29.6
I read parts of it with great care	432	35.9
I read it with attention to the main points	300	25.0
I read only specific sections	70	5.8
I skimmed it just to get the idea	44	3.7
Total	1202	100.0

Another aspect of thoroughness of article reading is the amount of time spent per reading. This could include multiple sittings and, if a re-reading, how much total time is put into the reading. The average time spent per reading is 55 minutes (M=54.87, SD=83.324); if we exclude outliers the average is 49 minutes (M=48.59, SD=46.655). The mode is 30 minutes, with a range from 1 to 300 minutes, excluding outliers (See Table 16), with a 95% confidence level that 46 to 51 minutes are spent on average per reading. This is an increase in time from previous surveys in the United States, where we had found a declining trend in time spent reading. In 1977, US scientists reported spending 48 minutes per reading, while in 2005 in the US, the average time per article reading had declined to 31 minutes.³⁸ It is difficult to speculate on why there are differences between the UK findings and the US trends, but surveys later in 2012 in the US will help us determine if there are national differences or a diminution of the thirty-year trend.

³⁸ Tenopir, C., D.W. King, Sheri Edwards, and Lei Wu. “Electronic Journals and Changes in Scholarly Article Seeking and Reading Patterns.” (2009).

Table 16. Average Time Spent Per Article Reading by UK Academic Staff Respondents

Minutes	Frequency	Percent
1-10	120	10.0
11-30	545	45.3
31-60	321	26.7
61-90	54	4.5
91-120	92	7.6
Over 120	71	5.9
Total	1203	100.0

Source of Article

An important part of our analysis of UK academic staff reading patterns is determining how they become aware of articles. In the survey we ask, “*How did you or someone on your behalf become aware of this last article you read?*” The UK staff members live in a dynamic and vast world of information, and their answers reflect the myriad methods of finding information (Table 17). We followed up the question by asking if the source they searched or browsed was a print or electronic source. For the purposes of the survey we defined browsing as “without a specific objective in mind” and searching as having some sort of starting point such as author’s name or by subject. We included a “don’t know/don’t remember” option for staff members who may have had someone on their behalf seek out the information or who may not remember how they became aware of the article.

Approximately a third of all readings reported by UK staff members (32.9%, 392) are found initially through a method of searching (See Table 15). Searching an electronic index or abstracting service is most common. Browsing accounted for 11% (133) of all readings, and “other,” including citations, another person, or don’t remember accounted for over half (56%, 666 of 1192) of all readings. As shown in Table 17, the library’s online search and discovery tools play an important role in finding scholarly articles.

Table 17. How UK Academic Staff Respondents Initially Become Aware of Articles

	Frequency	Percent
Browsing	133	11.2 (100.0)
1. Library subscription	51	(38.3)
• Print	8	((15.7))
• Electronic	43	((84.3))
2. Personal subscription	31	(23.3)
• Print	26	((83.9))
• Electronic	5	((16.1))
3. Electronic search engine	18	(13.5)
4. Web site	15	(11.3)
5. Don't Remember/don't know	6	(4.5)
6. School, department subscription	4	(3.0)
• Print	2	((50.0))
• Electronic	2	((50.0))
7. Other	8	(6.0)
Searching	392	32.9 (100.0)
1. Electronic indexing/abstracting service	140	(34.1)
2. Web search engine	122	(29.8)
3. Online journal collection	65	(15.9)
4. Preprint/e-print service	41	(10.0)
5. Don't remember/don't know	7	(1.7)
6. Online institutional repository search	5	(1.2)
7. Print index or abstract	3	(.7)
8. Current awareness service	1	(.2)
6. Other	26	(6.3)
Other	666	55.9 (100.0)
1. Cited in another publication	211	(31.7)
2. Another person told me about it	205	(30.8)
3. Promotional email or web advert	43	(6.4)
4. Don't know /don't remember	34	(5.1)
5. Other	173	(26.0)
Total	1192	100.0

Browsing or searching could accommodate many sources—these sources could be categorized as library-provided, personal, or other sources and further categorized by their format—print or electronic. The 392 cases of searching can be categorized as 140 coming from

electronic indexing/abstracting service (e.g. Web of Knowledge, Scopus LexisNexis, British Humanities Index), 122 from a web search engine (e.g. Google), 65 from online journal collection (e.g. JSTOR, Science Direct), 41 from a preprint/e-print service (e.g. arXiv.org), just three from a print index or abstract, and 32 from other sources, including current awareness service and an institutional repository. Only seven respondents do not remember where or how they searched for the last reading.

Of the articles found through browsing, 51 (38.3%) come from the library institutional subscription, 43 of which come from an electronic library subscription (84.3%). Almost a quarter of the readings found by browsing are from a personal subscription (23.3%, 31), 84% (26 of 31) of which are print personal subscriptions. Eighteen of the articles found by browsing come from an online search engine (e.g. Google), fifteen come from a website, and four come from a department or school subscription. “Other” and “don’t know/don’t remember” accounted for the remaining 11% of articles found by browsing. While we did not specify whether every source is print or electronic, from the data we do have, electronic sources seem to be the primary means of becoming aware of the last article reading, and while the library still plays a role in helping respondents become aware of the last article, it is mainly in an electronic form (e.g. online journal collection, electronic library subscription).

Influence of source of article

As electronic methods of becoming aware of journal articles becomes more prevalent, UK academic staff have access and knowledge of more journal articles, beyond their immediate information need. Many searching or browsing queries identify multiple articles, and we wondered how that influences their total readings. We asked, “*As a result of searching or browsing for this article, how many other articles have you read or plan to read?*” Including all browsing and searching methods of becoming aware of the last article reading, respondents read, on average,

seven additional articles ($M=6.75$, $SD=12.97$), with a median of three and a range of 0-150 additional articles. Only 14% of the respondents read or plan to read no additional articles as a result of browsing or searching for the last article reading. Respondents who searched for the last reading read or plan to read seven ($SD=14$) additional articles, and respondents who browsed read or plan to read five ($SD=8$) articles (Table 18A).

Key Finding 4

Including all browsing and searching methods used to become aware of articles, academics read on average seven articles in addition to the one they located. This suggests another value-added aspect of the library's online search and discovery services—allowing discovery of additional relevant articles.

Table 18A. Additional Articles Read by Method of Searching or Browsing by UK Academic Staff Respondents

	N	Mean
Browsing:	128	5
• Personal Subscription	29	3
• Library Subscription	49	5
• Department/School Subscription	4	3
• Website	15	1
• Online Search Engine	18	7
Searching:	397	7
• Web Search Engine	118	6
• Electronic Index/Abstract Service	140	10
• Print Index/Abstract	3	18
• Online Journal Collection	61	7
• Preprint/e-print Service	38	6

On average UK academic staff respondents spend nineteen minutes ($M=19.07$, $SD=78.599$) becoming aware of the last article reading, and if we exclude one outlier, the average is seventeen minutes. There is a significant relationship between the source of the article and the time to become aware of it ($F=3.067$, $p=.006$). Browsing and searching require more time than finding the article

through another person or a citation (Table 18B). Approximately a third of the respondents searched for the last reading and they average thirty-two minutes (SD=53) to find it, while respondents average 19 minutes browsing, 12 minutes becoming aware through a citation, and only 7 minutes to become aware of an article through another person.

Table 18B. Time (in Minutes) to Become Aware of Last Article Reading by Source

	Mean	Minimum	Maximum	Median	Standard Deviation
Found while browsing	19	0	120	10	23
Personal subscription	16	0	120	8	25
Print	17	0	120	10	27
Electronic	12	5	30	5	11
Library subscription	21	0	120	15	23
Print	23	3	70	15	23
Electronic	21	0	120	15	23
Department/school subscription	18	2	60	5	28
Website	8	0	20	8	6
Online search engine	29	1	120	20	31
Other	13	0	35	10	11
Found while searching	32	0	720	15	53
Web search engine	28	1	360	15	42
Electronic indexing/abstracting service	40	1	720	20	70
Print index/abstract	28	15	40	30	13
Online journal collection	31	0	120	20	33
Preprint/e-print service	16	1	120	5	27
Other	34	1	300	10	64
Found through a citation to it in another publication	12	0	180	5	23
Another person (e.g. a colleague) told me about it	7	0	60	5	9
Promotional email or web advert	3	0	20	2	4
Do not know/ don't remember	5	0	20	5	6
Other	4	0	30	1	7

Obtaining the Article.

Once they became aware of the last article they read, we asked where they obtained the article. Of the 1189 responses to the question, almost two-thirds (775, 65.2%) of the readings are obtained through a library subscription (Table 19). Many respondents praised the importance of

library sources, including one respondent who summed it up as, “Accessibility of scholarly journals and other library resources is crucial to the standing and effectiveness of a university and is a key discriminator between world-class universities and less prestigious institutions.” A free web journal is a distant second most frequent response (9%). While a personal subscription is used approximately 5% of the time to obtain the last article reading, the readings from a personal subscription are predominantly print (76.8%, 43 of 56); whereas, 94% of the readings from a library subscription use an electronic version (725 of 775).³⁹

Table 19. How UK Academic Staff Obtain Articles

	Frequency	Percent
Personal subscription	56	4.7 (100.0)
Print	43	(76.8)
Electronic	13	(23.2)
Library subscription	775	65.2 (100.0)
Print	50	(6.5)
Electronic	725	(93.5)
Department/school	54	4.5 (100.0)
Print	8	(14.8)
Electronic	46	(85.2)
Subject or institutional repository	26	2.2
Free Web journal	109	9.2
Copy of the article from a colleague, author, etc.	66	5.6 (100.0)
Print	16	(24.2)
Electronic	50	(75.8)
Interlibrary loan or document delivery service	25	2.1 (100.0)
Print	13	(52.0)
Electronic	12	(48.0)
An author's Web site	18	1.5
Other Web site	32	2.7
Other source	28	2.4 (100.0)
Print	4	(14.3)
Electronic	24	(85.7)
Total	1189	100.0

³⁹ The percent of reading that comes from library-provided e-resources is likely an underestimate. As library systems become more transparent to users, for example, when an academic searches in his or her office or home as a university-affiliated user and retrieves e-resources, the fact those resources are coming from a library-provided subscription is not always evident. Therefore, academics may not realize that their access to resources is as a result of their library.

Regardless of how the reading is found, the majority are obtained from a library subscription. One respondent stated, “A well stocked library (including e-materials) is absolutely essential to all aspects of scholarly activity. I can think of no feasible alternative.” Readings found through searching or citations are more likely to be obtained through a library subscription (73.3% and 77.2% respectively). Thirty-nine percent of articles obtained through a personal subscription are found by browsing (15 of 39).

Key Finding 5

The library’s subscriptions are the primary source of article readings, 94% of which are obtained from the library’s e-journal collections.

To examine how long it took the respondent to obtain the article we asked, “*After you identified this article, about how much time (in minutes) did you and/or someone else on your behalf spend in each of the following activities?: to obtain, request, receive, or downloaded and display, to photocopy or print, and other.*” The average time to obtain, request, receive, or download and display an article is four minutes with a range of 0 to 120 minutes ($M=3.68$, $SD=6.439$). On average, the UK academic staff spend two minutes photocopying or printing the article and most respondents spend less than a minute in other activities to obtain the article ($M_{\text{print/copy}}=1.69$, $SD_{\text{print/copy}}=2.968$ and $M_{\text{other}}=.45$, $SD_{\text{other}}=2.024$). Some of the “other” activities respondents list are logging into database or electronic journal and forwarding or copying the article for a colleague.

One of the most frequent comments we received is the importance of speed and easy access to articles. Electronic sources allow for less delay between locating and obtaining the article. Articles obtained through a print source take an average of five minutes to obtain, while articles from an electronic source take approximately three minutes to obtain ($F=9.496$, $p>.002$). While there is a significant association between print and electronic sources of articles and the time to obtain, the individual sources (library subscription, personal subscription, etc.) do not have a

significant influence on the time to obtain. All sources require two to three minutes to obtain the article, except for interlibrary loan, which averages fifteen minutes. Clearly, academics have become accustomed to speedy access to articles once they become aware of them.

Use of Article Source.

Since a respondent could be using the same source to become aware of multiple articles, we asked them, “*From this same source (e.g. journal, author’s Web site, preprint archive), approximately how many articles did you read in the last twelve months (1 year)?*” A source from which a reader reads more than ten articles per year could be considered a core source for that reader or that reader’s discipline. A source could include a website, journal, or other source. We can examine differences in time spent, value, purpose, and method of locating articles for core sources and non-core sources.

UK academic staff read an average (mean) of twenty-six articles in the past year from the same source they obtained their last reading. Only 17% of readings (193 of 1164) come from a source from which they read no additional articles, and 58% (600 of 1164) of readings are from sources from which ten or more articles were read from the same source in the past year (Table 20). Respondents read on average 70 articles per year from the website they visited for their last reading (Table 21), 38 articles per year from interlibrary loan or document delivery service, and 27 articles per year from the personal and library subscription they obtained the last article.

Table 20. Number of Article Readings from the Same Source in the Last Year by UK Academic Staff Respondents

	Frequency	Percent
0	193	16.6
1-5	297	25.5
6-10	190	16.3
11-20	183	15.7
21-30	87	7.5
Over 30	214	18.4
Total	1164	100.0

Table 21. Breakdown of Number of Article Readings in the Last Year by Source by UK Academic Staff Respondents

	Mean
Personal subscription	27
Library subscription	27
Department/school subscription	25
Subject or institutional repository	26
Free Web journal	22
Copy of the article from a colleague, author, etc.	9
Interlibrary loan or document delivery service	38
An author's Web site	6
Other Web site	70
Other source	14

Alternative Source to Obtain Article.

Based on the *contingent valuation*, value can also be measured based on whether the respondent would obtain the information from another source if the source used were not available.⁴⁰ This method of determining value assumes if the information is important the respondent will try multiple methods to obtain the information, but their initial source is the most convenient, either due to speed or low cost.

We ask, “Thinking back to the source of the article (e.g. library collection, department collection, interlibrary loan, etc.), where would you obtain the information if that source were not available?” Only 16% of the readings (190 of 1163) would not be obtained if the initial source was not available (Table 22A). The remaining readings would be obtained from another source; 35% of readings would be obtained through another library and 21% of the readings would be obtained the information from a colleague (404 and 247 of 1163 respectively). One respondent commented, “I will have to wait until the end of term (when teaching is over) to travel to London or another

⁴⁰ Imholz, S. and J.W. Arns. “Worth Their Weight: An Assessment of the Evolving Field of Library Valuation.” Americans for Libraries Council (2007). <http://actforlibraries.org/pdf/WorthTheirWeight.pdf>.

good library to read it. This will delay my work and I will have to pay for the trip. Since this article is essential for a paper I gave in a conference over the weekend, I would have not been able to go to the conference.” Many other respondents comment they do not know where they would obtain the article, but the article is important enough that they would try many means.

Table 22A. Alternate Source of Article by UK Academic Staff Respondents

	Frequency	Percent
I would not obtain the information	190	16.3
From a colleague	247	21.2
Use/visit another library	404	34.7
Purchase copy	42	3.6
From another source	280	24.1
Total	1163	100.0

For most readings, regardless of the initial source, academics would use a library as an alternative (Table 22B). Only readings initially obtained from an author’s website or from an “other” source would be sought by seeking information from a colleague or other source. Of the readings obtained from a library subscription, 38% would be obtained from another library (281 of 762), 20% would be obtained from a colleague (153), and 17% would not be obtained (128).

Key Finding 6

If the library were unavailable, value to academic work would be lost as 17% of the information obtained from the library would not be obtained from another source.

Table 22B. Alternative Source of Article by Initial Source Used by UK Academic Staff Respondents

		Alternative Source of Article				
		Not obtain	From colleague	From library	Purchase copy	Other
Initial Source of Article	Personal subscription	4 7.1%	7 12.5%	22 39.3%	7 12.5%	16 28.6%
	Library subscription	128 16.8%	153 20.1%	281 36.9%	22 2.9%	178 23.4%
	Department/school	7 13.5%	15 28.8%	13 25.0%	2 3.8%	15 28.8%
	Subject or institutional repository (e.g. arXiv.org)	10 40.0%	5 20.0%	5 20.0%	0 .0%	5 20.0%
	Free Web journal	21 19.6%	24 22.4%	35 32.7%	2 1.9%	25 23.4%
	Copy of the article from a colleague, author, etc.	6 9.5%	13 20.6%	26 41.3%	2 3.2%	16 25.4%
	Interlibrary loan or document delivery service	4 16.7%	6 25.0%	5 20.8%	4 16.7%	5 20.8%
	An author's Web site	2 11.8%	7 41.2%	3 17.6%	1 5.9%	4 23.5%
	Other Web site	6 20.0%	6 20.0%	7 23.3%	1 3.3%	10 33.3%
	Other source	2 7.7%	11 42.3%	7 26.9%	1 3.8%	5 19.2%

Obtaining the article from another source would cause many respondents to spend more time and/or money. Of the 902 respondents who estimate the time and price of obtaining the information from another source, the average time spent obtaining the information from a different source is a little over two hours for an average price of £5.25. Compared to the original source the alternative source would require an additional hour and fifty-five minutes to obtain the article. We did not ask for a price estimate for the original source for comparison.

Format of Article.

Earlier in the report we concluded that approximately 87% of readings are from an electronic source to obtain the article. This, however, does not mean the final form of reading is on a computer screen. Nearly one-half of the readings (529 of 1163) are read on a computer or other electronic screen, while the other half of the readings are done in a print form, either from a print journal or downloaded and printed from an electronic source (54.5%). While the UK academics prefer electronic sources to obtain information, print is still the preferred means for reading by a slight margin. Many respondents complained of the “eye strain” and formatting issues of electronic journal article reading. One respondent observes, “Electronic resources have revolutionized the way research is done...but journal and book formats are not designed well for reading on screen so a lot of printing resources are needed,” and another respondent adds, “I like reading hard copy, but now mostly read publications on computer screens, which are less comfortable on the eyes and neck.” Approximately 41% of the readings are from a downloaded and printed article, and only 10% of the readings came from a print journal (Table 23).

Table 23. Final Format of Last Article Reading by UK Academic Staff

	Frequency	Percent
Print article in a print journal	114	9.8
Photocopy or Fax copy	30	2.6
Online computer screen	348	29.9
Previously downloaded/saved and read on computer screen	173	14.9
On a mobile, e-reader or tablet screen	8	.7
Downloaded and printed on paper	476	40.9
Other	14	1.2
Total	1163	100.0

Nearly three-quarters (74%) of readings from personal subscriptions are read from a print article in a print journal and 44% of library subscriptions are downloaded and printed (333 of 763). Forty percent of articles obtained from a website are read on an online computer screen and 33% are downloaded and printed.

Location and Storage of Article.

In past surveys, we found a majority of readings are done in the office or lab of academic staff members.⁴¹ While academics are using the library's resources, they are often accessing the library's resources remotely and are rarely reading in the library. Similarly, we found that UK academics are doing the majority of their reading in their office and lab (60%, 699 of 1162), and less than two percent of the readings are read in the library (Table 24). Location is no longer a major factor in a staff member's access to academic sources because the scholarly articles can be accessed and read from multiple locations.

Table 24. Location of Article Reading by UK Academic Staff Respondents

	Frequency	Percent
Office or lab	699	60.2
Library	20	1.7
Home	324	27.9
Travelling	116	10.0
Elsewhere	3	.3
Total	1162	100.0

Key Finding 7

Electronic collections allow academics to access information from outside the physical library. This saves time in locating and obtaining articles and increases the time they are able to spend on work.

Of the 764 article readings from a library subscription, only 17 of the readings take place in the library (2.2%). Approximately 62% of the last article readings that are obtained from the library are read in the office or lab (471 of 764). Sixty-five percent of last article readings obtained from a free web journal and 76% of last article readings obtained from a website are read in the office or lab.

⁴¹ Tenopir, C., D.W. King, Sheri Edwards, and Lei Wu. "Electronic Journals and Changes in Scholarly Article Seeking and Reading Patterns," (2009).

Since articles can be read in a variety of formats, academics are able to read in a variety of locations. Readings that take place in the library are most likely to be from a print journal (60%, 12 of 20), while readings that occur while travelling are most likely to be from a downloaded and printed on paper article (60.3%, 70 of 116). Readings that occur in the home, office, or lab are split between computer screen and downloaded and printed. Forty percent of the readings that occur in the lab/office are from a downloaded and printed copy, and nearly half (49%) are read on a computer screen (283 and 342 of 698). In the home, 14% of the readings are from a print journal; 44% are from a computer screen, and 36% are downloaded and printed (45, 143, and 117 of 324 respectively).

How and if an academic stores articles has likely changed with the increase in electronic sources. We asked where they stored the last article reading (could select more than one). The answer choices vary from bookmarked the article, stored on an external storage device, and stored as print-on-paper (Table 25). We found that approximately two-thirds of the readings (65%, 766 of 1188) are stored using only one method, and almost 19% of readings use two or more storage methods. Fifteen percent of the readings are not stored (173 of 1188). Thirty-two percent of the article readings are stored as print-on-paper, and over half of the readings are stored on a computer file. Some of the other storage methods include: sent to Endnote library, used Mendeley.org, and saved to an electronic e-reader.

Table 25. Storage Method of Last Article Reading by UK Academic Staff Respondents

	Frequency (n=1188)	Percent*
Did not store	173	14.6
Bookmarked	37	3.1
Computer file	685	57.7
Online folder	84	7.1
External storage device	69	5.8
On paper	381	32.1
Other	24	2.0

*Respondent could select more than one method of storage.

Purpose and Value of Article Reading.

Survey data provides a picture of purpose, value, and outcomes from readings, which usage data cannot provide. We ask, “*For what principal purpose did you use, or do you plan to use, the information obtained from the article you last read?*” Nearly three-fourths of the readings are for the principal purpose of research and writing (862 of 1161), and 12% of readings are for the purpose of teaching (Table 26). The “other” purposes include reference, no clear principal purpose, or more than one principal purpose.

Table 26. Principal Purpose of Article Reading by UK Academic Staff Respondents

	Frequency	Percent
Research & Writing	862	74.3
Teaching	139	12.0
Administration	2	.2
Current awareness/keeping up	69	5.9
Consulting, advising	10	.9
Internal or external presentations	19	1.6
Continuing education for self	29	2.5
Engagement activities (to wider community)	4	.3
Other	27	2.3
Total	1161	100.0

Readings do not differ in year of publication, time spent to become aware or obtain article, or final format by principal purpose. For all purposes, the distribution of formats is similar to the total distribution (See Table 23). We also found no significant relationship between principal purpose and where the article is found or obtained; regardless of purpose, most readings are obtained from a library subscription. Nearly a third (35%) of readings for research are found through searching, and over two-thirds (69%) of readings for research are obtained through a library subscription or interlibrary loan.

Key Finding 8

The majority of article readings support the principal purposes of research and writing.

We found significant relationships between principal purpose and time spent reading ($F=1.016, p=.425$). Readings for research are read, on average, for sixty minutes, while time spent on readings for administration, consulting, and engagement activities are about half that—approximately thirty minutes. Readings for research tend to be read with greater care ($p=.095$).⁴² Readings for teaching tend to be read just for the main points or of certain sections (65.5%). Thirteen percent of readings for current awareness are skimmed, while only 3% of readings for research are skimmed. Seventy percent of the readings for research are read with great care or attention to all or part of the article.

In relation to the principal purpose, we asked respondents to describe the value of the article reading by ranking the article's importance to the principal purpose and the outcome the reading has on their work. Respondents ranked the article reading on a five-point scale from absolutely essential to not at all important. Almost all of the readings are at least somewhat important (98.9%), and 38% of readings (441 of 1160) are very important or absolutely essential to the principal purpose (Table 27). We received many comments stating the importance of scholarly article reading; many of them describing the readings as “essential,” “critical,” and “could not do without them.” Even when the reading is not ranked as important to principal purpose, the respondent still often mentioned that scholarly articles are “indispensable” or an “essential source of information.”

⁴² Significance at .01 level, unless otherwise noted.

Table 27. Importance of Article Reading to Respondents' Principal Purpose

	Frequency	Percent
Absolutely essential	150	12.9
Very important	291	25.1
Important	342	29.5
Somewhat important	364	31.4
Not at all important	13	1.1
Total	1160	100.0

There is no significant correlation between principal purpose and importance. The importance of reading is significantly associated with where it is obtained ($\chi^2=47.498, p=.095$).⁴³ As a whole, readings obtained from the library are considered more important than those obtained from other sources. Forty percent of readings provided by the library are considered very important to absolutely essential (309 of 761), and less than 1% are considered not at all important (3).

Key Finding 9

Article readings obtained from the library are considered significantly more important to the principal purpose than those from other sources.

Respondents were also asked to select one or more outcomes that the reading had on the principal purpose. Approximately a third of the respondents selected more than one positive outcome (33.2%). The most frequent outcomes of reading include inspiring new thinking, improving the result, and narrowing/broadening/changing the focus. In the open-ended responses, one respondent states, “[article readings] make me aware what has been done by colleagues across the world, teach me new methods and techniques, and makes me think about research with a different prospective, improving the possibility of discovering something new.”

⁴³ Fifteen cells (30%) have expected count less than 5. The likelihood ratio is used.

Another respondent describes, “[articles] provide the focus for discussion and allow students to apply theory in practice,” and another respondent continues, they allow us to “find out where the gaps are in our knowledge and decide on a research project.” Only ten article readings are considered a waste time (Table 28).

Table 28. Outcomes of Article Reading for UK Academic Staff Respondents*

	Frequency	Percent
Inspired new thinking	635	53.7
Improved the result	447	37.8
Narrowed/broadened/changed the focus	333	28.1
Saved time or resources	113	9.6
Resolved technical problems	117	9.9
Others	81	6.8
Resulted in faster completion	55	4.6
Resulted in collaboration/joint research	52	4.4
Wasted time	10	.8
Total	934	

*Respondents could select more than one outcome.

Over half the readings have been cited or will be cited (Table 29). As the article reading’s importance to the principal purpose increased, so does the chance it will be cited ($p=.368$).

Table 29. Article Citation by UK Academic Staff Respondents

	Frequency	Percent
No	148	12.8
Maybe	399	34.5
Already cited	193	16.7
Will in the future	416	36.0
Total	1156	100.0

Differences of Article Reading Patterns by Demographics

Differences of Reading Patterns by Discipline.

Reading patterns of UK academic staff from different disciplines differs significantly in terms of amount of reading ($F=1.181$, $p=.317$), time spent reading ($F=2.656$, $p=.21$), the age of article reading, and how the article is obtained.

The medical/ health science disciplines report the most article readings per month ($M=30.64$), followed by engineering/technology ($M=28.32$), humanities ($M=27.72$), and sciences ($M=26.60$). Social scientists report the fewest article readings per month ($M=21.39$, $SD=20.98$).

Our findings compare with past studies that show academic staff members in the medical/health disciplines read more articles but spend less time per reading compared to the other disciplines.⁴⁴ Social scientists spend on average (mean) slightly over an hour per article reading, with those in the medical/health disciplines spending forty-one minutes. Scientists and humanists spend approximately fifty minutes per article reading. Academic staff members in the engineering/technology disciplines spend, on average, the most time per reading ($M=72.29$).

The age of the article is significantly associated with the respondent's discipline ($F=2.796$, $p=.011$). Humanists read more articles after the first year of publication, while medical/health staff members read more current articles. While the most frequent year of publication (mode) for each discipline is either 2010 (Humanities) or 2011 (all other disciplines) (that is within the first 16-18 months of publication), half of the readings for Humanities were published before 2005 (6.5 years old or older). On the other hand, half of the readings in the social sciences and engineering/technology disciplines were published after 2008 (approximately 2.5 years old), and half the readings in the sciences and medical/health disciplines were published after 2009 (no more than 18 months old). A quarter of the readings by humanists were published before 1996

⁴⁴ Tenopir, C., D.W. King, Sheri Edwards, and Lei Wu. "Electronic Journals and Changes in Scholarly Article Seeking and Reading Patterns," (2009).

(more than 15 years old), while less than 10% of readings from other disciplines are fifteen years old or older.

There are some differences between where the article is obtained and the subject discipline of the reader. While over half of the readings by each discipline are obtained from a library subscription, readings from the medical/health academic staff members report the lowest percent of readings from the library (59.3%) and the highest percent from free web journals (15.9%). Ten percent of the readings by scientists are obtained from free web journals, while less than 6% of the article readings by the other disciplines are obtained from free web journals. While the source to obtain the article varies, over three-quarters of article readings in each discipline are from an electronic source.

There are no significant associations between subject discipline and principal purpose, final format, and how the respondent became aware of the article. Over three-quarters of article readings in each discipline are from an electronic source, including an online computer screen, e-reader, or a saved or printed computer file; however, around half of those readings are printed for final reading (Table 30).

Table 30. Associations between Respondents' Subject Discipline and Final Form of Reading

	Reading Form			Row Total
	Print	Printed Electronic Source	Electronic	
Social Sciences	44 16.9%	104 40.0%	112 43.1%	260
Sciences	27 7.4%	158 43.1%	182 49.5%	367
Humanities	32 27.1%	44 37.3%	42 45.6%	118
Engineering/Technology	11 6.3%	84 48.0%	80 45.7%	175
Medical/Heath	13 9.0%	62 42.7%	70 48.3%	145
Other	2 10.0%	5 25.0%	13 65.0%	20
Column Total	129	457	499	1085

Differences of Reading Patterns by Position, Age, Gender, and Productivity.

There are some differences in reading patterns by position or rank of the respondents. For example, we found differences based on the respondent's position and number of article readings ($F=2.885, p=.009$). We did not find significant relationships between position and finding or obtaining the article, principal purpose, or final format of the article.

Honorary lecturer/teaching and senior lecturers read, on average, the fewest articles ($M_{\text{honorary lecturer}}=20.48, M_{\text{senior lecturer}}=19.85$). Associate professors read, on average, the most articles ($M=32.73$).

The respondent's age has some impact on scholarly reading patterns. Principal purpose, finding and obtaining articles, and time spent reading are not significantly related to the respondent's age. There is a relationship, however, between respondent's age and the number of articles read ($F=1.124, p=.344$), time spent reading ($F=3.317, p=.010$), and final format of article ($\chi^2=36.699, p=.047$).

Respondents under the age of thirty on average read the most articles ($M=26$), followed by respondents between thirty and fifty years of age ($M=23$), and respondents over fifty report the fewest article readings ($M=21$). Respondents under age thirty spend the most time per reading ($M=57.50$), and as the respondent's age increases the time spent reading decreases. Respondents over fifty spend the least amount of time per reading ($M=48.28$).

While age does not significantly influence where the article is obtained, there is an increase in the readings from personal subscriptions as the respondent's age increases. Very few academics under 30 read from personal subscriptions (approximately 2%), while 10% of readings from respondents over 60 are from personal subscriptions. At least 65% of article readings within each age group (decade) are obtained through the library, except for respondents over 60 (54.3%). The majority of articles are from electronic sources, regardless of age of reader, but there is an increase in the use of print journals by respondents as their age increases (Table 31). Twenty-one

percent of article readings by respondents over 60 are from a print source and 33% are read from a printed copy from an electronic source. Nearly half of the respondents in each age group are reading on computer screen.

Table 31. Association between Age of UK Academic Staff Respondent and Reading Form of Article

	Reading Form			Row Total
	Print	Printed Electronic Source	Electronic	
Under 30	17 9.2%	81 43.5%	88 47.3%	186
31-40	22 7.2	137 44.6%	148 48.2%	307
41-50	39 14.2%	116 42.2%	120 43.6%	275
51-60	32 15.3%	81 38.6%	97 46.1%	210
Over 60	15 21.4%	23 32.9%	32 45.7%	70
Column Total	125	438	485	1048

In past studies, we have found that academics who have won awards or received special recognition in the past two years read more articles.⁴⁵ This is also true in the UK, as respondents who earned an award within the last two years read more articles than those who have not received an award ($F=13.359, p<.0001$). Both sets of respondents spend on average approximately forty-eight minutes per reading, but respondents who received an award in the past two years read on average twenty-nine articles a month, six more than those who have not received an award.

The number of publications by the respondent also has a significant association with the number of article readings ($p=.124$). Respondents, who published more, including refereed and non-refereed articles, books, and conference proceedings, read more articles. Respondents who reported more than twenty publications read on average thirty-six articles, and respondents who produced only one or two publications read twenty articles.

⁴⁵ King, D.W., Carol Tenopir, Carol H. Montgomery, and Sarah E. Aerni. "Patterns of Journal Use by Faculty at Three Diverse Universities," (2003).

Key Finding 10

Successful academics, that is those who published more and earned an award in the past two years, read more articles. While we cannot conclude a cause and effect relationship, this demonstrates that scholarly reading is a valuable part of their work activities.

We also looked at how the respondents spend their work time, and how their work activities may influence reading amounts. Academics who spend over 50% of their work time on research and writing read more articles ($F=10.450$, $p=.001$). These “research intensive” academics report twenty-six article readings per month on average ($n=434$, $M=26.09$), while academics who spend less than half their time on research and writing report reading only twenty-two articles per month ($n=621$, $M=21.40$).

On the other hand, academics who spend a majority of their work time on teaching read fewer articles ($F=3.765$, $p=.053$). These “teaching intensive” academics who spend over half their work time on teaching report eighteen article readings per month on average ($n=77$, $M=18.23$).

This concludes the section on article reading; the next section focuses on the last book or book chapter reading.

Scholarly Book Reading

In other Tenopir & King studies, the “critical incident” of reading focused only on the last scholarly article reading. For this study we expanded the survey to include readings from books, book chapters, and other publications. There are no previous studies to compare with these data, but data about readings from books, book chapters, and other publications will be collected in the academic year 2011/2012 at several US universities. In this section of the report we focus on book or book chapter readings.

Total Amount of Book Reading and Last Incident of Reading per Academic Staff Member.

As in the section on scholarly article reading, we started the section by carefully defining book reading and focusing the respondent on the books they recently read or read from. We asked, “*In the past month (30 days) approximately from how many books or parts of books did you read for work? Include reading from a portion of the book such as skimming or reading a chapter. Include classroom text, scholarly, or review books read in print or electronic format.*” We are not as concerned with the actual number but with the relative amounts, and for convenience, we often report readings per year by simply multiplying the monthly total by 12. UK academic staff average seven book or book chapter readings per month or approximately 84 readings from books per year ($M=6.95$, $SD=9.589$).⁴⁶

After asking about the amount of book reading, we asked respondents to focus on the last scholarly book reading. This follows the same variation of “critical incident” technique we used in the article section. We assume the book readings will be a random sample of readings and will give us detailed information on a wide range of scholarly book readings. We explicitly stated, “*The following questions in this section refer to the BOOK FROM WHICH YOU READ MOST RECENTLY. Note that this last reading may not be typical, but will help us establish the range of reading patterns across a range of academic staff, disciplines, and institutions.*” We asked the respondents to list the title or

⁴⁶ Mean excludes one outlier at 350. With the outlier the mean is 8.13 ($SD=16.54$).

topic of the last book or book chapter they read, but we did not use this for our analysis. Instead, the question helps the respondent focus on the last reading from a book, book chapter, or part of a book.

Total Time of Book Reading.

We asked the respondents, “*On how many occasions did you read from this book in the past month (30 days)*” and “*About how much total time (in minutes) did you spend reading this book in the past month (30 days)?*” We did not define what constitutes an occasion, and so an occasion could be any length of time. On average, the respondents read from the book between four and five occasions (M=4.65, SD=5.54),⁴⁷ with a range of zero to sixty occasions in the past month from the same book (Table 32). The book or book chapter readings by UK academic staff took an average of hour and forty minutes over multiple occasions (M=106.11, SD=121.12)⁴⁸ or about twenty-three minutes per occasion. Twenty-one percent of the book readings take over two hours (Table 33).

Table 32. Occasions of Last Book Reading by UK Academic Staff Respondents

	Frequency	Percent
0	7	.8
1-2	385	41.8
3-4	221	24.0
5-10	256	27.8
Over 10	53	5.7
Total	922	100.0

⁴⁷ If we exclude three outliers over 30, the mean is 4.51.

⁴⁸ Mean excludes outliers over 800 minutes. With outliers the mean is two hours and three minutes.

Table 33. Time Spent on Last Book Reading by UK Academic Staff Respondents

Minutes	Frequency	Percent
0-15	125	13.5
16-30	180	19.5
31-45	53	5.7
46-60	167	18.1
61-90	54	5.9
91-120	148	16.0
Over 120	196	21.2
Total	923	100.0

The time spent per book reading is significantly related to the number of occasions ($p=.317$). When a respondent reads from a book on multiple occasions they typically spend more time reading from the book on each occasion.

Source of Book and Time to Become Aware.

After establishing the last book reading and how long they spent per reading, we focused on how they became aware of the book from which they read. We asked, “*How did you or someone on your behalf become aware of this last book from which you read?*” We kept the question and answers similar to the last article reading, and maintained the same definitions of browsing and searching.

Over a fifth of respondents (21.1%) selected the “other” answer choice, and when we examined the comments, we found a large segment responded they already knew of the book; it is a core text in the field; or they have it on their bookshelf. We separated these answers into one group, and included the respondents who became aware of the book for review, edit, or co-authorship work into another group (See Table 34). The remaining 9% of “other” responses are varied and are unable to be grouped or categorized. They range from heard on the radio, part of a conference packet, and unspecified. We did not ask the respondents to tell us what sources they browse or search.

Table 34. How UK Academic Staff Respondents Initially Become Aware of Books

	Frequency	Percent
Found while browsing	61	6.5
Found while searching	218	23.4
Found through citation in another publication.	106	11.4
Another person told me about it	262	28.1
Promotional email or web advert	34	3.6
Don't know or don't remember	54	5.8
Other	(197)	(21.1)
Already owned or knew	73	7.8
For review or was a contributor/co-author	38	4.1
Others	86	9.2
Total	932	100.0

Twenty-eight percent of book readings are found through another person, including a colleague, and approximately a quarter (23%) of the readings are found through searching. Citations in other publications account for 11% of the book readings, and almost 7% of book readings are found through browsing without a specific object in mind. Many respondents had previously read the book, owned a copy, or considered the book a core text in the field (8%, 73 of 932). Many of the respondents considered the book “key element in personal library over many years,” a “key reference volume,” or a “major text book in the field.” We assume, therefore, many of the readings are re-readings. Even though we did not ask the respondents for the year of publication or if they knew the information in the book prior to reading, we expect the average year of publication would be older and more respondents would know all or parts of the book prior to reading than with article readings.

Excluding two outliers, the average time to become aware of a book is twelve minutes ($M=11.71$, $SD=22.13$).⁴⁹ The total time to become aware of a book ranges from less than a minute to over three hours. Readings found by browsing or searching require more time than readings found

⁴⁹ Including outliers the mean is 19.34.

through another person or e-mail/web advert ($F=.368, p=.899$). Searching takes on average (mean) twenty-three minutes, and finding a book to read through another person takes eight minutes.

Obtaining the Book.

We asked, “After you became aware of this book, from where did you obtain it?” The wording was kept similar to the other sections for comparison, but the answer choices were modified to reflect the different sources for books. Thirty-nine percent of book readings are from books that are purchased (364 of the 931) (Table 35). The library or archives collection and interlibrary loan account for a little over a quarter of book readings (27.6%), and another quarter of book readings are from books provided by another person or the publisher (24.5%). The “other” responses vary, but nineteen readings were identified as electronic books (2%, 931).

Table 35. How UK Academic Staff Respondents Obtain Books

Key Finding 11

The library is not the main source of book readings; instead, academics are more likely to purchase books or receive them from a publisher.

	Frequency	Percent
I bought it for myself	364	39.1
The library or archives collection	239	25.7
Interlibrary loan or document delivery service	18	1.9
School or department collection	24	2.6
A colleague, author or other person provided it to me	98	10.5
A free, advance, or purchased copy from the publisher	130	14.0
Other source	(58)	(6.2)
• Online, e-book	19	2.0
• Other	39	4.2
Total	931	100.0

In future surveys we will specify print or electronic for all book reading choices, to get a clearer picture of the exact proportion of reading from print or electronic. We assume that only a small percentage of scholarly book readings obtained from the library by academic staff in the UK are currently from e-books. We expect these numbers to be greater for students, but did not survey students in this study. A 2009 study in the UK found that 65% of staff and students have read an e-book for work, study, or leisure, and over half of those readings were obtained through the library (51.9%).⁵⁰ In the open comments section of our survey, some respondents praise e-books with comments such as: “e-books have revolutionized the way research is done. It is much more efficient than browsing hardcopy, but journal and book formats are not designed well for reading on screen,” and [e-books] “would make rare and specialist books much more available.” The library provision of books, in particular e-books, is clearly an area for further research.

After identifying where the respondent obtained the book, we asked how long they spend “to obtain, request, receive, or download and display,” “to photocopy or print the book or sections of the book,” and “other” activities to obtain the book. Respondents spend thirteen minutes on average to complete all three of these steps, compared to the four minutes on average to obtain an article. The 895 respondents who answered this question, report on average eleven minutes to obtain, request, receive, or download and display the book, with a range of 0 to 255 minutes ($M=11.04$, $SD=25.117$). They spend an average of one minute to photocopy or print the book and one minute on other activities ($M_{\text{print}}=1.34$ $SD_{\text{print}}=5.216$, $M_{\text{other}}=1.44$, $SD_{\text{other}}=1.257$). The “other” responses include steps involved in purchasing the book—paying, waiting in line, and transportation. There is a significant relationship between the source of the book and the time it takes to obtain ($F=3.653$, $p=.001$). When the book is obtained through another person the respondent spends on average four minutes to obtain, request, and receive the book, and the respondent spends thirteen minutes when the book is obtained through the library or purchased.

⁵⁰ CIBER. “JISC National E-Books Observatory Project: Key Findings and Recommendations,” *Final Report* (2009), <http://www.jiscbooksproject.org/reports>.

Alternative Source to Obtain Book.

Based on the *contingent valuation*, value can also be measured based on whether the respondent would obtain the book's information from another source.⁵¹ This method of determining value assumes if the information is important the respondent will try multiple methods to obtain the information, but their initial source is the most convenient, either through speed or low cost. Thirty-five percent of the book readings would be obtained from a library if the original source were not available (Table 36A). Only 10% of the readings would not be obtained from another source.

Table 36A. Alternative Source of Book by UK Academic Staff Respondents

	Frequency	Percent
Would not obtain information	86	9.4
From a colleague	92	10.1
Use/visit another library	321	35.1
Purchase a copy	207	22.6
From another source	209	22.8
Total	915	100.0

Key Finding 12

The library is the most likely alternative for book reading if the original source is unavailable. The library, therefore, often has the desired material but it is not regarded as the most convenient source since academics expect they will have to spend more time on the process of obtaining the book from the library.

There is no significant relationship between the original source and alternative source of a book. Over 30% of the book readings originally purchased, obtained from the library, school/department collection, or another person would be obtained from the library if the original source is not available (Table 36B). While the library is not the most frequent original source of book readings, the library is still the most likely alternative.

⁵¹ Imholz, S. and J.W. Arns, (2007).

Table 36B. Alternative Source of Book by UK Academic Staff Respondent's Original Source

		Alternative Source					
		Not obtain	Colleague	Another library	Purchase copy	Other	Total
Original Source	I bought it for myself	27 7.7%	32 9.1%	128 36.4%	84 23.9%	81 23.0%	352 100.0%
	The library or archives collection	34 14.3%	25 10.5%	92 38.8%	32 13.5%	54 22.8%	237 100.0%
	Interlibrary loan or document delivery service	0 .0%	4 22.2%	8 44.4%	3 16.7%	3 16.7%	18 100.0%
	School or department collection	3 12.5%	2 8.3%	9 37.5%	7 29.2%	3 12.5%	24 100.0%
	A colleague, author or other person provided it to me	8 8.2%	12 12.2%	37 37.8%	22 22.4%	19 19.4%	98 100.0%
	A free, advance, or purchased copy from the publisher	9 7.0%	11 8.6%	34 26.6%	44 34.4%	30 23.4%	128 100.0%
	Other source	5 8.8%	6 10.5%	12 21.1%	15 26.3%	19 33.3%	57 100.0%
	Total	86 9.4%	92 10.1%	320 35.0%	207 22.6%	209 22.9%	914 100.0%

Respondents expect to spend forty-five minutes obtaining the information from another source, with a range of zero to thirty hours.⁵² UK academic staff members expect to pay £12 to obtain the book from another source, with a range of £0 to £100.⁵³ The alternative source would require an estimated additional thirty-one minutes to obtain the book than it took to obtain the book from the original source.

Purpose and Value of Book Reading.

The last set of questions focuses on the principal purpose of the last book reading and the value and importance of the reading. We asked, “*For what principal purpose did you use, or do you plan to use, the information obtained from the book you last read?*” Over half of book readings are

⁵² Mean excludes outliers over 1800, with outliers the mean is 97 minutes.

⁵³ Mean excludes one outlier over 100, with outlier the mean is 13.55 pounds.

for the principal purpose of research and writing (58%, 531 of 921). Approximately a quarter of readings (28%) are for teaching and 5% are for continuing education (Table 37). The “other” responses include for review and more than one principal purpose.

Table 37. Principal Purpose of Book Reading by UK Academic Staff Respondents

	Frequency	Percent
Research & Writing	531	57.6
Teaching	254	27.6
Administration	1	.1
Current awareness/keeping up	23	2.5
Consulting, advising	20	2.2
Internal or external presentations	10	1.1
Continuing education for self	48	5.2
Engagement activities (to wider community)	7	.8
Knowledge transfer or enterprise activities	4	.4
Other	23	2.5
Total	921	100.0

There is no significant correlation between principal purpose of the book reading and the number of book readings in the past month or the total amount of time spent on the last book reading. There is a significant relationship between principal purpose and the source used to become aware of the book reading ($p=.086$). When the book reading is for a presentation, self-education, engagement activities, or “other” purpose, its source is more likely not to be remembered or from an “other” source. Book readings for teaching or research purposes more often come from a remembered source, often through searching or another person. Twenty-six percent of book readings for research and 19% of book readings for teaching are found by searching and 28% of book readings for research and 29% of book readings for teaching came from another person.

There is also a significant relationship between principal purpose of book readings and where the book is obtained ($p=.086$). Readings for research or teaching are more likely to come from the library, while readings for engagement activities, presentations, and enterprise activities

come from another person (colleague or publisher). This suggests that book readings for teaching or research, the tasks that take up a larger percent of work time (See Table 2), are more likely to be explicitly sought, while readings for purposes that take up less work time come from readily available sources that do not require a lot of work to find or obtain.

In relation to the respondent’s principal purpose we asked, “*How important is the information contained in this book to achieving your principal purpose?*” Approximately 91% of the readings (910 of 918) are considered at least somewhat important (Table 38). Eighteen percent of the readings are considered absolutely essential.

Table 38. Importance of Book to UK Academic Staff Respondents’ Principal Purpose

	Frequency	Percent
Absolutely essential	168	18.3
Very Important	287	31.3
Important	274	29.8
Somewhat important	181	19.7
Not at all important	8	.9
Total	918	100.0

There is no significant relationship between the importance of the last book reading and where the book was obtained. Of the books obtained from the library, 16% are considered absolutely essential and only 2 of the 235 books obtained from the library are considered not at all important (.9%). Over half (51.1%) of the purchased books are considered very important or absolutely essential (183 of 358).

We found no significant relationship between the principal purpose of the book reading and the importance of the book reading. Approximately 80% of readings for research and writing are considered important to absolutely essential (Table 39). Twenty-two percent of book readings for teaching are considered absolutely essential.

Table 39. Comparison of Respondent's Principal Purpose to Book Reading Importance

	Not important	Somewhat important	Important	Very important	Absolutely essential	Row Total
Research & Writing	3 0.6%	104 19.7%	162 30.6%	167 31.5%	93 17.6%	529 100.0%
Teaching	2 .8%	45 17.8%	71 28.1%	79 31.2%	56 22.1%	253 100.0%
Administration	0 .0%	0 .0%	1 100.0%	0 .0%	0 .0%	1 100.0%
Current awareness/keeping up	1 4.3%	8 34.8%	7 30.4%	6 26.1%	1 4.3%	23 100.0%
Consulting, advising	0 .0%	7 35.0%	6 30.0%	5 25.0%	2 10.0%	20 100.0%
Internal/external presentations	0 .0%	3 30.0%	3 30.0%	1 10.0%	3 30.0%	10 100.0%
Continuing education for self	0 .0%	10 20.8%	13 27.1%	21 43.8%	4 8.3%	48 100.0%
Engagement activities	1 14.3%	1 14.3%	3 42.9%	2 28.6%	0 .0%	7 100.0%
Knowledge transfer/enterprise activities	0 .0%	0 .0%	0 .0%	1 25.0%	3 75.0%	4 100.0%
Other	1 4.5%	3 13.6%	7 31.8%	5 22.7%	6 27.3%	22 100.0%
Column Total	8 .9%	181 19.7%	273 29.8%	287 31.3%	168 18.3%	917 100.0%

We asked what affect the reading had on the principal purpose, demonstrating the outcome of the book reading. Thirty-nine percent of book readings have two or more positive outcomes (364 of 935). Nearly half of book readings inspired new thinking or improved the result (Table 40). Only two book readings were considered a waste of time. Some of the “other” responses include preparing for a lecture or exam and too early to know the affect.

Table 40. Outcome of Book Reading for UK Academic Staff Respondents*

	Frequency	Percent
Improved the result	446	47.7
Inspired new thinking	418	44.7
Narrowed/broadened/changed the focus	248	26.5
Resolved technical problems	204	21.8
Saved time or resources	136	14.5
Resulted in faster completion	126	13.5
Others	42	4.5
Resulted in collaboration/joint research	29	3.1
Wasted time	2	.2
Total	935	

*Respondents could select more than one outcome.

There is a split across all answer choices when we asked if the book reading has or will be cited (Table 41). Slightly over half of the book readings have already been cited or will be cited (492 of 916). The importance of the book reading has a significant relationship with whether it has been or will be cited ($p=.252$). The more important the book reading is to the principal purpose, the more likely it will be cited.

Table 41. Citation of Last Book Reading by UK Academic Staff Respondents

	Frequency	Percent
No	200	21.8
Maybe	224	24.5
Already cited	255	27.8
Will in the future	237	25.9
Total	916	100.0

Differences of Book Reading Patterns by Demographics

Differences of Reading Patterns by Discipline.

While there are no significant associations between academic discipline and number of book readings, humanists report the most book readings by a large margin ($M=20.50$). Academics in the social sciences report an average of nine book readings per month, while those in the sciences and medical/health disciplines report the fewest readings per month (Table 42).

Table 42. Average Number of Book Readings and Time Spent Per Reading by UK Academic Staff Respondent's Discipline

	N	Number Read	Time Spent Reading(in minutes)
Social Sciences	259	9.02	125.25
Sciences	366	3.04	89.29
Humanities	120	20.50	145.40
Engineering/Technology	178	5.27	97.78
Medical/Health	145	3.70	65.69
Others	20	7.30	80.00
Total	1088	6.95	124.80

We found a slight significant relationship between the discipline of the academic and the time spent per book reading ($F=7.603, p<.0001$). All disciplines report spending over an hour per book reading, but, perhaps surprisingly, the disciplines that report more book readings tend to spend more time per reading (See Table 42). Academics in the medical/health disciplines average sixty-five minutes per book reading; scientists average an hour and a half; social scientists average slightly over two hours, and humanists average two hours and twenty-five minutes.

There is no significant relationship between the respondent's discipline and how the reading is found or obtained or its principal purpose.

Differences of Reading Patterns by Position, Age, Gender, and Productivity.

We found slight differences in the number of book readings across positions (ranks) ($F=9.856, p>.0001$). Lecturers, including senior and honorary, report the most book readings, while research associates report the fewest. Professors and associate professors read on average

eight book readings per month; lecturers read from ten, and research associate/assistant read from approximately four books. There is no significant difference between the time spent reading and the respondent's position; however, honorary lecturers spend the most time per reading ($M=176.67$). All other positions spend approximately two hours on each book reading.

There is a significant difference in the respondent's position and where the reading is found ($p=.159$). Lecturers, honorary lecturer/teaching fellows, and research associate/assistants are more likely to become aware of the book from which they last read through another person. Professors and associate professors often use an "other" source, and they are more likely not to remember how they became aware of the book. There is no statistically significant difference between the respondent's position and where the reading is obtained. Purchasing is the primary means of obtaining the book for all positions, but academics of lower ranks are more likely to use the library. Only 12% of book readings by professors are from the library, while 40% of book readings by research associate/assistants are from the library.

There is no significant difference between principal purpose and position; however, lecturers and honorary lecturers read primarily for teaching (45.2% and 44.4% respectively) and the other positions primarily read for research. These differences are most likely a result of the different work duties.

There is a significant relationship between the respondent's age and the number of book readings ($F=1.216$, $p=.302$) and the amount of time they spend per reading ($F=1.769$, $p=.133$). As the age of the respondent increases, the number of book readings increases but the time spent per reading decreases (Table 43). Respondents under thirty spend two and half hours per book reading and report approximately five book readings a month, and respondents over sixty spend two hours per book reading and report approximately eight book readings a month.

Table 43. Time Spent Per Reading and Number of Book Readings by Age of UK Academic Staff Respondents

Age of Respondent	N	Time Spent Per Reading	Number Read
Under 30	146-188	154.01	5.36
31-40	245-311	130.22	6.83
41-50	228-275	130.19	7.18
51-60	180-216	88.03	7.54
Over 60	64-71	121.56	8.00
Total	863-1061	124.80	6.95

There is a significant relationship between respondent's age and how the book reading is found ($p=.198$). Respondents under 30 are more likely to become aware of books through another person (42.1%, 61 of 145). While there is a wide distribution of methods by respondents over fifty, they are more likely to become aware of the book through an "other" source, including already owning it (32.2%, 79 of 245). Searching accounts for 20% to 30% of the book readings.

Key Finding 13

The library supports the work of younger academics, as they are more likely to obtain books from the library.

There is no significant relationship between age of reader and where the reading is obtained, but younger academics obtain book readings from the library more often than older respondents, who are more likely to purchase the book. Approximately 28% of respondents under 30 and 47% of respondents over 60 purchased the book, and 38% of respondents under 30 and 22% of respondents over 60 obtained the book through the library collection.

Age of respondent significantly influences the principal purpose of the book reading ($p=.120$). The younger the academic the more likely the book reading is for research and writing (Table 44). Thirty-four percent of the book readings by academics in their forties are for teaching, the highest percentage reported by any age group.

Table 44. Principal Purpose of Book Reading by UK Academic Staff Respondent's Age

		Age					Total
		Under 30	31-40	41-50	51-60	Over 60	
Principal Purpose	Research & Writing	109 74.6%	145 59.2%	120 52.2%	90 49.8%	34 53.1%	498 57.5%
	Teaching	19 13.0%	64 26.1%	79 34.3%	61 33.7%	15 23.4%	238 27.5%
	Administration	0 .0%	1 .4%	0 .0%	0 .0%	0 .0%	1 .1%
	Current awareness/keeping up	4 2.7%	8 3.3%	6 2.6%	4 2.2%	0 .0%	22 2.5%
	Consulting, advising others	2 1.4%	4 1.6%	8 3.5%	2 1.1%	4 6.3%	20 2.3%
	Presentations	0 .0%	0 .0%	2 .9%	3 1.7%	3 4.7%	8 .9%
	Continuing education for self	9 6.2%	17 6.9%	7 3.0%	9 5.0%	4 6.3%	46 5.3%
	Engagement activities	0 .0%	2 .8%	1 .4%	2 1.1%	1 1.6%	6 .7%
	Knowledge transfer or enterprise activities	0 .0%	0 .0%	1 .4%	1 .6%	2 3.1%	4 .5%
	Other	3 2.1%	4 1.6%	6 2.6%	9 5.0%	1 1.6%	23 2.7%

Key Finding 14

Academics who have earned an award in the past two years read more books and spend more time per book reading.

Academic staff who received an award within the past two years report more readings from books ($F=4.224, p=.040$) and spend more time per reading ($F=4.367, p=.037$). On average, award-winning staff read from eight books ($M=8.08$), while non-award winning staff read from six books ($M=6.46$).

There is no significant relationship between the number of book readings and the number of publications.

We examined how academics spend work time and how that may influence the number of book readings. When we compared academics who spend a majority of their work time on research and those who spend less than half their work time on research, we found a significant relationship between the amount of book readings ($p = -.262$). Research intensive academics who spend over half their work time on research, read from fewer books or book chapters ($M = 4.12$) than those who spend less than half their work time on research ($M = 8.83$). On the other hand, teaching-intensive academics who spend a majority of their work time on teaching, read more from books or book chapters ($M = 11.41$) than those who spend less than half their work time on teaching ($M = 6.58$) ($p = .284$).

This concludes the section on book reading; the next section discusses other scholarly publications.

Other Scholarly Publication Reading

This section focuses on the other types of publications that may inform academic work but which are not journal article or book readings. We left the definition relatively broad, and the “other publications” encompass a wide range of items, including government documents, trade journals, and conference proceedings. While there is no previous data for comparison, other publication reading data will be collected in the academic year 2011-2012 at several US universities.

Total Amount of Other Publication Reading by UK Academic Staff.

As in the previous sections, we started the section by defining terms and asking respondents to estimate total readings in the past month. We asked, “*In the past month (30 days), approximately how many other publications or parts of publications (non-article or book readings) have you read for your work? Include conference proceedings, government documents, technical reports, magazines, trade journals, etc.*” The UK academic staff averages eleven readings of other publications in the past month (M=11.37, SD=30.09). If outliers over 120 are excluded, the average is ten readings per month or 120 per year, if multiplied by 12 for an approximation of the annual total (M=9.58, SD=16.543).

Type of Other Publication Read and Total Time Reading.

As in the article and book reading sections, we used the “critical incident” technique to focus the questions on the other publication the academic staff most recently read, regardless if it is typical. Since the type of publication could vary, we asked the respondents what type of other publication they most recently read. We did not ask for a title or topic of the publication. Thirty-four percent of the readings are from a government document or technical report (251 of 735), and approximately 31% of the readings are from a magazine or trade journal (Table 45). Sixteen percent of the respondents selected the answer choice “other” for the type of other publication.

Website/blog and newspaper were extracted from the “other” responses and placed in a separate group, but the rest of the “other” responses do not fit into larger categories. They range from manuals, grant proposals, patents, and unspecified publications.

Table 45. Last Type of Other Publication Read by UK Academic Staff Respondent

	Frequency	Percent
Conference proceeding	142	19.3
Government document or other technical report	251	34.1
Magazine/trade journal	226	30.7
Other	(116)	(15.8)
• Website/blog	23	3.1
• Newspaper	5	.7
• Other	88	12.0
Total	735	100.0

Excluding outliers over 500 minutes, the average time spent per reading of other publications is forty-two minutes (M=42.28, SD=56.131).⁵⁴ Over half of the publication readings take less than thirty minutes (Table 46), while 11% of the publication readings take over an hour and a half. Overall, academics spend less time on the last other publication reading than on the last article reading (M=48.59) or last book reading (M=106.11).

Table 46. Total Time Reading Other Publication by UK Academic Staff Respondent

Minutes	Frequency	Percent
1-10	169	26.1
11-30	268	41.4
31-60	129	19.9
61-90	11	1.7
91-120	39	6.0
Over 120	33	5.1
Total	649	100.0

Time to Become Aware of and Obtain Other Publications.

Other publication readings take on average nine minutes to find through browsing or searching (M=9.37, SD=19.44). The time to become aware of the publication ranged from under

⁵⁴ The mean including the outlier is 51.38.

one minute to two hours. We did not ask where or how the respondent became aware of it, but focused on where the publication was obtained.

The survey did not account for the number of other publications obtained through a website or e-mail; therefore, we extracted from the “other” answer responses 194 instances, almost 27% of the total responses, where the publication is obtained from the Internet (Table 47). Because the “other” responses are open-answer, it is not always possible to decipher what type of online source they used, but the responses include government websites, research council websites, and e-mails. Thirty percent of the publications are from the publisher or another person (225 of 730); 15% are purchased, and 14% come from the library

Key Finding 15

Academics are more likely to obtain other publications through a website or a purchase, rather than from the library.

Table 47. How UK Academic Staff Respondents Obtain Other Publications

	Frequency	Percent
I bought it for myself	109	14.9
The library or archives	101	13.8
Interlibrary loan or document delivery service	10	1.4
School or department collection	20	2.7
A colleague, author or other person provided it to me	95	13.0
A free, advanced, or purchased copy from publisher	130	17.8
Other	(265)	(36.3)
• Website/e-mail	194	26.6
• Other	71	9.7
Total	730	100.0

The type of other publication has a significant influence on where the publication is obtained ($p = .109$). Government documents are more often obtained from an online source

(52.6%, 131 of 249), and magazine/trade journals are more likely to be purchased (39.8%, 90 of 226). The library and the Internet are the main sources for conference proceedings (31.2%, 43 of 138 for each).

On average, other publications took six minutes to obtain, including four minutes to obtain, request, receive or download and display ($M=4.01$, $SD=6.856$), a little over a minute to photocopy or print (1.38 , $SD=3.329$), and less than a minute for “other” activities ($M=.33$, $SD=3.344$). Where the publication is obtained significantly influences the time it takes to obtain ($F=5.003$, $p>.0001$). Other publications obtained from interlibrary loan took the most time to obtain ($M=14.50$), while purchased publications took the least amount of time ($M=1.70$). Readings from a colleague, publisher, or school/department collection took four minutes and those obtained from the library took six minutes to obtain.

Alternative Source to Obtain Other Publications.

Based on the *contingent valuation*, value can also be measured based on whether the respondent would obtain the reading from another source.⁵⁵ To help gauge value we asked, “Thinking back to where you obtained the publication, where would you obtain the information if that source were not available?” Approximately 43% of the readings would not be obtained from another source (Table 48). This shows either that the original source is invaluable or the information is not important enough to obtain from another source. Fifty-nine percent of magazine/trade journal readings and 43% of conference proceedings would not be obtained from another source.

There is no significant relationship between the original source and the alternative source. Thirty-four percent of readings originally obtained from the library would not be obtained from

⁵⁵ Imholz, S. and J.W. Arns, (2007).

another source, and 34% would be obtained from another library. Of the 107 publications purchased, fourteen would be obtained from the library if it could not be purchased (13.1%).

Table 48. Alternative Source to Obtain Other Publications by UK Academic Staff Respondents

	Frequency	Percent
I would not bother getting the information	308	42.5
From a colleague	130	18.0
From another library	107	14.8
Purchase own copy	33	4.6
From another source	146	20.2
Total	724	100.0

Excluding outliers over 1500 minutes, academics expect to spend forty minutes obtaining the information from another source,⁵⁶ and they expect to spend around £4.40 to obtain the other publication from another source.⁵⁷ Academics estimate that the alternative source would require thirty-four more minutes than the original source to obtain the publication.

Purpose and Value of Other Publication Reading.

For each type of other scholarly publication we asked for what principal purpose they use or plan to use the information obtained in the reading. This provides a picture of the purpose, value and outcomes from the reading, which usage data cannot provide. Forty-five percent of other publication readings are used for research and writing purposes (Table 49). This is less than the percent of readings for research and writing from articles and books, but it is still the most frequently selected response. Current awareness/keeping up is the second most frequent response (28.3%), followed by teaching with approximately eleven percent. The “other” purposes include peer review and reference.

⁵⁶ Including outliers, the mean is 84 minutes with a standard deviation of 454.67.

⁵⁷ Including 3 outliers over 200, the mean is 20.02 with a standard deviation of 257.97.

Table 49. Principal Purpose of Other Publication Reading by UK Academic Staff Respondents

	Frequency	Percent
Research & Writing	330	45.1
Teaching	78	10.7
Administration	21	2.9
Current awareness/keeping up	207	28.3
Consulting, advising others	18	2.5
Internal or external presentations	8	1.1
Continuing education for self	38	5.2
Engagement activities	9	1.2
Knowledge transfer or enterprise activities	4	.5
Other	18	2.5
Total	731	100.0

There is a significant relationship between the principal purpose and the type of other publication ($p=.225$). Seventy percent of conference proceedings and 17% of magazine/trade journal readings are for research. Government documents are primarily read for research (42.2%) and teaching (16.9%). Magazine/trade journals are more likely to be read for current awareness (56.9%, 128 of 225).

We did not find any significant relationship between the principal purpose and where the other publication is obtained or the average time spent per reading. There is, however, a significant relationship between principal purpose and the number of other publications read in the past month ($F=.925, p=.509$). Respondents who read the last publication for research or teaching tend to read more other publications ($M_{\text{research}}=19.54, M_{\text{teaching}}=23.31$). Respondents average thirteen publications when the last reading is for writing and fifteen publications when the last reading is for current awareness/keeping up.

To ascertain how the reading affects the principal purpose we posed a series of questions starting with, “*How important is the information contained in this publication to achieving your principal purpose?*” Unlike the article and book readings, other publication readings tend to be

considered “somewhat important” and “important” to the principal purpose, rather than “very important” or “absolutely essential” (Table 50). Forty-four percent of the readings are considered “not at all important” or “somewhat important” (326 of 729), and 29% of the readings are considered “very important” or “absolutely essential” (210 of 729).

Table 50. Importance of Other Publication to Respondents’ Principal Purpose

	Frequency	Percent
Not at all important	39	5.3
Somewhat important	287	39.4
Important	193	26.5
Very important	132	18.1
Absolutely essential	78	10.7
Total	729	100.0

There is a difference in importance based on type of other publication. Approximately 12% (26 of 225) of magazine/trade journal readings and 1% (3 of 250) of government documents are considered “not at all important.” Seventy percent of conference proceedings are considered “somewhat important” or “important” (95 of 139). Twenty percent of government documents are considered “absolutely essential” (51 of 250).

Another measure of value is the specific outcomes of the readings on the principal purpose. Thirty-nine percent of the other publication readings inspired new thinking and 34% improved the result (Table 51). Three percent of the publications are considered a waste of time (22 of 749). Some of the other affects of the other publication reading include—provides background knowledge, clarifies an issue, and is a useful reference. Approximately 26% of the readings have more than one affect on the principal purpose (191 of 749).

Table 51. Influence of Other Publication Reading for UK Academic Staff Respondents*

	Frequency	Percent
Inspired new thinking	293	39.1
Improved the result	253	33.8
Narrowed/broadened/changed the focus	162	21.6
Saved time or resources	82	10.9
Resolved technical problems	76	10.1
Others	74	9.9
Resulted in faster completion	53	7.1
Resulted in collaboration/joint research	30	4.0
Wasted time	22	2.9
Total	749	

*Respondents could select more than one.

Just 29% of the other publication readings will be cited or have been cited (210 of 726) (Table 52). The importance of the publication significantly influences whether the reading will be cited ($p=.463$). As the publication's importance to the principal purpose increases, so does the chance it will be cited.

Table 52. Citation of Other Publications by UK Academic Staff Respondents

	Frequency	Percent
No	324	44.6
Maybe	192	26.4
Already cited	99	13.6
Will in the future	111	15.3
Total	726	100.0

Differences of Other Publication Reading Patterns by Demographics

Differences of Reading Patterns by Discipline.

There is no significant association between the respondent's discipline and the type of other publication read, but there are some variations between the disciplines. Respondents in the social sciences and medical/health disciplines are more likely to read government documents/technical reports (47.9% and 47.6% respectively). Sciences and humanities respondents more frequently read articles from magazine/trade journals (43% and 40% respectively), and engineering/technology respondents read from a range of other publications, including conference proceedings (36%), government documents (26.3%), and magazine/trade journals (26.3%).

The respondent's discipline significantly influences the number of other publication readings ($F=1.164, p=.325$) and the time spent per reading ($F=1.777, p=.115$). Scientists and respondents in the engineering/technology disciplines read fewer other publications and spend less time per reading than academics in other disciplines (Table 53). Social scientists read approximately eleven other publications for an average of fifty minutes per reading, for an investment of nine hours and ten minutes total time spent reading other publications per month. Scientists read approximately eight publications for an average of thirty-six minutes per reading, for an investment of four hours and forty-eight minutes total time spent reading other publications per month.

Table 53. Number of Other Publications Read and Time Spent Per Reading by UK Academic Respondent's Discipline

	N	Number Read	Time per Reading (minutes)
Social Sciences	261/170	11.03	49.84
Sciences	366/202	8.23	36.33
Humanities	119/65	9.30	45.85
Engineering/Technology	178/96	8.97	33.05
Medical/Health	145/89	9.87	43.37
Others	20/17	13.30	47.82
Total	1089/639	9.58	42.28

There is not a significant association between academic discipline and where the other publication is obtained or the principal purpose for reading.

Differences of Reading Patterns by Position, Age, Gender, and Productivity.

Type of other publication is equally distributed within the positions (ranks), and no position relies primarily on one type. There is no significant relationship between position and where the respondent obtains the other publication or the principal purpose for reading.

The respondent's position, does however, have a significant association with the number of other publication readings ($F=2.106, p=.050$) and the time spent per reading ($F=.719, p=.634$). Senior lecturers and associate professors read on average the most other publications per month ($M_{\text{seniorlecturer}}=11.49, M_{\text{associate professor}}=11.61$). Research associate/assistants read the fewest ($M=8.26$), followed by lecturers ($M=9.91$) and professors ($M=10.92$). Lecturers and senior lecturers spend the most time per reading ($M_{\text{lecturer}}=46.53, M_{\text{seniorlecturer}}=47.02$), while professors spend the least time per reading ($M=34.85$).

Respondents who received an award in the past two years also report more readings of other publications ($F=2.903, p=.089$). Respondents who received special recognition or awards report reading from eleven other publications and the respondents who did not receive an award read, on average, nine publications per month.

There is a significant relationship between the number of other publication readings and the number of scholarly materials published by the respondent ($p=.165$). Respondents who have published more scholarly material within the past two years read, on average, more other publications of all types. Respondents, who published fewer than two publications, report eight readings from other publications per month, while respondents who published over eleven, report twelve readings from other publications.

Overall Scholarly Reading

In order to present a clear and concise picture of total scholarly reading by UK academic staff and to examine how reading patterns for different material may differ, we will compare the responses for each type of material. Since not every question was asked in each section we will compare only the questions that are in multiple sections.

Total Amount of Reading per Academic Staff Member.

UK academic staff members read from a variety of materials but they tend to read more articles. Respondents read each month from an average of twenty-two articles, seven books, and ten other publications (Table 54).⁵⁸ Academics in the UK average thirty-nine scholarly readings per month or 468 readings per year (if multiplied by 12 to estimate the annual total.) Academics who spend more time per book reading also spend more time per article ($p=.179$) and other publication reading ($p=.218$). There is also a significant relationship between the number of article readings and the number of other publication readings ($p=.158$). If a respondent reads a large amount of material, they do not focus on one material type but read from of all types of material. For example, academic staff members who read more articles than the average also read more books and other publications.

Table 54. Total Number of Scholarly Material Readings by UK Academic Staff Respondents

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Articles	1421	22.32	22.844	.606	21.13	23.51	0	150
Books	1144	6.95	19.589	.284	6.39	7.50	0	60
Other Publications	1101	9.58	16.543	.499	8.60	10.56	0	120

⁵⁸ The mean for article, book, and other publication readings excludes outliers.

There is also a significant relationship between successful academics, defined as those who publish more and earned an award in the past two years, and the amount of article, book, and other publication reading. In each case, successful academics read more. While we cannot draw a cause and effect relationship, this demonstrates that scholarly reading is a valuable part of work activities of successful academics.

Key Finding 16

Successful academics, defined as those who earned an award and published more in the past two years, read more of all types of scholarly material.

UK academic staff members spend on average more time on each book reading than on each article or other publication reading, most likely due to the relative length of the material (See Table 55). When the average time spent per reading is multiplied by the average number of articles, books, and other publications read each month, it can be seen that the average UK academic staff member spends approximately eighteen hours reading articles, twelve hours reading books, and seven hours reading other publications.⁵⁹ Therefore, the estimated annual total commitment to scholarly reading is 448 hours per UK academic, or the equivalent of 56 eight-hour days each year, illustrating the huge time commitment that the average academic staff member invests in scholarly reading each year.

Key Finding 17

Academics invest a significant time commitment in scholarly reading each year, an average of 56 eight-hour work days.

⁵⁹ If outliers are included, equivalent of 23 hours reading articles, 17 hours reading books, and 10 hours reading other publications each month, and 600 hours of scholarly reading per year.

Table 55. Total Time Spent per Reading by UK Academic Staff Respondents

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Articles	1191	48.59	46.655	1.352	45.94	51.24	1	300
Books	932	106.11	121.12	3.987	98.28	113.93	0	720
Other Publications	644	42.28	56.131	2.212	37.93	46.62	0	500

Respondents who spend more time on per book reading spend more time per other publication reading ($p=.355$) and article reading ($p=.330$). This again demonstrates that academic staff members do not focus on just one type of material, but read from a variety of scholarly materials.

Readers from every discipline report more article readings than from other types of scholarly material. There is a significant association between respondent's discipline and the total amount of scholarly materials read ($F=4.409, p=.001$). Humanities respondents report the most readings—on average fifty-eight scholarly readings. Scientists read many articles, but overall report the fewest total readings ($M=38$) (Table 56).

Table 56. Total Scholarly Reading by UK Respondent's Academic Discipline

	Article Readings	Book Readings	Other Publication Readings	Total Readings
Social Sciences	21	9	11	41
Sciences	27	3	8	38
Humanities	28	21	9	58
Engineering/Technology	28	5	9	42
Medical/Health	31	4	10	45

Become Aware and Obtain Scholarly Material.

Academics find more articles through searching, while books are often found through word-of-mouth. Citations are a useful tool for discovering articles and books (22% and 11%,

respectively). Overall, UK academic staff members use a variety of methods to become aware of articles and books (Table 57).

Table 57. How UK Academic Staff Respondents Become Aware of Articles and Books

	Article		Book	
	N	%	N	%
Found while browsing	134	11.2	61	6.5
Found while searching	392	32.9	218	23.4
Found through citation in another publication.	211	17.7	106	11.4
Another person told me about it	205	17.2	262	28.1
Promotional email or web advert	43	3.6	34	3.6
Don't know or don't remember	34	2.9	54	5.8
Other	173	(14.5)	197	(21.1)
Already owned or knew	--	N/A	73	7.8
For review or was a contributor/co-author	--	N/A	38	4.1
Others	173	14.5	86	9.2
Total	1192	100.0	932	100.0

Excluding outliers, respondents spend on average sixteen minutes browsing or searching for articles, eleven minutes for books, and nine minutes for other publications (Table 58). Articles, on average, may require more time to find because there are so many published monthly and large databases include millions of articles. While academics appreciate the ease and accessibility of online access to articles, the sheer amount of information may be requiring more time to become aware of relevant material.⁶⁰ One respondent states, “There is far too much information out there and very little time to screen through and read articles.” Respondents are also more likely to previously own or find out about books through another person, which may decrease the amount of time they spend.

⁶⁰ See ‘Final Comments’ for additional direct quotes.

Table 58. Total Time in Minutes to Become Aware for UK Academic Staff Respondents

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Articles	1149	15.66	24.791	.731	14.22	17.09	0	180
Books	910	11.17	18.969	.629	9.94	12.41	0	180
Other Publication	727	9.37	19.448	.721	7.96	10.79	0	180

Academics use different sources to obtain the different materials; this may be influenced by how they become aware of the material or the availability of the material from each source. Articles are predominately found through the library, while books are often purchased, and other publications are frequently obtained from either a free copy from a publisher or website (Table 59). While respondents are using the library to obtain the article, they are usually interacting with an electronic version (93.5%) and are rarely coming into the physical location (1.7%).

Table 59. Where UK Academic Staff Respondents Obtain Material

	Article %	Book %	Other Publication %
I bought it for myself/Personal Subscription	4.7	39.1	14.9
The library or archives collection	65.2	25.7	13.8
Interlibrary loan or document delivery service	2.1	1.9	1.4
School or department collection	4.5	2.6	2.7
A colleague, author or other person provided it to me	5.6	10.5	13.0
A free, advance, or purchased copy from the publisher	--	14.0	17.8
Web site/Free Web journal	13.4	N/A	26.6
Other source	4.5	6.2	9.7
Total %	100.0	100.0	100.0

Academics spend more time receiving, printing, and other tasks involved in obtaining books than they do for articles or other publications. On average they spend approximately six minutes to obtain an article or a publication, and fourteen minutes to obtain a book. While approximately 5%

of respondents spend over thirty minutes to obtain a book (not including printing, photocopying, or other task), less than one percent spend over thirty minutes to obtain an article or other publication (Table 60).

Table 60. Time to Obtain, Request, and Receive Material by UK Academic Staff Respondents

Minutes	Article	Book	Other Publication
Under 5 minutes	70.8	43.0	65.4
5-15	26.7	40.2	30.2
16-30	2.2	12.3	3.6
Over 30	.3	4.5	.8

One explanation of why books and other publications, on average, take longer to obtain than articles once the reader is aware of the item is because articles are more often accessed through the library’s electronic services, while books and other publications typically are obtained from other sources. The UK academic library e-journal collections are saving the time of the reader in obtaining articles, and as one respondent comments, “without wide electronic access through library subscriptions many aspects of my work would either take substantially longer or be done to a lower standard,” and another respondent says, “subscriptions to electronic journals improves my research and makes it faster and easier for me to perform my job effectively.”

We did not explicitly ask if the book reading was from an electronic source, but from the responses to how they found out about and obtained the book reading, we assume the majority of book readings are done from physical copies. As a result, respondents must spend time getting to the book’s physical location, whether a bookstore, library, or a colleague’s office. This requires more time than downloading an article or other publication from a website or electronic journal while sitting in an office or at home.

Overall, respondents spend more time per reading from books than articles or other publications. Respondents, however, are reading more articles and as a result spend more time on total article readings than book or other publication readings (Table 61). The figures in Table 61 are one measure of the ‘exchange value’ placed on scholarly reading. It shows that the average

academic staff member spends over 300 hours each year on journal article readings, 180 hours on book readings, and around 120 hours on other publication readings, for a total commitment of 76 eight-hour days each year. If scholarly reading is not a valuable and useful aspect of their work, they would not spend as much time using articles, books, and other publications.

Table 61. Total Time (in Minutes) Spent on Scholarly Materials by UK Academic Staff Respondents

	Article	Book	Other Publication
Become Aware	16	11	9
Obtain	6	14	6
Read	49	106	42
Total Time(in minutes) per Material	71	131	57
No. Read per month	22	7	10
Total Time reading per month	26 hours	15 hours	9 hours and 30 minutes
Total Time Reading Per Year	39 eight-hour work days	22 eight-hour work days	15 eight-hour work days

Principal Purpose of Scholarly Reading.

Research and writing is the most frequent purpose for reading for all types of scholarly materials (Table 62). Teaching is the second most frequent purpose for articles and books. Other publications are more frequently read for current awareness/keeping up than are books and articles.

Table 62. Comparison of Principal Purpose of Scholarly Readings by UK Academic Staff Respondents

	Article % (n=1161)	Book % (n=921)	Other % (n=731)
Research & Writing	74.3	57.6	45.2
Teaching	12.0	27.6	10.7
Administration	.2	.1	2.9
Current awareness/keeping up	5.9	2.5	28.3
Consulting, advising	.9	2.2	2.5
Internal or external presentations	1.6	1.1	1.1
Continuing education for self	2.5	5.2	5.2
Engagement activities (to wider community)	.3	.8	1.2
Knowledge transfer or enterprise activities	N/A	.4	.5
Other	2.3	2.5	2.5
Total	100.0	100.0	100.0

Value of Scholarly Reading.

Book readings are more likely to be rated as very important to absolutely essential (49.6%), while other publications have the lowest importance ranking (Table 63). Approximately 45% of other publication readings are somewhat or not at all important. Only a few (approximately 1%) of article and book readings are considered not at all important.

Table 63. Importance of Scholarly Reading for UK Academic Staff Respondents

	Article (n=1160)	Book (n=918)	Other (n=729)
Not at all important	1.1	.9	5.3
Somewhat important	31.4	19.7	39.4
Important	29.5	29.8	26.5
Very important	25.1	31.3	18.1
Absolutely essential	12.9	18.3	10.7

We see a wide range of outcomes from scholarly readings, and less than one percent of article and book readings and 3% of other publication readings are considered a waste of time (Table 64). Inspiring new thinking and improving the result are the two most frequent outcomes.

Table 64. Outcomes of Scholarly Reading for UK Academic Staff Respondents*

	Article% (n=934)	Book% (n=935)	Other% (n=749)
Inspired new thinking	53.7	44.7	39.1
Improved the result	37.8	47.7	33.8
Narrowed/broadened/changed the focus	28.1	26.5	21.6
Saved time or resources	9.6	14.5	10.9
Resolved technical problems	9.9	21.8	10.1
Others	6.8	4.5	9.9
Resulted in faster completion	4.6	13.5	7.1
Resulted in collaboration/joint research	4.4	3.1	4.0
Wasted time	.8	.2	2.9

*Respondents could select more than one.

For each type of scholarly material, the more important the material is to the purpose, the more likely it will be cited. More article and book readings are cited than are other publication readings (Table 65).

Table 65. Citation of Scholarly Materials by UK Academic Staff Respondents

	Article (n=1156)	Book (n=916)	Other (n=726)
No	12.8	21.8	44.6
Maybe	34.5	24.5	26.4
Already cited	16.7	27.8	13.6
Will in the future	36.0	25.9	15.3
Total	100.0	100.0	100.0

Social Media: Participation and Creation

Participation and Creation of Social Media.

The use of social media has increased in the last few years in both the academic and non-academic world. In this study we wanted to see if use of social media has an influence on reading of traditional materials. According to the JISC website, social media or Web 2.0 technologies are, “innovative online tools designed to enhance communication and collaboration.”⁶¹ Wikipedia, itself an example of social media, defines social media as “media for social interaction, using highly accessible and scalable communication techniques” that can also be thought of as “user-generated” or “consumer-generated content.” Social media includes blogs, twitter, online videos, social networks, and other online and electronic tools.

A 2010 study by the Research Information Network found that social media tools (blogs, wikis, file-sharing services) are being used as supplements to the traditional forms of information (monographs, journal articles, etc.).⁶² Academics place value on the traditional publications because they receive recognition and rewards for their work. In the RIN study, only 13% of the respondents used social media tools frequently, and 39% did not use them at all. The study found that academics are supportive of social media because it allows them to freely share ideas and collaborate with a broader scholarly community. While they found a few slight associations between social media use and demographics, for the most part age, discipline, and position are not key factors. They concluded that while social media will continue as a supplement to traditional publications, academics’ lack of trust and quality will keep it from creating a radical change in scholarly communications.⁶³ Our findings support the 2010 RIN findings.

We asked, “*How often do you create each of the following electronic or social media tools for work related purposes?*” and “*how often do you read, view, or participate?*” We specified six social

⁶¹ JISC, “Activities by Topic: Web 2.0.” Last modified 20 September 2010.
<http://www.jisc.ac.uk/whatwedo/topics/web2.aspx>.

⁶² Research Information Network. *If You Build It, Will They Come? How Researchers Perceive and Use Web 2.0.* A RIN Report. July 2010.

⁶³ Ibid.

media tools—blogs, online videos (YouTube), RSS feeds, Twitter feeds, user comments in online articles, podcasts and “other,” and their responses could range from daily, weekly, monthly, occasionally, and never. We did not explicitly specify social networking sites, but have extracted them from the “other” responses.

Academic staff in the UK participates in social media more than they create it; however, their use and creation is more often occasional rather than on a regular basis. One respondent states, “magazines and some social media provide interesting grounds for idea but cannot at any point replace high quality peer reviewed journal articles,” and another staff member believes, “they are great for popularizing highlights of science but should not be allowed to skew investment away from core, peer reviewed publications.” Other staff members confirmed the idea that social media may help spread some ideas and provoke thoughts but are not as valuable as traditional scholarly material.

Nearly half of the respondents read, view, or participate in one or more of the social media tools at least occasionally (Table 66). Blogs, video, and user comments in online articles are the more commonly used. One respondent comments, “I spend approximately thirty minutes a day participating in threaded e-mail lists and this is migrating slowly towards blogs,” and so we may see an increase in the use of social media tools in future studies. Respondents who participate in online videos or podcasts tend to use them occasionally (40.5% and 25.8% respectively).

Table 66. Participation in Social Media by UK Academic Staff Respondents

	Blog	Video	RSS feed	Twitter	User Comments	Podcasts
Daily	63 5.9%	17 1.6%	55 5.2%	36 3.4%	12 1.1%	4 .4%
Weekly	75 7.0%	73 6.8%	39 3.7%	19 1.8%	63 5.9%	23 2.2%
Monthly	58 5.4%	71 6.6%	34 3.2%	10 .9%	74 6.9%	46 4.3%
Occasionally	313 29.3%	433 40.5%	130 12.3%	78 7.4%	361 33.8%	275 25.8%
Never	561 52.4%	476 44.5%	799 75.6%	915 86.5%	558 52.2%	717 67.3%
Total	1070 100.0%	1070 100.0%	1057 100.0%	1058 100.0%	1068 100.0%	1065 100.0%

Approximately a quarter of the respondents do not participate in any social media tool. Over half of the respondents use two or more social media tools at least occasionally (591 of 1028), and only 5% participate in all six social media tools listed (51 of 1028). Approximately 18% of the respondents read, view, or participate in other social media tools (146 of 819); however, most of the “other” tools listed are considered traditional web-based programs, such as Google, emails, and websites. The twenty-eight social media tools listed include seven responses of social network (Facebook or LinkedIn), eight participants in wikis, eleven users of Blackboard, and two responses of Skype.

We found less creation of social media tools for work. One respondent commented, “I do not use a blog, rather I maintain a research website, in which I sometimes add responses from research subjects and other researchers,” which alludes to the idea that social media may eventually become more widespread in academia. Over three-fourths of the respondents never create a social media tool. Less than 2% of the respondents create a social media tool on a daily basis, and only 1% creates a podcast every day (Table 67). User comments in online articles are the most frequently created (258 of 1068).

Table 67. Creation of Social Media Tools by UK Academic Staff Respondents

	Blog	Video	RSS feed	Twitter	User Comments	Podcasts
Daily	16 1.5%	7 .7%	7 .7%	15 1.4%	5 .5%	1 .1%
Weekly	24 2.2%	18 1.7%	11 1.0%	14 1.3%	21 2.0%	8 .7%
Monthly	35 3.2%	15 1.4%	12 1.1%	7 .7%	28 2.6%	8 .7%
Occasionally	119 11.0%	172 16.1%	64 6.0%	45 4.2%	204 19.1%	128 12.0%
Never	884 82.0%	859 80.2%	979 91.2%	986 92.4%	810 75.8%	925 86.4%
Total	1078 100.0%	1071 100.0%	1073 100.0%	1067 100.0%	1068 100.0%	1070 100.0%

Over half of the respondents do not create any of the social media tools listed (55.8%, 575 of 1031). Twenty-one percent create one social media tool (217 of 1031), and less than one percent of respondents create all six social media tools listed at least occasionally (9). Twenty percent of respondents created “other” social media tools (179 of 884), 3% of which are created daily (26). However, many of the “other” tools listed are considered traditional web-based programs and not social media tools, such as electronic journal articles, email, and websites. Forty-three of the responses listed social media tools. These include twelve responses of Facebook or LinkedIn, seven responses of wiki, twenty responses of Blackboard, and four responses of Skype.

There is a significant correlation between participation in a social media tool and the creation of the same tool ($p=.449$). UK academic staff respondents who participate in blog, video, RSS feed, Twitter, podcast, or user comment are more likely to also create the tool.

Participation in Social Media and Scholarly Reading.

There is a significant association between the number of article, book, and other publication readings and the participation in most of the social media tools. Respondents who read more articles participate in more social media tools ($F=.684$, $p=.663$) and create more tools ($F=2.297$,

$p=.033$). Respondents who participate and create more social media tools also read more books ($F_{participation}=.751, p_{creation}=.609, F_{use}=.875, p_{creation}=.513$).

The use of Twitter, user comments, and podcasts influence the reading of all scholarly material, while the viewing of blogs and online videos influences the number of book and other publication readings, but not article reading.⁶⁴ There is no association between the use of RSS feeds and scholarly reading. Respondents who participate in blogs, online videos, and podcasts tend to read more books and publications. Twitter users tend to read more of all scholarly materials. Participants in user comments in online articles read more articles ($M_{non-user}=25.86, M_{user}=27.04$) and more other publications ($M_{non-user}=10.00, M_{user}=13.05$), most likely because many of those readings can be found online; however, they read fewer books ($M_{non-user}=8.19, M_{user}=7.82$).

Participation in Social Media and Demographics.

For our analysis we define participation and use of social media as using the tool occasionally to daily. While there are some differences between disciplines and participation in social media, the use of blogs is the only tool that has a significant relationship ($p=.085$). Humanists and medical/health staff are more frequent users of blogs. Fifty-eight percent of humanities respondents and 35% of medical/health respondents use blogs at least occasionally (Table 68). The disciplines that are often categorized as liberal arts, such as social science, humanities, and the “other” category (due to our breakdown of disciplines) tend to participate in more social media tools. The medical/health discipline respondents, however, are the most frequent participants in user comments in articles (55.2%).

⁶⁴ Blogs: (book) $F=2.027, p=.089$, (other) $F=1.049, p=.381$; Video: (book) $F=4.604, p=.001$, (other) $F=2.405, p=.048$; Twitter: (article) $F=1.453, p=.214$, (book) $F=.924, p=.449$, (other) $F=2.242, p=.063$; User Comments: (article) $F=2.262, p=.061$, (book) $F=.911, p=.457$, (other) $F=1.797, p=.127$; Podcast: (article) $F=3.216, p=.012$, (book) $F=2.283, p=.059$, (other) $F=.817, p=.514$.

Table 68. Percentage of UK Respondents Who Read, View, or Participate in Social Media by Discipline

	Blog	Online Video	RSS Feeds	Twitter	User Comments	Podcasts
Social Sciences	101 57.4%	103 58.9%	48 28.2%	30 17.3%	80 46.0%	69 40.4%
Sciences	143 41.7%	178 51.9%	85 24.8%	44 3.1%	160 46.9%	102 29.7%
Humanities	81 58.3%	90 64.7%	28 20.4%	20 14.4%	64 46.0%	49 35.5%
Engineering/ Technology	78 45.3%	91 52.6%	38 22.4%	19 11.2%	74 42.8%	38 22.0%
Medical/Health	40 34.8%	49 42.6%	20 17.4%	8 7.0%	64 55.2%	39 33.9%
Others	66 52.8%	83 66.4%	39 32.0%	22 17.7%	68 54.4%	51 40.8%
Total	509 47.6%	594 55.5%	258 24.4%	143 13.5%	510 47.8%	348 32.7%

The age of the UK academic staff respondent is associated with their participation in blogs ($p=-.091$), RSS feeds ($p= -.129$), and Twitter ($p= -.112$). There is no significant correlation between the respondent's age and the use of online videos, user comments, and podcasts. The younger the respondent the more frequently they use blogs, RSS feeds, and Twitter. Approximately 18% of respondents under 30 participate in Twitter, while only 4% of respondents over sixty participate (Table 69).

Table 69. Percentage of UK Respondents Who Read, View, or Participate in Social Media by Age

	Blog	Online Video	RSS Feeds	Twitter	User Comments	Podcasts
Under 30	96 52.2%	99 53.8%	59 32.4%	32 17.7%	88 47.8%	56 30.4%
31-40	163 53.3%	171 55.9%	89 29.2%	53 17.4%	151 49.3%	90 29.5%
41-50	119 44.7%	158 59.4%	54 20.5%	36 13.7%	125 47.0%	94 35.3%
51-60	87 41.0%	120 56.3%	35 16.9%	16 7.6%	99 46.9%	80 38.1%
Over 60	30 42.3%	30 42.9%	11 15.7%	3 4.3%	33 46.5%	18 25.7%
Total	495 47.6%	578 55.6%	248 24.1%	140 13.6%	496 47.8%	338 32.7%

Respondents who spend a higher percent of their work time teaching participate, read, and view more social media tools ($p=.063$). Nearly half (46%) of teaching-intensive academics participate in three or more social tools, and over two-thirds (67%) use online videos ($p= .152$). There are no significant associations between the other social media tools and the percent of work time spent teaching. We did not find any significant associations between the use of social media and the respondent's position, gender, or the number of awards earned.

Creation of Social Media and Scholarly Reading.

The creation of blogs, Twitter, and user comments has a significant association with the number of scholarly article, book, and other publication readings.⁶⁵ The respondents who create the social media listed above read more scholarly material. Blog creators read slightly more articles, two more books, and five more other publications per month than non-creators. Creators of user comments in online articles read six more articles, two more books, and two more other publications per month than non-creators. Respondents who “tweet” average thirty articles, ten books, and eighteen other publications readings per month, while those who do not create “tweets” read four fewer articles, two fewer books, and eight fewer other publications.

Key Finding 18

Academics are getting information from many sources, and those who participate or create social media also read more articles and books. Academics who are engaged with information are engaged with all types of information.

⁶⁵ Blogs: (article) $F=2.129$, $p=.075$, (book) $F=1.441$, $p=.218$, (other) $F=1.176$, $p=.320$; Twitter: (article) $F=3.533$, $p=.007$, (book) $F=2.443$, $p=.045$, (other) $F=2.452$, $p=.044$; User Comments: (article) $F=8.073$, $p<.0001$, (book) $F=8.515$, $p<.0001$, (other) $F=1.656$, $p=.158$.

Creation of Social Media and Demographics.

There are no significant relationships between a respondent's discipline and creation of social media. In all disciplines, nearly 20% of respondents use online videos (Table 70). Over a quarter (26%) of social scientists and humanists create blogs. Medical/health respondents create the most user comments in online articles (31.1%).

Table 70. Percentage of UK Respondents Who Create Social Media by Discipline

	Blog	Online Video	RSS Feeds	Twitter	User Comments	Podcasts
Social Sciences	47 26.1%	36 20.6%	16 9.0%	16 9.0%	45 25.4%	33 18.4%
Sciences	45 13.0%	57 16.5%	25 7.2%	18 5.2%	70 20.5%	33 9.6%
Humanities	37 26.8%	27 20.0%	13 9.5%	14 10.5%	39 28.5%	22 16.2%
Engineering/ Technology	26 15.1%	36 20.9%	21 12.4%	14 8.3%	39 22.9%	11 6.4%
Medical/Health	9 7.6%	25 20.8%	7 5.9%	5 4.2%	37 31.1%	20 16.9%
Others	30 24.0%	31 25.0%	12 9.7%	14 11.2%	28 22.8%	26 21.3%
Total	194 18.0%	212 19.8%	94 8.8%	81 7.6%	258 24.2%	145 13.6%

We found significant correlations between age and creation of the same social media tools that also have significant associations with use. The respondent's age influences the creation of blogs ($p = -.078$), RSS feeds ($p = -.111$), and Twitter ($p = -.108$). Younger respondents tend to create tools more frequently (Table 71). Ten percent of respondents under 30 create Twitter, while no respondents over 60 create it.

Table 71. Percentage of UK Respondents Who Create Social Media by Age of Respondents

	Blog	Online Video	RSS Feeds	Twitter	User Comments	Podcasts
Under 30	38 20.4%	28 15.1%	19 10.4%	19 10.3%	41 22.4%	20 10.8%
31-40	65 21.1%	63 20.4%	39 12.6%	33 10.7%	84 27.4%	33 10.7%
41-50	52 19.1%	57 21.2%	20 7.4%	16 5.9%	66 24.6%	50 18.5%
51-60	21 10.0%	46 22.0%	8 3.8%	11 5.3%	39 18.6%	28 13.5%
Over 60	12 17.4%	9 13.2%	2 2.9%	0 .0%	18 26.1%	8 11.8%
Total	188 18.0%	203 19.5%	88 8.5%	79 7.6%	248 23.9%	139 13.4%

Respondents who spend a majority of their work time teaching do not create more social media tools, except for online video. While 27% of teaching-intensive respondents create online videos at least occasionally, 19% of the other respondents do the same ($p = .090$). In all other cases, respondents who spend less time teaching create more social media, though there is no significant association. We did not find any significant associations between the creation of social media and the respondent's position, gender, or number of awards.

Open Ended Questions

As part of the survey we asked the UK academic staff to describe what role scholarly articles play in their research, teaching, and other scholarly activities. Overall, the comments show a reliance and dependence on access and use of scholarly materials. In many cases, the respondents refer to scholarly articles as “critical,” “essential,” and “central” to their work. They also refer to the article’s currency and accessibility, especially electronically, in allowing them to stay up-to-date in their field. The only complaint we came across multiple times is a desire for better electronic journal access provided by the institutions although it is not clear whether this is primarily to do with off-campus authentication problems or a lack of institutional subscriptions to the required journals. Many respondents also cite books as playing an important role in their work, especially for teaching. We received 821 comments, and all of the comments considered the articles to be an important part of their work. The comments can be categorized into four groups: importance of articles, role of library, use of electronic resources, and the value and use of books. The following comments are examples of the numerous comments corresponding to each category.

Importance of Scholarly Articles

- *A central one for both teaching and research...inseparable in any true university despite the current climate.*
- *A crucial one—they inform my understanding about what’s going on in the field and related fields.*
- *A great deal—they are the foundation.*
- *A large role, indispensable.*
- *A moderately important source of external information, but most of my research is for government or industry bodies, so highly applied, and technical reports are equally important.*
- *A very substantial role. Good access to past and newer journal articles is critical for my work.*
- *A vital role. They are key to finding synopses of recent research, locating expertise, exploring new areas, consolidating existing knowledge and substantiating arguments.*
- *An essential role. Without these it would be impossible to carry out either research or teaching. For me online access to scholarly articles is crucial.*

- *An indispensable role in research for a book I am writing.*
- *Articles are essential to developing my research ideas and writing. I also use articles in my classes—to provide recent information to students and encourage them to read.*
- *Absolutely essential for disseminating my research and keeping up to date with development in the field. Essential for teaching.*
- *Absolutely vital in all scholarly activities, including: the generation of new ideas, education about methods, provision of data and interpretations and provision of illustration of ideas used in teaching. Also, what journal articles I read (and contribute) help me locate myself within particular fields of scholarship.*
- *Central to all aspects as the most current form of accessible knowledge.*
- *Crucial for keeping up with advances in understanding, crucial for sparking ideas and all around enjoyable to be able to read what others are doing.*
- *Data is obtained from primary sources but articles provide overviews, analyses, and identifying sources.*
- *Development of a deeper understanding of my main teaching subject; keep abreast of emerging issues in the field, identify new areas for inclusion in my teaching. For my research, principally definition of subject boundaries and identification of “thought leaders” in the field.*
- *Essential for good quality research and progress in knowledge.*
- *Hugely important! It is the primary means by which I ‘communicate’ with other scientist and consequently develop new ideas.*
- *I could not do without them. And not finding them right away (i.e. not being able to follow up a reference immediately) is heavily disruptive on my work.*
- *Important role in supporting points of view, conclusion, and evidence.*
- *Important role in research, I encourage the undergraduate students I teach to search for journal articles.*
- *Indispensable to research, writing and publishing, and teaching.*
- *Not sure how anyone can perform a research function in life sciences WITHOUT using scholarly articles!*
- *Is this a serious question? They are absolutely 100% essential to everything I do.*
- *Mainly for technical reference and guidance in planning research and writing up engineering research papers. Occasionally to inform my teaching.*

Role of Library:

- *Absolutely central. While many are available from the arxiv or author's websites, library subscriptions (especially electronic ones) remain of utmost importance.*
- *Scholarly articles are the life blood of all we do. The library services of providing access to journal articles and books through electronic media and inter-library loans are invaluable to my research...I could not do my research without the speedy and wide-ranging access to material provided through electronic resources from [name of institution] Library.*
- *Central...rapid and straightforward access to ALL relevant papers is essential...so a wide range of subscriptions is vital.*
- *Essential...the library is great for its archive of older material...putting those together with search facilities such as Embase and Science Direct opens up a library wherever I am.*
- *Huge role—feel that the limited access to chemistry journals at my institution holds back research.*
- *The majority of the journal articles are obtained via interlibrary loans because [name of institution] invariably DOES NOT HAVE subscriptions to relevant journals.*
- *I could not do my research without the speedy and wideranging access to material provided through the electronic resources from [name of institution] library.*
- *The online access provided via the university's library subscriptions to a wide range of journals across many disciplines is vital to me meeting my expected workload as a research associate.*
- *They are a vital part of all the above. Access to these at [name of institution] when compared to where I previously worked has both improved the quality of my work and reduced the amount of time and money I spend on obtaining relevant information.*

Use of Electronic Resources:

- *Scholarly articles are the primary literature source informing my research and writing. The online access provided via the university's library subscriptions to a wide range of journals across many disciplines is vital...*
- *Indispensable. Could not do research without it. It is unbelievably frustrating when an electronic version of an article I am looking for cannot be found.*
- *They are one of the main sources of information supporting my research (beside personal communications, technical reports, and occasionally conferences and books). They are very important and easy electronic access to many journals improves and accelerates my work immensely.*

- *Vital to all aspects of work. Quick and easy access to scholarly articles, preferably online without need for passwords, is very helpful to my work.*
- *They're vital because otherwise what is the point of collective research endeavour. I increasingly write and read from open access journals because the subscription model is ridiculous. The prices for journal access outside of institutional environments are ridiculous and only serve to close off access to knowledge, and make that same knowledge increasingly irrelevant.*
- *Access to these articles are essential, but limited access is a real issue and significantly delays progress as alternative sources are explored. Buying articles online is prohibitive and unfeasible as the required range of reading is extensive and therefore expensive, and paying for publications is not costed in grants/budgets. Significant work is also done after work hours from home, and not having access to these articles from home computer is frustrating and restricting.*
- *Essential. E-journals have transformed my ability to access and refer to a huge range of articles linked to my role...as someone who travels around the country with my job, it's the wide range of e-journals that are amazing.*
- *Good access to electronic journal articles is very important in creating high quality science.*
- *These articles are the main source of information for me. If I want to know something I prefer downloading articles from electronic journals. If I want to research something outside my normal field of expertise I go to books and specialist reports.*

Value and Use of Books:

- *Along with monographs they are a primary source of information. Also they are the most up to date way to follow debates.*
- *Central in all, but so are books and book chapters.*
- *I would say that I depend equally (50/50) in terms of reading time and importance, on papers in peer reviewed journals and on scholarly books.*
- *Not the first port of call-this tends to be scholarly monographs and edited collections, as well as the internet and literary texts-but they are a significant factor.*
- *Particularly important in Philosophy—often more so than books.*
- *Scholarly articles are central to my research. Advanced text books are central to my teaching.*
- *Journals and books are indispensable in my research. Books are quite important to my teaching; journals less so.*

- *Constantly refer to academic books and papers as part of research and teaching; Statistical Editor and reviewer for academic journal.*
- *Critical. The only academic currency is peer reviewed journal publications in archive journals...book chapters are a nice service to the community but aren't rewarded.*
- *In my discipline both journal articles and books (monographs and edited volumes) play an important role in both teaching (which is often enquiry-based) and research.*
- *Somewhat important in research...books probably slightly more important in my discipline though. I find I almost always find and read scholarly articles online nowadays (though institutional subscription).*

We ended the survey by asking for final comments. Many of the comments encourage the growth and continued development and access to electronic resources, citing it as the key to future success. The following comments are a select few of the 248 comments we received.

Final Comments:

- *A well stocked library (including e-materials) is absolutely essential to all aspects of scholarly activity. I can think of no other feasible alternative.*
- *Access to e-papers has truly revolutionized both my teaching and my research. If only I had had access to this wealth of information when I was a student myself!*
- *Accessibility of scholarly journals and other library resources is crucial to the standing and effectiveness of a university and is a key discriminator between world-class universities and less prestigious institutions.*
- *Blogs, tweets, Facebook, etc. are not useful vehicles for serious delivery of science to researchers. They are great for popularizing highlights of science but should not be allowed to skew investment away from core, peer reviewed 'hard science' publications.*
- *Electronic access to journals is the biggest contribution to my work. Increased access to journals across a range of disciplines would be the biggest future gain.*
- *I hope access to as many journals as possible can be maintained.*
- *I rely on literature and would like to see my institution increase its holdings for my discipline. My subject area is actually poorly covered and I end up buying many articles myself.*
- *I would strongly recommend a move to e-books for academic publishing. This would make rare and specialist books much more available.*

- *UK electronic journal access, at least at [name of institution], is appalling. I frequently cannot access journal articles I need...I found that I had better access to the Royal Society of London publications as a student at the University of California than I do now as staff in the United Kingdom.*
- *Online sources are amazingly convenient, but we need to preserve the physical artifacts as well.*
- *Library resources (free to user) have been essential to my work for the past 20 years.*
- *Never visit the library these days. I do all my searching on-line. Time to divert library resources.*
- *Very important that universities continue to fund online access to journals.*

Role of Library Collections

How someone obtains scholarly reading material can be re-categorized into three basic categories: library-provided, personal subscription/purchase, and other. Most scholarly article readings are obtained from the library (67%), a finding that is consistent with previous studies.⁶⁶ Since 1977 we have found an increasing reliance on library-provided articles and a decrease in personal journal subscriptions in the United States.⁶⁷ In the UK less than five percent of article readings come from personal subscriptions, similar to the 2005 US findings (Table 72). Unlike article readings, a majority of book readings are obtained through personal (39.1%), and only 28% are obtained through a library. Other publications are more likely to be obtained from another source, including other online sources (27%) or another person (31%).

Table 72. Source of Reading by UK Academic Staff Respondents

	Article		Book		Other Publication	
	N	%	N	%	N	%
Library-provided	800	67.3	257	27.6	111	15.2
Personal source	56	4.7	364	39.1	109	14.9
Others	333	28.0	310	33.3	510	69.9
Total	1189	100.0	931	100.0	730	100.0

A 2011 study by the Research Information Network found a relationship between the institution’s library and its research performance.⁶⁸ The RIN study conclude that easy access to high-quality content is a key foundation for good research, and when the library works in partnership with researchers it enables better library services and creates top researchers. We found a similar association between the library’s resources and its support of research ($\chi^2 = 35.976$, $p = 0.007$).⁶⁹ Approximately three-quarters (76%) of the articles obtained through the library are principally for research and writing (Table 73). Just over half (57%) of article readings from a

⁶⁶ King, D.W., Carol Tenopir, Carol H. Montgomery, and Sarah E. Aerni. “Patterns of Journal Use by Faculty at Three Diverse Universities,” (2003).

⁶⁷ Ibid.

⁶⁸ Research Information Network. *The Value of Libraries for Research and Researchers*. March 2011.

⁶⁹ 43.3% of cells have expected count less than 5. The likelihood ratio was used.

personal subscription are for research and writing (29 of 54). Seventy-two percent of article readings obtained from other sources are read for research and writing. Approximately 73% of book readings and 68% of other publication readings obtained from the library are primarily for research and writing.

Key Finding 19

The majority of library-provided materials support research and writing.

Table 73. Association between Principal Purpose of UK Academic Staff and Source of Article

		Personal Subscription	Library Provided	Others	Row Total
Principal Purpose	Research & Writing	31 57.4%	600 76.4%	230 71.9%	861 74.2%
	Teaching	7 13.0%	99 12.6%	33 10.3%	139 12.0%
	Current awareness	8 14.8%	39 5.0%	22 6.9%	69 5.9%
	Others	8 14.8%	48 6.1%	35 10.9%	91 7.8%
	Column Total	54 100.0%	786 100.0%	320 100.0%	1160 100.0%

Article readings from personal subscriptions are more likely to be of recent publications ($\chi^2=42.672, p < 0.0001$).⁷⁰ Eighty-three percent of articles obtained through a personal subscription are published in the past year (2010-2011). Over half of the library-provided and other source articles are eighteen months old or older (55.4% and 53.3% respectively). No articles obtained through personal subscription are over ten years old (Table 74). Regardless of the age of the publication, library-provided article readings are primarily from an electronic subscription, demonstrating the value of backfiles and digitization efforts. Eighty-six percent of the library-provided articles published are fifteen years old or older (pre-1996) are obtained from an

⁷⁰ 6.7% of cells have expected count less than 5. The Likelihood ratio is used.

electronic library subscription (76 of 88), and 95% of the library-provided articles in their first year of publication are from an electronic library subscription (315 of 331).

Table 74. Association between Source of Article and Year of Publication by UK Academic Staff

	Personal Subscription	Library Provided	Others	Row Total
Before 1996	0 .0%	95 12.5%	32 10.0%	127 11.2%
1996-2000	0 .0%	53 7.0%	18 5.6%	71 6.3%
2001-2005	3 5.6%	109 14.4%	42 13.2%	154 13.6%
2007-2009	6 11.1%	163 21.5%	78 24.5%	247 21.8%
2010-2011	45 83.3%	338 44.6%	149 46.7%	532 47.0%
Column Total	54 100.0%	758 100.0%	319 100.0%	1131 100.0%

Key Finding 20

Of the 448 hours per year spent on scholarly reading, the average academic staff member spends 187 hours reading library-provided material, confirming the value of the library's collections.

One way to represent the value of the library for scholarly work and research is to formulate how many hours per year each academic staff member dedicates to library-provided reading. Based on past methodology that creates a formula to measure academic staff output based on library input,⁷¹ we measured the library's value by the time spent using library reading material, assuming that scholarly readings are important for quality research, teaching, and other work activities. By using a simple formula of time spent reading each material multiplied by the number of each material read per month multiplied by 12 to calculate an annual total we can illustrate the

⁷¹ Luther, Judy. "University Investment in the Library: What's the Return? A Case Study at the University of Illinois at Urbana-Champaign." Elsevier Library Connect White Paper (2008). <http://libraryconnect.elsevier.com/whitepapers/0108/lcwp010801.html>.

total amount of reading by each academic staff member.⁷² We then multiple the total amount by the percent obtained from the library to determine the number of hours per year each staff member devotes to library-based work (Table 75). UK academic staff members spend the most time on library-provided article readings, approximately 144 hours each year. They spend approximately forty hours on library-provided book readings and thirteen hours on library-provided other publication readings. Annually, academic staff members spend 187 hours of their work time with library-provided material, or the equivalent of 23 eight-hour days.

Table 75. Value of Library Resources

	Time per reading	Number read per month	Multiplied by 12 months	Percent from library	TOTAL
Article	49	22	12	.67	144 hours
Book	106	7	12	.27	40 hours
Other Publication	42	10	12	.15	13 hours

Academic staff members come into contact with multiple sources of information every day from scholarly articles, books, other publications, and even non-traditional information sources, such as social media. As a result, time has become an increasingly important deciding factor for where to obtain desired material. In order for the library to maintain its function as a central source of information at the university it must strive to keep its collections as accessible and convenient as possible. The library may be providing more core content than people are aware of because often it is not possible to distinguish library-provided resources from free ones. There may be a perception that more content is “free on the web” than is actually the case. Especially as the library’s role in providing access to content becomes less visible, it is more difficult for users, funders, and librarians to judge the library’s value using traditional criteria.

⁷² Excludes outliers.

Academic staff members spend a large portion of their work time on scholarly reading. They value the outcomes this reading has on their research and teaching. The amount of time they spend on reading from the library's collections is evidence of the importance of library-provided scholarly materials to academic work. The value academic reading has on the work of the university is apparent, and the university library, especially for article readings, is essential to the quality of the academic enterprise.

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Section 1: Scholarly Article Reading (Print and Online)

1. In the past month (30 days), approximately how many scholarly articles have you read? (Articles can include those found in journal issues, Web sites, or separate copies such as preprints, reprints, and other electronic or paper copies. Reading is defined as going beyond the table of contents, title, and abstract to the body of the article)

The following questions in this section refer to the SCHOLARLY ARTICLE YOU READ MOST RECENTLY, even if you had read the article previously. Note that this last reading may not be typical, but will help us establish the range of reading patterns across a range of academic staff, disciplines, and institutions.

2. What is the title of the journal from which this last article was read or, if not from a journal, what is the topic of the article?

Title: _____

OR

Topic: _____

3. What year was this article published/posted?

4. How thoroughly did you read this article?

- I read all of it with great care
- I read parts of it with great care
- I read it with attention to the main points
- I read only specific sections (i.e. figures, conclusion)
- I skimmed it just to get the idea

5. About how much total time (in minutes) did you spend reading this last article in the past month (30 days)?

6. Had you previously read this article, i.e., is this a re-reading?

- Yes
- No

7. Prior to your first reading of this article, did you know the information reported or discussed in this article?

- Yes, all of it
- Yes, some of it
- No (GO TO Question 9)

8. If not through the article, how did you first find out about the information?
- Conference or workshop
 - Informal discussion with colleagues
 - Listserv or news group
 - Journal article
 - E-mail from colleague
 - Preprint/e-print service (e.g. arXiv.org)
 - Web site of author
 - An Institutional Repository
 - Other : _____
9. How did you or someone on your behalf become aware of this last article you read?
- Found while browsing (without a specific objective in mind) (GO TO Question 9a)
 - Found while searching (i.e. by subject or author's name) (GO TO Question 9b)
 - Found through a citation to it in another publication
 - Another person (e.g. a colleague) told me about it
 - Promotional email or web advert
 - Do not know/ don't remember
 - Other (Please specify) : _____
- 9a. Found while browsing:
- Personal subscription
 - Library institutional subscription
 - Department/School subscription (i.e. not managed by Library)
 - Web site
 - Online Search Engine (i.e. Google, Google Scholar, etc.)
 - Don't know/Don't remember
 - Other (please specify) : _____
- 9b. Found while searching:
- Web search engine (e.g. Google, Google Scholar)
 - Electronic indexing/abstracting service (e.g. Web of Knowledge, Scopus Lexis Nexis, British Humanities Index (BHI), etc.)
 - Print index or abstract
 - Online journal collection (e.g. JSTOR, Science Direct, Wiley Online, etc.)
 - Current awareness service (e.g. Zetoc Alerts, ticTOCs, Current Contents (ISI), etc.)
 - Preprint/e-print service (e.g. arXiv.org, PubMed Central, etc.)
 - Online institutional repository search (e.g. OpenDOAR.org)
 - Don't know/Don't remember
 - Other (please specify) : _____
- 9c. Did you find the article through a print or electronic medium?
- Print

- Electronic

10. As a result of searching or browsing for this article, how many other articles have you read or plan to read?

11. Approximately how much time (in minutes) did you or someone on your behalf spend browsing or searching for this article?

12. After you became aware of this article, from where did you obtain it? (Choose only the one best answer)

- Personal subscription
- Library subscription
- Department/school (i.e. not managed by Library) subscription
- Subject or institutional repository (e.g. arXiv.org)
- Free Web journal (e.g. open access or partial open access journal)
- Copy of the article from a colleague, author, etc.
- Interlibrary loan or document delivery service (GO TO Question 12a)
- An author's Web site
- Other Web site (please specify) : _____
- Other source (please specify) : _____

12a. Did you obtain your article from a print or electronic medium?

- Print
- Electronic

13. After you identified this article, about how much time (in minutes) did you and/or someone else on your behalf spend in each of the following activities? (If no time was spent, please enter "0"):

- Obtain, request, receive, or download and display article _____
- Photocopy or print the article _____
- Other (please specify): _____

14. From this same source (e.g. journal, author's Web site, preprint archive), approximately how many articles did you read in the last twelve months (1 year)? (If the answer is zero, please enter "0" instead of leaving a blank)

15. Thinking back to the source of the article (e.g. library collection, department collection, interlibrary loan, etc.), where would you obtain the information if that source were not available?

- I would not bother getting the information (GO TO Question 16)
- I would obtain the information from a colleague

- I would obtain the information by using/visiting another library (e.g. via SCONUL access scheme or equivalent)
- I would obtain the information by purchasing my own copy
- I would obtain the information from another source (please specify): _____

15a. I would expect to spend how long (in minutes) obtaining the same information from this new source (If the answer is zero, please enter "0" instead of leaving a blank): _____

15b. I would expect to spend how many pounds obtaining the same information from this new source (If the answer is zero, please enter "0" instead of leaving a blank): _____

16. In what format was this article when you read it?

- Print article in a print journal
- Photocopy or Fax copy
- Online computer screen
- Previously downloaded/saved and read on computer screen
- On a mobile, e-reader or tablet screen
- Downloaded and printed on paper
- Other (please specify) : _____

17. Where did you store a copy (electronic or print) of this article? (Select all that apply)

- Did not store the article
- Bookmarked it (e.g. in Web browser or online book-marking software)
- Saved in a file on my computer
- Stored in an online folder (e.g. on a networked drive or own/shared filestore)
- Stored on an external storage device (e.g. USB drive (memory stick), CD, etc.)
- Stored on paper in a filing cabinet or other paper storage
- Other (please specify) : _____

18. Where were you the last time you read this article?

- Office or lab
- Library
- Home
- Travelling
- Elsewhere (please specify) : _____

19. For what principal purpose did you use, or do you plan to use, the information obtained from the article you last read? (Choose only the one best answer)

- Research
- Teaching
- Administration
- Current awareness/keeping up
- Writing proposals, reports, articles, etc. (e.g. funding/grant proposals)
- Consulting, advising others

- Internal or external presentations (e.g. lecture or conference paper)
- Continuing education for self
- Engagement activities (extending teaching and/or research into the wider community)
- Knowledge transfer or enterprise activities in partnership with commercial organisations
- Other (please specify) : _____

20. How important is the information contained in this article to achieving your principal purpose?

- Not at all important
- Somewhat important
- Important
- Very important
- Absolutely essential

21. In what ways did the reading of the article affect the principal purpose? (Choose all that apply):

- It improved the result
- It narrowed/broadened/changed the focus
- It inspired new thinking/ideas
- It resulted in collaboration/joint research
- It wasted my time
- It resulted in faster completion
- It resolved technical problems
- It saved time or other resources
- Other (please specify) : _____

22. Did you cite this article or do you plan to cite it in another publication (e.g. article, report, book, published proceeding)?

- No
- Maybe
- Already cited
- Will in the future

Section 2: Book Reading (Print and Online)

23. In the past month (30 days) approximately from how many books or parts of books did you read for work? Include reading from a portion of the book such as skimming or reading a chapter. Include classroom text, scholarly, or review books read in print or electronic format. (If none, please enter "0" instead of leaving blank).

The following questions in this section refer to the **BOOK FROM WHICH YOU READ MOST RECENTLY**. Note that this last reading may not be typical, but will help us establish the range of reading patterns across a range of academic staff, disciplines, and institutions.

24. What is the approximate title or topic of the book from which you last read?

Title: _____

OR

Topic: _____

25. On how many occasions did you read from this book in the past month (30 days)?

26. About how much total time (in minutes) did you spend reading this book in the past month (30 days)?

27. How did you or someone on your behalf become aware of this last book from which you read?

- Found while browsing (without a specific objective in mind)
- Found while searching (i.e. by subject or author's name)
- Found through citation in another publication.
- Another person (e.g. a colleague) told me about it
- Promotional email or web advert
- Don't know or don't remember
- Other (please specify) : _____

28. Approximately how much time (in minutes) did you or someone on your behalf spend browsing or searching for this publication?

29. After you became aware of this book, from where did you obtain it?

- I bought it for myself
- The library or archives collection (including main or branch)
- Interlibrary loan or document delivery service (e.g. British Library Interlending and Document Supply Service, etc.) (Go To Question 29a)
- School or department collection (i.e. not managed by library)
- A colleague, author or other person provided it to me
- A free, advance, or purchased copy from the publisher
- Other source (please specify) : _____

29a. Did you select a print or electronic Interlibrary loan or document delivery service?

- Print
- Electronic

30. After you identified this book, about how much time (in minutes) did you and/or someone else on your behalf spend in each of the following activities? (If no time was spent, please enter "0")

- Obtain, request, receive, or download and display book _____
- Photocopy or print the book or sections of the book _____
- Other (please specify): _____

31. Thinking back to where you obtained the book (e.g. library collection, department collection, interlibrary loan, etc.), where would you obtain the information if that source were not available?

- I would not bother getting the information (Go To Question 32)
- I would obtain the information from a colleague
- I would obtain the information by using/visiting another library (e.g. via SCONUL access scheme or equivalent)
- I would obtain the information by purchasing my own copy
- I would obtain the information from another source (please specify): _____

31a. I would expect to spend how long (in minutes) obtaining the same information from this new source (If the answer is zero, please enter "0" instead of leaving a blank): _____

31b. I would expect to spend how many pounds obtaining the same information from this new source (If the answer is zero, please enter "0" instead of leaving a blank): _____

32. For what principal purpose did you use, or do you plan to use, the information obtained from the book you last read? (Choose only the one best answer)

- Research
- Teaching
- Administration
- Current awareness/keeping up
- Writing proposals, reports, articles, etc. (e.g. funding/grant proposals)
- Consulting, advising others
- Internal or external presentations (e.g. lecture or conference paper)
- Continuing education for self
- Engagement activities (extending teaching and/or research into the wider community)
- Knowledge transfer or enterprise activities in partnership with commercial organisations
- Other (please specify) : _____

33. How important is the information contained in this book to achieving your principal purpose?

- Not at all important
- Somewhat important
- Important
- Very Important
- Absolutely essential

34. In what ways did the reading of the book affect the principal purpose? (Choose all that apply):

- It improved the result
- It narrowed/broadened/changed the focus

- It inspired new thinking/ideas
- It resulted in collaboration/joint research
- It wasted my time
- It resulted in faster completion
- It resolved technical problems
- It saved time or other resources
- Other (please specify) : _____

35. Did you cite this book or plan to cite it in another publication (e.g. article, report, book, published proceeding)?

- No
- Maybe
- Already cited
- Will in the future

Section 3: Reading of Other Publications (Print and Online)

36. In the past month (30 days), approximately how many other publications or parts of publications (non-article or book readings) have you read for your work? Include conference proceedings, government documents, technical reports, magazines, trade journals, etc. (If none, please enter "0" instead of leaving blank).

The following questions in this section refer to the PUBLICATION YOU MOST RECENTLY READ. Note that this last reading may not be typical, but will help us establish the range of reading patterns across a range of academic staff, disciplines, and institutions.

37. What type of publication did you most recently read?

- Conference proceeding
- Government document or other technical report
- Magazine/trade journal
- Other (please specify) : _____

38. About how much time (in minutes) did you spend reading this last publication in the past month (30 days)? _____

39. Approximately how much time (in minutes) did you or someone on your behalf spend browsing or searching for this publication? _____

40. After you became aware of the publication, from where did you obtain it? (Choose only the one best answer)

- I bought it for myself
- The library or archives collection (including main or branch)

- Interlibrary loan or document delivery service (e.g. British Library Interlending and Document Supply Service, etc.) (Go To Question 40a)
- School or department collection
- A colleague, author or other person provided it to me
- A free, advanced, or purchased copy from publisher
- Other (please specify) : _____

40a. Did you select a print or electronic Interlibrary loan or document delivery service?

- Print
- Electronic

41. After you identified this publication, about how much time (in minutes) did you and/or someone else on your behalf spend in each of the following activities? (If no time was spent, please enter "0")

- Obtain, request, receive, or download and display publication _____
- Photocopy or print the publication _____
- Other (please specify): _____

42. Thinking back to where you obtained the publication (i.e. library collection, department collection, interlibrary loan, etc.), where would you obtain the information if that source were not available?

- I would not bother getting the information (Go To Question 43)
- I would obtain the information from a colleague
- I would obtain the information by using/visiting another library (e.g. via SCONUL access scheme or equivalent)
- I would obtain the information by purchasing my own copy
- I would obtain the information from another source (please specify): _____

42a. I would expect to spend how long (in minutes) obtaining the same information from this new source (If the answer is zero, please enter "0" instead of leaving a blank):

42b. I would expect to spend how many pounds in order to obtain the same information from this new source (If the answer is zero, please enter "0" instead of leaving a blank):

43. For what principal purpose did you use, or do you plan to use, the information obtained from the publication you last read? (Choose only the one best answer)

- Research
- Teaching
- Administration
- Current awareness/keeping up
- Writing proposals, reports, articles, etc. (e.g. funding/grant proposals)

- Consulting, advising others
- Internal or external presentations (e.g. lecture or conference paper)
- Continuing education for self
- Engagement activities (extending teaching and/or research into the wider community)
- Knowledge transfer or enterprise activities in partnership with commercial organisations
- Other (please specify) : _____

44. How important is the information contained in this publication to achieving your principal purpose?

- Not at all important
- Somewhat important
- Important
- Very important
- Absolutely essential

45. In what ways did the reading of the publication affect the principal purpose? (Choose all that apply):

- It improved the result
- It narrowed/broadened/changed the focus
- It inspired new thinking/ideas
- It resulted in collaboration/joint research
- It wasted my time
- It resulted in faster completion
- It resolved technical problems
- It saved time or other resources
- Other (please specify) : _____

46. Did you cite this publication or plan to cite it in another publication (e.g. article, report, book, published proceeding)?

- No
- Maybe
- Already cited
- Will in the future

Section 4: Demographics

47. Please select your institution:

- Cranfield University
- Durham University
- Imperial College London
- University of Dundee
- University of East Anglia
- University of Manchester

- Other (please specify): _____

48. Which of the following best describes your academic discipline?

- Life sciences
- Physical sciences
- Medical science
- Computer science
- Mathematics
- Engineering
- Social sciences
- Business
- Psychology
- Education
- Humanities
- Fine Arts
- Law
- Other (please specify) : _____

49. What is your position?

- Professor
- Associate Professor / Reader
- Senior Lecturer
- Lecturer
- Honorary Lecturer / Teaching Fellow
- Research Associate / Assistant / Officer / Associate Tutor
- Other (please specify) : _____

50. What is your age? _____

51. Are you:

- Male
- Female

52. What was the last information source you used that substantively informed your research work?

- Journal article
- Conference proceeding
- Web site
- Magazine article
- Book or book chapter
- Personal contact
- Other (please specify) : _____

53. How often do you create each of the following electronic or social media tools for work related purposes (teaching, research, etc.):

	Daily	Weekly	Monthly	Occasionally	Never	No Answer
Blogs	0	0	0	0	0	0
Videos/Youtube	0	0	0	0	0	0
RSS feeds	0	0	0	0	0	0
Twitter feeds (tweets)	0	0	0	0	0	0
User comments in article	0	0	0	0	0	0
Podcasts	0	0	0	0	0	0
Other	0	0	0	0	0	0

53a: Please specify the other social media tools you create: _____

54. How often do you read, view, or participate in each of the following electronic or social media tools for work related purposes (teaching, research, etc.):

	Daily	Weekly	Monthly	Occasionally	Never	No Answer
Blogs	0	0	0	0	0	0
Videos/Youtube	0	0	0	0	0	0
RSS Feeds	0	0	0	0	0	0
Twitter feeds (tweets)	0	0	0	0	0	0
User comments in article	0	0	0	0	0	0
Podcasts	0	0	0	0	0	0
Other	0	0	0	0	0	0

54a. Please specify the other social media tools you read, view or participate:

55. What percentage of your work time do you spend doing the following? (The total should equal 100%. If the answer is zero, please enter "0" instead of leaving a blank.)

- % Teaching

- % Research and writing

- % Administration (for department, School or institution) _____
- % Service (to wider community beyond
the immediate institution), e.g. engagement activities _____
- % Knowledge transfer or enterprise activities,
e.g. partnership activities with commercial organisations _____
- % Consulting/advising _____
- % Other (please specify): _____

56. In the past two years, approximately how many of the following have you published? (If the answer is zero, please enter "0" instead of leaving a blank.)

- Articles in refereed scholarly journals (Go To Question 56a) _____
- Non-refereed articles _____
- Scholarly books _____
- Articles in published conference proceedings _____
- Chapters in scholarly books, etc. _____

56a. For the last refereed scholarly article that you published, how many co-authors did you have, if any? (If the answer is zero, please enter "0" instead of leaving a blank)

56b. How was the effort funded? Select all that apply.

- Government research grant
- Funding Council grant (e.g. HEFCE)
- Research Council grant (e.g. Research Councils UK, Scottish Funding Council, etc.)
- University-provided (Internal) grant
- Foundation or Charity grant
- Industry grant/contract
- Not specifically funded
- Other (please specify) : _____

57. In the past two years, have you received any awards or special recognition for your research or other profession-related contributions?

- Yes (Go To Question 57a)
- No

57a. Briefly describe your awards.

58. How many personal subscriptions to professional journals do you receive, including those obtained as a member of a professional society? (Personal subscriptions are those that are personally addressed to you at your home, office, or lab.) If the answer is zero, please enter “0” instead of leaving a blank.

- Print-only subscriptions

- Electronic-only subscriptions

- Subscriptions that include both print and electronic versions

59. What role do scholarly articles play in your research, teaching, or other scholarly activities? Please comment.

60. Final Comments.
