

Scholarly Reading by Graduate Students in the United States: Summary Results of a Study Conducted in 2012 in Four Universities



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Executive Summary

The Lib-Value project measures the value, outcomes, and return on investment of academic library collections and services. This report measures the value of the library collections by examining the scholarly reading patterns of graduate students in the United States and comparing their use of the library with other sources for scholarly materials.

Starting in February 2012 through October 2012, graduate students at four universities in the United States were invited to participate in a survey of their scholarly reading behavior. We received 1239 responses from a total graduate student population of 25,367 for a response rate of 4.9%. Any conclusions must be made cautiously due to this low response rate. The survey asked questions about reading of articles, books, and other scholarly materials from all sources (library-provided, other sources, and social media), and focused on use value (outcomes of reading) and exchange value (time spent obtaining and reading).

Important findings include:

- Fifty-eight percent of article readings by United States graduate students are obtained from a library subscription or school/department collection and 95% of those obtained through the library or school/department are from electronic collections.
- While graduate students prefer electronic resources to obtain information, print is still a popular means for reading. Just over half (55%) of article readings are read on-screen, while nearly as many (44%) are read on print-on-paper. Only 12% of book readings are from ebooks.
- Graduate students purchase books (47%) more often than they obtain them through the library (25%).
- The majority of article and book readings by graduate students are required readings (21% articles and 35% books respectively), for their thesis or dissertation (26% articles and books) or to help complete assignments (23% articles and 13% books).
- Required readings (50%), readings for thesis/dissertation (46%), and personal interest (44%) are more likely to be read in print format, while 72%

of the readings to support teaching, 62% for writing, and 59% to keep up are read in electronic format. However, most of these are read on a desktop or laptop rather than an e-reader or other mobile device. Only 7% of article readings for writing, 5% for required readings, and 4% for personal interest are read on a mobile screen.

- Graduate students participate in social media more than they create it and their use and creation is more often occasional rather than on a regular basis.
- Social media provides value in inspiring new ideas, although social media has not replaced traditional articles and books for graduate students.
- Graduate students who participate or create content for social media tools are reading more articles and books.
- United States graduate students, on average, spend approximately 202 hours per year of their twelve month work time with library-provided material, or the equivalent of 25 eight-hour days annually.

Introduction

The project in context: previous studies and methodology

Graduate students now have many choices of where and how to access scholarly articles, books, or other materials. Time, cost, and electronic availability are all factors in their decision of which materials to select, and by providing the highest-quality material in a convenient manner, libraries can ensure they are receiving the best material to improve their research, coursework, and teaching. In order to determine the best method to provide graduate students with scholarly material, we need to determine: Why do graduate students read scholarly materials such as journal articles, books, and other materials? Do reading patterns vary according to purpose of reading, source of reading, or individual characteristics of readers such as academic discipline, status, or age? What is the role and value of the college and university library in providing access to scholarly content in this changing digital landscape?

The Value, Outcome, and Return on Investment of Academic Libraries project (Lib-Value) is a three-year study funded by the Institute of Museum and Library Services (IMLS). Part of the project seeks to measure the value of the library's provision of access to scholarly materials by examining scholarly reading patterns and comparing use patterns of the library-provided resources with the use of scholarly materials accessed from other sources. Faculty members, graduate students, and undergraduate students were studied at several universities. The University of Illinois, Seton Hall University, University of Colorado (Boulder), and two universities in Australia – University of South Wales and the University of Queensland-- participated in the graduate student surveys. This report combines the results from the survey of graduate students from all US universities.

The Lib-Value project is led by a research team at the University of Tennessee, the University of Illinois at Urbana-Champaign (UIUC), Syracuse University, and the Association of Research Libraries (ARL).

Previous Studies

Since 1977, Tenopir and King have conducted reading surveys of scientists and faculty in the university and non-university setting (King et al. 1981; Belefant-Miller and King 2001). In 2005, Tenopir and King conducted a reading survey of graduate and undergraduate students in the United States and expanded it to Australia, Finland, and Japan (Tenopir et al. 2010). The early studies focused on scholarly article readings and the use of e-journals, while this study expands the scope to include scholarly book readings and social media. The surveys found that faculty and graduate students are reading more articles per year and that the majority of these articles are from e-journals (Wolverton and Tenopir 2006). Furthermore, with the exception of science faculty, graduate students working on their theses or dissertations read more articles per year than any other group. The results from U.S. and Australia in 2012 tend to confirm these earlier findings, with a continued increase in reading from e-resources.

Other multi-university studies focus on how faculty uses electronic journals, online resources, and libraries (Healy et al. 2002). Further studies show that access and convenience, especially electronic access, are important to academic faculty (Maughan 1999). Other studies show the impact subject discipline has on reading patterns (Talja and Maula 2003), and different disciplines have varying traditions of the importance of journals compared to other types of information (Fry and Talja 2004). In addition, faculty

members in the sciences prefer and read more electronic journal articles than in humanities or social science disciplines (Brown 2003). A 2011 study by the Research Information Network (RIN) found a link between the library and the institution's research performance. These studies provide a basis for our findings with graduate students.

Many recent studies have reported on the future of e-books in academia. A 2009 CIBER report found that nearly two-thirds of teaching staff and students in the United Kingdom have used an e-book to support their work or study or for leisure purposes, and more than half of users said the last e-book they used was provided by their university library. A study at the Health Sciences Library System at Pittsburgh University discovered that over half of the surveyed faculty, graduate students, and undergraduate students used library-provided e-books for their job duties, and it concluded that respondents are willing to use alternative formats (Folb et al. 2011). Another study at the University of Illinois in 2008 shows that faculty, graduate students, and undergraduate students value the convenience and time saving capabilities this format offers them, as well as the ability to search full-text content of e-books, but there are still disadvantages with its format on the screen (Shelburne 2009). Many other studies have reported similar findings, showing that e-books are becoming a valuable library resource (Chrzastowski 2011; Tenopir et al. 2012).

A report by CIBER on the use of social media in the research environment found that social media have found applications in the research process, and the most popular tools are those for collaborative authoring, conferencing, and scheduling meetings (Rowlands et al. 2011). The report did not find age to be a good predictor on social media use, but

humanists and social scientists used more social media. It concludes social media do not replace traditional material.

Methodology

Earlier surveys examined just the reading of scholarly articles, but for this survey, we expanded it to examine the reading of scholarly books or book chapters and the use and creation of social media. The survey maintained a consistent core of questions and maintained similar questions in each section in order to compare the survey results over time. The questions are based on two principal sections—reader-related and reading-related. Reader-related questions focus on the demographics of the respondent; the questions include age, gender, and major.

The reading-related questions mostly use the *critical incident technique* first developed by Flanagan (1954). The critical incident technique has since been applied to many contexts, including libraries and readings (Radford 2006; Andrews 1991). The survey used the last scholarly reading as the *critical incident* of reading (Griffiths and King 1991). By asking about a specific most recent reading, respondents should have a better memory of that reading, rather than having to reflect back on multiple readings over a longer period of time. While the last reading may not be representative of a typical reading, 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 February 2012 through October 2012, an email message was sent by librarians to approximately 25,367 graduate students at four universities in the United

States (Table 1). The message included an embedded link to a survey housed on the University of Tennessee’s server. We received 1239 responses to the first question for a response rate of 4.9%.¹

Table 1. Response Rates of Participating US Institutions

Institution	Responses	Total Graduate Students	Response Rate
Seton Hall University	144	3300	4.4%
University of Colorado	121	5127	2.4%
University of Illinois, Urbana-Champaign	632	10,673	13.2%
University of Tennessee, Knoxville	342	6267	5.5%

The low response rate makes it difficult to generalize across the population, and while our results are not weighted, weighting the results may help improve the generalizability of the responses. 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. All respondents for a particular question equal 100% for that question. The survey was comprised of four sections: Journal Article Reading, Book Reading, Social Media Participation, and Demographic Information.

¹ Assumes all invitations were sent to valid and active email addresses.

Demographics of Respondents

Academic Major

We asked the graduate students to list their major; for analysis we collapsed the majors into six categories (Table 2). Psychology, business, law, and education were combined with social sciences, while fine arts were combined with the humanities. Engineering, computer science, and mathematics were collapsed into a single category. The remaining “other” disciplines are disciplines that did not clearly fit into one of the larger categories (e.g., non-degree seeking, international relations/studies, “organic chemistry and intellectual property”).

Table 2. Academic Majors of US Graduate Student Respondents

	Frequency	Percent
Sciences	174	19.5
Medical Sciences	69	7.7
Engineering & Technology	177	19.8
Social Sciences	332	37.2
Humanities	97	10.9
Other	43	4.8
Total	892	100.0

Academic Status, Age, and Gender

Forty-three percent of the respondents are pursuing their Master’s degree, while just over half (52%) are doctoral students (Table 3). “Other” degrees include veterinary medical, PhD/MD, post master’s certificate, JD/MBA, JD/PhD, and MFA.

Table 3. Academic Status of US Graduate Student Respondents

	Frequency	Percent
Master's student	388	42.8
Doctoral student	471	51.9
JD student	16	1.8
MD student	2	0.2
Other	30	3.3
Total	907	100.0

Forty percent of the respondents are between twenty-five to thirty years of age (Table 4). The average (mean) age of the respondents is thirty years. The respondents' ages range from twenty to seventy-seven years old.

Table 4. Age Range of US Graduate Student Respondents

	Frequency	Percent
18 ~ 24	234	26.3
25 ~ 30	382	43.0
31 ~ 45	202	22.7
Over 45	71	8.0
Total	889	100.0

Females are over-represented among our respondents. According to the National Center for Education Statistics in 2009, 60% of Master's degrees and 52% of doctoral degrees were awarded to females (U.S. Department of Education 2011). In our study, nearly two-thirds of the respondents are female (63%, 570 of 902).

There are some differences based on discipline. According to the National Science Foundation, females account for 43.6% of engineering and science graduate students. In our study, females make up the majority of respondents in each discipline, although the engineering/technology/math fields are nearly equal. Fifty-two percent (91 of 176) of respondents in the engineering/technology/math fields are female (Table 5).

Table 5. Gender of US Graduate Student Respondents

	Male	Female	Row Total
Sciences	86 49.4%	88 50.6%	174 100.0%
Medical Sciences	11 16.2%	57 83.8%	68 100.0%
Engineering/ Technology/ Math	85 48.3%	91 51.7%	176 100.0%
Social Sciences	105 31.6%	227 68.4%	332 100.0%
Humanities	29 29.9%	68 70.1%	97 100.0%
Other	12 27.9%	31 72.1%	43 100.0%
Column Total	328 36.9%	562 63.1%	890 100.0%

Eighty-three percent of the respondents are full-time students (Table 6). We expect full-time students to be more frequent users of scholarly materials because they take more courses than part-time students. The majority of respondents in each discipline are full-time. One-quarter of the Master's students (98 of 387) and 11% of doctoral students (51 of 469) are part-time.

Table 6. Status of US Graduate Student Respondents

	Frequency	Percent
Full-time	750	83.1
Part-time	153	16.9
Total	903	100.0

Scholarly Journal Article Reading

Total Amount of Article Reading

An initial step in exploring journal article reading patterns is determining the average number of article readings per student. To improve the accuracy of their response and minimize the inherent bias of self-reporting, we ask for a relatively short period of time (one month) rather than asking the respondents to reflect back over a longer period of time and we define the key terms very specifically. We assume the last month is an accurate representation of a typical month of reading. The first question stated, “*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 less important than 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 (or 10 for a more conservative estimate).

As expected, there is a wide-range of responses, with students reporting from zero to 300 readings in the past month. The graduate students read an average of twenty-nine articles ($M=28.55$, $SD=32.535$) in the month.² Two percent of the respondents reported no article readings in the past month; zero readings are included in the average. Extrapolated to an entire 12 month year, the average graduate student in the United States reads 348 articles or 290 articles in a ten-month year. Just over one-quarter (26%) of the respondents report over thirty readings in the past month (Table 7).

² Excludes outliers over 300. Including outlier the mean is 29.72.

Table 7. Number of Article Readings per month by US Graduate Students

Readings Per Month	Frequency	Percent
0	26	2.1
1~ 15	511	41.5
16 ~ 30	370	30.1
31 ~ 60	227	18.4
Over 60	97	7.9
Total	1231	100.0

Thirty-eight percent of respondents report that less than a quarter of their article readings are for a class (Table 8). Thirty-seven percent of students also report that more than 75% of their readings are for class. This contrasts with undergraduate readings, 59% of which are for class.

Table 8. Percent of Monthly Article Readings for Class by US Graduate Students

Percent for class	Frequency	Percent
0-25%	450	37.8
26% ~ 50%	147	12.4
51% ~ 75%	144	12.1
Over 75%	449	37.7
Total	1190	100.0

Last Incident of Reading and Date of Publication

The next set of questions asked graduate students to focus on the last scholarly article they read. This variation of the critical incident technique assumes the last article reading is random in time and allows a detailed look at a random sample of all readings by graduate students. We asked, “*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.*” We then asked 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 critical incident questions.

The next question asked for the publication or posting date of the last article reading. Twenty-one percent of the readings are from within the first ten months of publication (Table 9). The year of publication ranges from 1815 to 2012, with 11% of the articles fifteen years old or older.

Table 9. Age of Article Reading by US Graduate Students

Year	Frequency	Percentage
Over 15 years (Before 1997)	106	11.1
11 ~ 15 years (1997-2001)	65	6.8
6 ~ 10 years (2002-2006)	161	16.8
2 ~ 5 years (2007-2010)	277	28.9
One year (2011)	147	15.3
Less than 1 year (2012)	202	21.1
Total	958	100.0

Graduate students and undergraduate students report more readings that are at least a year old than do faculty members. Thirty-one percent of the readings by undergraduate students in the United States are in their first year of publication (155 of 498), and 12% are over fifteen years old. Faculty members, on the other hand, report more readings in the first year of publication. Thirty-nine percent of the article readings by US faculty members are in their first year of publication (247 of 628), and only 10% are over fifteen years old (61).

Novelty of Information in the Reading

Since this is a random sample of article *readings*, rather than unique *articles*, the article may have been previously read by the respondent prior to this reading. Eighteen percent of the article readings by graduate students are re-readings. We also wanted to find out the reader's knowledge of the content covered in this article before this current reading (i.e., was the information familiar to them before the reading). Together, these questions indicate how often articles are used as sources of new information. Only about a third (34%) of the respondents say they knew parts of the information in the article prior to this reading (337 of 989).

We asked those who knew about all or part of the information in the article reading where they originally became aware of the information. Journal articles are the main source of information also found in articles, followed by word-of-mouth (e.g., informal discussions, listservs, or e-mails) (Table 10). The "other" responses include through a class or professor, clinical practice, and personal or previous research.

Table 10. Source of Information Not Obtained Through Last Article Reading by US Graduate Students

	Frequency	Percent
Conference or workshop	11	3.4
Informal discussion with colleagues	79	24.2
Listserv or news group	6	1.8
Journal article	99	30.4
E-mail from colleague	15	4.6
Website of author	8	2.5
Institutional repository	16	4.9
Other	92	28.2
Total	326	100.0

Thoroughness of Last Article Reading and Time Spent Reading

Economist Fritz Machlup described two types of value in the information context: *purchase or exchange value* and *use value* (1979). Time spent represents an *exchange value*, assuming graduate students spend a large portion of their work time on reading because they consider it valuable. In order 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. Eighty-six percent of the readings are read with great care and attention to all or parts of the article. Only 6% of the readings are skimmed (Table 11). Eighty-six percent of re-readings and 86% of first-time readings are read with great care and attention to all or parts of the article. Just 10% of re-readings and 7% of first time readings are readings only of specific sections or figures. Only 5% of re-readings and 7% of first time readings are skimmed.

Table 11. Thoroughness of Last Article Reading by US Graduate Students

	Frequency	Percent
I read all of it with great care	304	30.6
I read parts of it with great care	344	34.6
I read it with attention to the main points	210	21.1
I read only specific sections	73	7.3
I skimmed it just to get the idea	64	6.4
Total	995	100.0

Another aspect of the thoroughness of the article reading is the amount of time spent per reading. The average time spent per article reading by graduate students in the United States is forty-one minutes ($M=40.48$, $SD=45.259$),³ with a range of two minutes to eight hours. Twelve percent of readings are over an hour (Table 12).

Table 12. Average Time Spent Per Article Reading by US Graduate Students

Minutes	Frequency	Percent
1-10	133	14.0
11-30	478	50.3
31-60	227	23.9
61-90	39	4.1
91-120	43	4.5
Over 120	31	3.3
Total	951	100.0

Graduate students in the United States spend the most time, on average, on each article reading than undergraduate students or faculty members. The average time spent per article reading by undergraduate students was twenty-eight minutes while faculty members spend thirty-three minutes.

To get a full picture of the exchange value of scholarly article readings, we multiplied the average number of monthly article readings ($M=28.55$) by the average time

³ Excludes outliers over 500. Including the outliers, the mean is 42.07.

spent per reading (M=40.48 minutes). Graduate students spend, on average, nineteen hours per month dedicated to scholarly article reading. Assuming the month of the survey represents a typical month of reading and multiplying the total by twelve to estimate an annual total, the average graduate student in the United States spends 231 hours per year, or the equivalent of 29 eight-hour work days, reading scholarly articles. Or, using the conservative estimate of ten months, the average US graduate student spends 190 hours per ten-month year, or the equivalent of 24 eight-hour work days.

Source of Article

An important part of our analysis of graduate student reading patterns is determining how they become aware of articles they read. In the survey, we asked, “*How did you or someone on your behalf become aware of this last article you read?*” There are many means of becoming aware of articles, and their answers reflect their myriad options, including searching, browsing, or other means (Table 13). We followed up the question by asking what source they searched or browsed, indicating whether it 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 those who may not remember how they became aware of the article.

Only one-quarter (27%) of the readings are found through searching, and only 6% are found through browsing. Two-thirds (68%) of the readings are found through one of the other listed methods, including a citation, an instructor, or course outline/reading list. One-quarter of the readings are found through a method not included in our answer

selection. These include: a reading group or journal, newsletter or e-mail notification, RSS feed, an advisor, a collaborator or colleague, and unspecified. This reflects a change in reading discovery habits since our last surveys in 2005/2006.

Table 13. How US Graduate Students Initially Become Aware of Articles

	Frequency	Percent
Browsing	112	11.4 (100.0)
1. Personal subscription	(10)	(8.9)
2. Library subscription	(29)	(25.9)
3. School, department subscription	(25)	(22.3)
4. Website	(36)	(32.1)
5. Other	(12)	(10.7)
Searching⁴	293	29.8 (100.0)
1. Web search engine	(91)	(31.4)
2. Electronic indexing/abstracting service	(132)	(45.5)
3. Print index or abstract	(5)	(1.7)
4. Online journal collection	(37)	(12.8)
5. Preprint or e-print service	(3)	(1.0)
6. Other	(22)	(7.6)
Other	(579)	(58.8)
1. Cited in another publication	113	11.5
2. An instructor told me about it	145	14.7
3. It was in the course outline/reading list	175	17.8
4. Don't know/Do not remember	20	2.0
5. Other	126	12.8
Total	984	100.0

Of the readings found through browsing, 26% are from the library subscription and 22% are found through a school or department subscription. The other sources of browsing include Google Scholar, PubMed, and an open source science journal. Nearly all

⁴ Not every respondent who selected “searching” responded to the corresponding question asking them to elaborate on searching. Therefore, although 293 respondents chose searching, only 290 gave further information on their searches.

readings found through searching are from an electronic source, including 31% from a web search engine, 46% from an electronic indexing and abstracting service, and 13% from an online journal collection. The other sources of searching include websites, JSTOR, MLA Bibliography, SciFinder, Westlaw, Web of Science, PubMed, and a library portal. Overall, electronic sources are the primary means of becoming aware of the last article reading. The library plays a major role in helping respondents become aware of articles, through a variety of electronic aids, including the online journal collection, indexes, and electronic library subscription.

Influence of Source of Article

Electronic methods of becoming aware of articles provide graduate students with access to more articles beyond their current article needs. Many searching or browsing queries identify multiple articles; to find how that influences total reading 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 or plan to read, on average, eight articles in addition to the last article reading ($M=7.88$, $SD=12.813$).⁵ Only 11% of respondents do not plan on reading any additional articles (97 of 874).

Respondents are more likely to read additional articles when they became aware of the last article through searching or browsing ($F=4.639$, $p<.0001$). Respondents who searched for the last article reading plan to read eleven more articles, while those who browsed plan on reading an additional eight articles ($M_{\text{search}}=11.06$, $M_{\text{browsing}}=7.54$).

⁵ Excludes outliers over 100. Including outliers the mean is 10.91.

Respondents who became aware of the last article reading through a citation plan to read seven more articles (M=7.43), seven through a course outline/reading list (M=6.55), and six through a course instructor (M=5.47).

Respondents spend an average of twenty-six minutes browsing for the last article reading (M=26.25, SD=21.155).⁶ Browsing for a journal article takes approximately two to ninety minutes.

Obtaining the Article

Once graduate students become aware of an article, they still need to obtain it. Over a third (35%) of the last article readings were reported to be obtained from a library subscription (Table 14). Many respondents praised the importance of library sources, including one who says, “I could not complete research in a timely fashion without the resources obtained through the library on campus.” Of the articles obtained from the library, almost all (95%) are from the electronic collections (325 of 341). Twenty-three percent of the readings are reported to be obtained from a school or department subscription and 10% are obtained from a free web journal. We believe that many of these readings may also be from the library subscriptions, because it is not always easy to differentiate what is provided by the library and what is a separate departmental offering or something free on the web. For instance, in the “other” category, many respondents listed JSTOR, “online via the library,” library databases, and Google Scholar. Students may not fully realize the important role the library has in delivering these e-articles to them. We did not ask respondents to specify “other websites.” Including all sources, 70% of the

⁶ Excludes outliers over 90. Including the outlier, the mean is 33.51.

article readings are obtained from an electronic source (675 of 962). One respondent says e-journals play, “I am a distance education student, I couldn’t take classes or prepare any assignments without e-resources.”

Table 14. How US Graduate Students Obtain Articles

	Frequency	Percent
Personal subscription	33	3.4 (100.0)
• Print	(20)	(60.6)
• Electronic	(13)	(39.4)
Library subscription	341	35.6 (100.0)
• Print	(16)	(4.7)
• Electronic	(325)	(95.3)
Department/school subscription	219	22.8 (100.0)
• Print	(10)	(4.6)
• Electronic	(209)	(95.4)
Course reserves ⁷	62	6.4 (100.0)
• Print	(9)	(14.8)
• Electronic	(52)	(85.2)
Free Web journal	94	9.8 (100.0)
Preprint copy	10	1.0 (100.0)
• Print	(2)	(20.0)
• Electronic	(8)	(80.0)
Copy from a colleague, instructor, author, etc.	88	9.1 (100.0)
• Print	(18)	(20.5)
• Electronic	(70)	(79.5)
Interlibrary loan or document delivery service	15	1.6 (100.0)
• Print	(3)	(20.0)
• Electronic	(12)	(80.0)
An author's website	16	1.7 (100.0)
Other website	32	3.3 (100.0)
Other source	52	5.4 (100.0)
• Print	(8)	(15.4)
• Electronic	(44)	(84.6)
Total	962	100.0

⁷ One respondent did not indicate whether the course reserves article was in a print or electronic format.

The majority of readings found through browsing (65%), searching (76%), or a citation (77%) are obtained from a library or school/department subscription. Nearly half (47%) of the readings found through an instructor and 32% found through a course outline are obtained from a library or school/department subscription. One quarter (24%) of readings found through a course outline and 20% found through an instructor are obtained from a colleague or instructor.

Alternative Source to Obtain Article

Another measure of value is *contingent valuation*, which measures value based on whether the respondent would obtain the information from another source if the original source was not available (Imholz and Arns 2007). This method 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 asked, "*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?*" Nearly one quarter (23%) of the readings would not be obtained from another source (220 of 952).

Nearly all of the readings obtained from a publisher (90%), 87% of readings obtained through a personal subscription, 82% from course reserves, and 80% of those obtained through a free web journal would be obtained from another source if the original source were no longer available. Thirty-nine percent obtained from an "other website", one-quarter of articles originally obtained from a library subscription, 28% from a school/department subscription, and 27% obtained from interlibrary loan would not be

obtained from an alternative source. Value would be lost if these original sources were not available because graduate students would either not receive the same information or would have to spend additional money or time to use an alternative source.

Format of Article and Location of Reading

Just because 70% of the article readings are obtained from an electronic source, does not mean that all of the articles are read on a computer screen. Undergraduate students are more likely to read on-screen, however, than graduate students or faculty members. In a survey of undergraduates and faculty in the United States (reported separately), we found that three-quarters of the readings by undergraduate students (393 of 526) and 51% of faculty members are read on a computer screen (300 of 594), even though 75% of faculty readings and 88% of undergraduate readings are obtained from an electronic source. In contrast, only 55% of the readings by graduate students are read on-screen, while 44% are read on print-on-paper, either from a print journal or downloaded and printed out (Table 15). Nearly one third (32%) of the readings are from a downloaded and printed article, while only 8% of the readings are from a print article in a print journal. One respondent noted, "I hardly ever print any articles anymore. I download them to my computer or kindle and read everywhere," and another states, "I prefer digital copies to print," although these graduate students are still in the minority. Only three percent of article readings overall by graduate students in the United States are read on a mobile, e-reader, or tablet screen.

Table 15. Final Format of Article Reading by US Graduate Students

	Frequency	Percent
Print article in a print journal	76	7.9
Photocopy or Fax copy	31	3.2
Online computer screen	332	34.7
Previously downloaded/saved and read on computer screen	167	17.5
On a mobile, e-reader or tablet screen	30	3.1
Downloaded and printed on paper	310	32.4
Other	10	1.0
Total	956	100.0

Sixty percent of the readings obtained through the library and 58% obtained from a school/department subscription are read in an electronic format (print journal, photocopy, downloaded and printed). Three percent of the articles obtained through the library and 2% obtained through a school/department are read on a mobile screen. Only 39% of library readings and 42% of readings from a school/department subscription are in a print format. On the other hand, 72% of readings obtained through a personal subscription and 68% of the readings obtained through course reserves are read in print format. Only 31% of course reserve readings and 28% of personal subscription readings are read in an electronic format.

While US graduate students are using the library's resources, they are often accessing the library's resources remotely and are rarely reading articles in the library. The majority of article readings by graduate students take place outside the library (Table 16). Half of article readings by graduate students are read at home, and 34% are read in the office/lab. Only 8% of the readings take place in the library. Graduate students also read at coffee shops, workplace, a high school, and while walking. Location is no longer a major factor in access to academic sources because the scholarly articles can be accessed

and read from a variety of locations. This convenience and saving time of the reader from having to physically come to the library building is another measure of value to readers.

Table 16. Location of Article Reading by US Graduate Students

	Frequency	Percent
Office or lab	328	34.1
Library	79	8.2
Dormitory	7	0.7
Home (off-campus)	483	50.3
Traveling or commuting	27	2.8
Elsewhere	37	3.9
Total	961	100.0

There is a slight significant association between the location of the reading and where it is obtained ($\chi^2=69.775$, $p=.034$). Of the 558 article readings obtained from a library, school, or department subscription, only 8% are read in the library (45). One respondent comments, “[Electronic resources] are essential because some articles are only available online as the library does not have a print subscription. Additionally, they allow me to do research and coursework on my own time anywhere.” The majority of library, school, or department provided articles are read in the office or lab (38%, 210) or the home (48%, 266).

Purpose and Value of Article Reading

Survey data provides a picture of the purpose, value, and outcomes of article readings, which usage data cannot provide. The first question in this series of questions was, “*For what principal purpose did you use, or do you plan to use, the information obtained from the article you last read?*” Over one-quarter (26%) of the readings by graduate students are for their thesis or dissertation (Table 17). Twenty-three percent of article

readings are to help complete a course assignment or paper; 21% are required readings; 11% keep informed about developments in main field of study; 7% are for writing proposals, reports, or articles; and 2% assist in teaching duties. One respondent again stresses this importance of library resources in achieving these principal purposes of reading, “My school ... has a magnificent library with many subscriptions to scholarly journals and articles so it’s just convenient to search for relevant e-resources through the school subscription for classwork, homework, and thesis-related work.” The other principal purposes include comps study, discussion groups, research, experiment design, class project, independent study, work-related, and literature review. Article readings support nearly all of graduate work activities.

Table 17. Principal Purpose of Article Reading by US Graduate Students

	Frequency	Percent
Required reading for course	197	20.8
Help complete assignment or paper	215	22.7
For thesis or dissertation	246	25.9
Assisted in teaching duties	18	1.9
Keep informed	106	11.2
Personal interest	54	5.7
Writing proposals, reports, articles	62	6.5
Other	51	5.4
Total	949	100.0

There are some differences between the principal purpose of reading and the age of the article. Articles read for the primary purposes of required reading, to help complete a course assignment, for a thesis or dissertation, and for teaching are more likely to be within the last five years of publication ($\chi^2=162.418, p<.0001$). A majority of all reading for all principal purposes are likely to have been published within one to five years. However,

readings for personal interest (60%) and current awareness (49%) are more likely to have been published within the last year (Table 18).

Table 18. Association between Year of Publication and Principal Purpose of Article Reading for US Graduate Students

	Over 15 Years (Before 1997)	11-15 Years (1997-2001)	6-10 Years (2002-2006)	2-5 Years (2007-2010)	One Year (2011)	Less than 1 Year (2012)	Column Total
Required Reading	31 16.2%	13 6.8%	51 26.7%	61 31.9%	19 9.9%	16 8.4%	191 100.0%
To help complete a course assignment	22 10.6%	16 7.7%	34 16.4%	70 33.8%	33 15.9%	32 15.5%	207 100.0%
For thesis or dissertation	34 14.0%	19 7.9%	39 16.1%	71 29.3%	33 13.6%	46 19.0%	242 100.0%
To assist teaching duties	1 5.6%	2 11.1%	3 16.7%	6 33.3%	3 16.7%	3 16.7%	18 100.0%
To keep informed/current awareness	2 2.0%	3 3.0%	11 11.0%	21 21.0%	14 14.0%	49 49.0%	100 100.0%
Personal interest	1 1.9%	0 0%	4 7.7%	4 7.7%	12 23.1%	31 59.6%	52 100.0%
Writing proposals, reports, articles, etc.	8 13.6%	4 6.8%	7 11.9%	18 30.5%	13 22.0%	9 15.3%	59 100.0%
Others	5 10.0%	3 6.0%	6 12.0%	18 36.0%	12 24.0%	6 12.0%	50 100.0%
Column Total	104 11.3%	60 6.5%	155 16.9%	269 29.3%	139 15.1%	192 20.9%	919 100.0%

Not surprisingly, required readings are far more likely to be discovered through a course outline than other purposes ($\chi^2=793.889$, $p<.0001$). Three-quarters of required readings are discovered through a course outline, whereas only 5% of those for current awareness, 4% to help complete an assignment, 3% for writing, and just 1% read for a

thesis or dissertation are discovered by the same means. No reading to support teaching or for personal interest were discovered through a course outline. Readings to help complete a course assignment (54%), to support teaching (39%), for a thesis or dissertation (37%), for writing (34%) and for current awareness (26%) are more likely to be discovered through searching. While only 17% of readings for personal interest are discovered by searching, 35% of personal interest readings are discovered through browsing. Readings for writing (23%) and for thesis/dissertation (23%) are also likely to be found through a citation.

Readings obtained from a library subscription are read for thesis or dissertation (49%), to help complete a course assignment (41%), for writing (33%), to keep informed (33%), to support teaching (28%), for personal interest (22%), and for required reading (21%) ($\chi^2=386.263$, $p<.0001$). Readings obtained from personal purchase are reading for personal interest (19%), to support teaching (11%), and to help complete an assignment (3%). Readings obtained from a school or department subscription support a variety of purposes, including to keep informed (36%), writing (34%), to support teaching (28%), to help complete course assignment (22%), and thesis or dissertation (23%).

We found some differences between the principal purpose of reading and the location of reading ($\chi^2=146.349$, $p<.0001$). Over half of the readings to keep informed (58%) and nearly half for thesis and dissertation research (48%) and writing (48%) are read in the office or lab, while only 33% for teaching, 32% for personal interest, 17% of required reading, and just 16% for assignment completion are read in the office (Table 19). On the other hand, the majority of readings for personal interest, assignment completion, teaching, and required reading are read in the home.

Table 19. Association between Location and Principal Purpose of Article Reading for US Graduate Students

	Office or Lab	Library	Dormitory	Home	Travelling	Elsewhere	Column Total
Required Reading	34 17.3%	16 8.1%	1 0.5%	131 66.5%	9 4.6%	6 3.0%	197 100.0%
To help complete a course assignment	35 16.3%	25 11.6%	3 1.4%	143 66.5%	4 1.9%	5 2.3%	215 100.0%
For thesis or dissertation	119 48.4%	15 6.1%	1 0.4%	94 38.2%	6 2.4%	11 4.5%	246 100.0%
To assist teaching duties	5 27.8%	1 5.6%	0 0%	11 61.1%	1 5.6%	0 0%	18 100.0%
To keep informed/current awareness	61 57.5%	6 5.7%	0 0%	30 28.3%	3 2.8%	6 5.7%	106 100.0%
Personal interest	17 31.5%	4 7.4%	2 3.7%	28 51.9%	1 1.9%	2 3.7%	54 100.0%
Writing proposals, reports, articles, etc.	29 47.5%	7 11.5%	0 0%	19 31.1%	2 3.3%	4 6.6%	61 100.0%
Others	25 50.0%	3 6.0%	0 0%	18 36.0%	1 2.0%	3 6.0%	50 100.0%
Column Total	325 34.3%	77 8.1%	7 0.7%	474 50.1%	27 2.9%	37 2.9%	947 100.0%

We found a significant difference between the principal purpose of reading and the format of reading ($\chi^2=70.722$, $p=.004$). Required readings (50%) readings for thesis/dissertation (46%) and personal interest (44%) are more likely to be read in print format, while 72% of the readings to support teaching, 62% for writing, and 59% to keep up are more likely read in electronic format. However, most of these are read on a desktop or laptop rather than an e-reader or other mobile device. Only 7% of article readings for

writing, 5% for required readings, and 4% for personal interest are read on a mobile screen. No reading to support teaching is read on a mobile screen.

After establishing the principal purpose, we asked graduate students 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 on a five-point scale from “absolutely essential” to “not at all important.” Nearly all (98%) of the readings are considered at least “somewhat important” and 40% are considered “absolutely essential” or “very important” to the principal purpose (Table 20).

We received many comments on the importance of article reading. One respondent states, “I don’t think I could survive without them,” and another respondent says, “I even digitize any and all print material so that I run exclusively on e-resources.” Similarly, many respondents consider article readings “critical,” “significant,” and “essential” to their work activities. It is clear from their comments that scholarly articles are important to graduate work beyond the principal purpose of reading.

Table 20. Importance of Article Reading to the Principal Purpose of US Graduate Students

	Frequency	Percent
Absolutely essential	126	13.3
Very important	255	26.9
Important	311	32.8
Somewhat important	238	25.1
Not at all important	19	2.0
Total	949	100.0

There is a significant difference between principal purpose of reading and its importance ($\chi^2=104.029$, $p<.0001$). Readings to help complete an assignment, for thesis/dissertation, to support teaching, and for writing are considered more important to

the principal purpose than required readings, to keep informed, or for personal interest. Nearly half (49%) of the article readings for writing are considered “very important” or “absolutely essential,” followed by 45% of the readings to help complete an assignment, 44% to support teaching and 44% for thesis/dissertation. Only 39% of required readings, 24% to keep informed, and just 11% of personal interest readings are considered “very important” or “absolutely essential.” Furthermore, 13% of personal interest article readings are considered “not at all important,” compared to just 6% to support teaching, 2% of required readings, to keep informed, and for writing, 1% for thesis/dissertations, and less than one percent (0.5%) to help complete an assignment.

Readings obtained from author websites, interlibrary loan, and from a colleague/instructor are considered more important than readings obtained from other sources ($\chi^2=57.992$, $p=.033$). Sixty-two percent of the readings obtained through an author’s website, 53% through interlibrary loan, and 49% obtained through a colleague/instructor are considered “very important” or “absolutely essential.” Only 41% of article readings obtained through the library, 40% of preprints, 39% through course reserves, 37% of school/department subscriptions, 34% of free web journal readings, 29% of personal subscriptions, and just 28% of other web readings are considered “very important” or “absolutely essential.” Ten percent of personal subscription readings are considered “not at all important.”

Outcomes of Article Reading

In order to establish how the article was important to the principal purpose, we asked graduate students to select one or more outcomes of the reading. The most frequent

outcomes are “inspired new thinking,” “improved the result,” and “narrowed/broadened/changed the focus” (Table 21). In the open-ended comments, one respondent describes using article readings “to supply my students with valid information, to give me valuable resources and information for my own education,” and another says “They’re basically the only resource I use for class and my research.” Only 2% of readings are considered a waste of time. Some of the other outcomes of reading are: provided answered or necessary data, provided a general background, confirmed many points, adding to knowledge or discussion, aided in teaching duties, provided an introduction to material, lent support to research, helped complete an assignment, and served as a template.

Table 21. Outcomes of Article Reading for US Graduate Students*

	Frequency	Percent
Inspired new thinking	545	57.1
Improved the result	394	41.3
Narrowed/broadened/changed the focus	299	31.3
Saved time or resources	132	13.8
Made me question my work	98	10.3
Resulted in faster completion	89	9.3
Resolved technical problems	84	8.8
Others	69	7.2
Resulted in collaboration/joint research	44	4.6
Wasted time	16	1.7
Total	954	

*Respondents could select more than one outcome.

Over half (51%) of the article reading have been or will be cited (Table 22) and just 21% will not be cited. As the article reading’s importance to the principal purpose increases, so does the chance it will be cited ($p < .0001$).

Table 22. Article Citation by US Graduate Students

	Frequency	Percent
No	194	20.6
Maybe	266	28.2
Already did	255	27.1
Will in the future	227	24.1
Total	942	100.0

A vast majority of the articles read for a course assignment (82%), writing (77%), and for a thesis or dissertation (71%) have been or will be cited ($\chi^2=389.662$, $p<.0001$). By contrast, only 28% read for teaching, 22% for current awareness, 19% of required reading, and just 9% of personal interest readings have been or will be cited. Over half (57%) of personal interest, 42% of required readings, 44% to support teaching, and 28% of readings for current awareness will not be cited. Just over one-third (34%) of readings for writing will also not be cited.

Differences of Article Reading Patterns by Demographics

Differences of Article Reading Patterns by Discipline

We found a slight association between subject discipline and the number of article readings ($F=1.266$, $p=.276$). Graduate students in the sciences ($M=34.92$) and social sciences ($M=31.66$) read, on average, more articles per month than those in the humanities ($M=28.68$), engineering/technology/math disciplines ($M=28.23$), and medical sciences ($M=25.36$). We also found some differences between discipline and time spent per reading ($F=1.445$, $p=.206$). Graduate students in the humanities spend the most time per reading ($M=45.74$), followed by engineering/technology/math students ($M=41.12$), social science students ($M=40.21$), science students ($M=39.28$), and medical science students ($M=29.46$).

Table 23. Number of Article Readings and Time Spent Reading for US Graduate Students by Discipline

	Number of article readings	Time spent per article reading (minutes)
Sciences	34.92	39.28
Medical Sciences	25.36	29.46
Engineering / Technology / Math	28.23	41.12
Social Sciences	31.66	40.21
Humanities	28.68	45.74

We found a similar association between US faculty and undergraduate student discipline and number of article readings. Faculty members in the medical sciences ($M=37.09$) and sciences report more article readings ($M=26.10$), though medical science faculty spent the least amount of time per reading ($M=28.58$ minutes). Undergraduate students in the social sciences ($M=18.36$) and sciences ($M=16.28$) read more articles per month, but those in the sciences spend the least amount of time per reading ($M=25.99$).

Faculty and undergraduate students in the humanities read fewer articles ($M_{\text{faculty}}=21.02$, $M_{\text{undergraduate}}=16.21$) but spend more time per reading ($M_{\text{faculty}}=37.92$, $M_{\text{undergraduate}}=30.22$).

We found a significant association between discipline and year of publication ($\chi^2=82.093$, $p<.0001$). Half of the article readings by medical science students (33 of 66) and science students (82 of 167) are in their first two years of publication. However, only 37% of the readings by social science students, 29% by engineering/technology/math students, and 19% by humanities students are in their first two years of publication. By contrast, 29% of the readings by humanities students are over 15 years old, but only 13% by engineering/technology/math students, 10% by science students, 9% by social science students, and just 1% by medical science students are over 15 years old.

Article readings by graduate students in the humanities are read more thoroughly than article by students in other disciplines ($\chi^2=39.197$, $p=.006$). Seventy-six percent of readings by humanists are read with great care to all or parts of the article, followed by 66% by engineering/technology/math students, 64% by scientists, 63% by medical scientists, and 63% by social scientists.

There are some variations between how the respondent's discipline and how s/he becomes aware of the article ($\chi^2=74.124$, $p<.0001$). Over half (54%) of article readings by respondents in the medical sciences, and roughly one-third by those in the sciences (34%) and social sciences (31%), one-quarter by those in the humanities, and 23% by those in the engineering/technology/math fields become aware of articles through searching (Table 24).

Table 24. Association between Discipline of US Graduate Students and How They become Aware of Article Readings

	Sciences	Medical Sciences	Engineering/Technology/Math	Social Sciences	Humanities	Others	Column Total
Browsing	22 12.9%	2 2.9%	15 8.8%	35 10.7%	11 11.7%	7 16.7%	92 10.6%
Searching	57 33.5%	37 54.4%	39 22.8%	102 31.2%	23 24.5%	10 23.8%	268 30.7%
Cited in another publication	28 16.5%	4 5.9%	20 11.7%	36 11.0%	13 13.8%	4 9.5%	105 12.0%
An instructor	17 10.0%	4 5.9%	35 20.5%	40 12.2%	22 23.4%	5 11.9%	123 14.1%
Course outline / reading list	14 8.2%	6 8.8%	35 20.5%	69 21.1%	18 19.1%	11 26.2%	153 17.5%
Don't know/ don't remember	2 1.2%	2 2.9%	3 1.8%	4 1.2%	0 0%	1 2.4%	12 1.4%
Others	30 17.6%	13 19.1%	24 14.0%	41 12.5%	7 7.4%	4 9.5%	119 13.6%
Column Total	170 100.0%	68 100.0%	171 100.0%	327 100.0%	94 100.0%	42 100.0%	872 100.0%

There are some variations between where the reading is obtained and subject discipline ($\chi^2=101.288$, $p<.0001$). Half of the readings by humanities students, 38% by social science students, 35% by medical science students, and one-third by science students and engineering/technology/math students are obtained from a library subscription. One-third of the readings by students in the sciences (34%) and medical sciences (35%), and one-quarter by those in the engineering/technology/math fields obtain article readings through a school/department subscription, but only 15% of the readings by social science students and 13% by humanities students are obtained in that way. Only 5% of respondents in the social sciences, 4% by those in the medical sciences,

3% by those in humanities, 2% by engineering/technology/math students, and 1% by science students are obtained through personal subscriptions.

We found a significant difference between subject discipline and the purpose of article reading ($\chi^2=118.787$, $p<.0001$). One-quarter of the readings by graduate students in the engineering/technology/math fields and social science fields are required readings, but only 19% by humanities students, 11% by science students, and 10% by medical science students are required readings. Readings by science students (35%) and humanities students (28%) are more often read for thesis/dissertations. Thirty-one percent of the readings engineering/technology/math students, 22% by social science students, and 19% by medical science students are read for thesis/dissertations. Twenty-two percent of the readings by science graduate students are also read for current awareness, followed by engineering/technology/math students, 9% by medical science students, 7% humanities, and 6% by social science students.

Respondents in the medical sciences, social sciences and humanities are more likely to read at home than those in the sciences or engineering/technology disciplines ($\chi^2=206.225$, $p<.0001$). The majority of readings by medical scientists (62%), humanities (66%), and social scientists (63%) are read at home. Only 20% of readings by social scientists, 12% by humanities, and 19% by medical scientists are read in the office or lab. On the other hand, the majority of readings by scientists (73%) and engineers (48%) are read in the office or lab, and only 21% of readings by scientists and 39% of readings by engineers are read in the home. Only 15% of readings by humanities students, 10% by medical science students, 9% by social science students, 5% by

engineering/technology/math students and just 3% by science students are read in the library.

Over half of the readings by medical scientists (56%) and humanists (51%) are read in a print format ($\chi^2=42.092$, $p=.070$). Only 43% of the readings by social scientists, 40% by engineering/technology/math students, and 39% by science students are in a print format (print journal, photocopy, downloaded and printed). On the other hand, 61% of the readings by science graduate students, 59% by engineering/technology/math students, 56% by social science students, 47% by humanities students, and 44% by medical science students are read in an electronic format. Of those read in an electronic format, only small percentage is read on a mobile screen. Four percent of the readings by science and social science graduate students are read on a mobile screen, followed by 3% by engineering/technology/math students and 2% by humanities and medical science students.

We found a significant difference between discipline and whether the article will be cited ($\chi^2=30.529$, $p=.010$). Over half of the readings by social scientists, 55% by humanists, and 51% by medical scientists have been or will be cited. Only 47% by scientists and 44% by engineering/technology/math students have been or will be cited. One-quarter of the readings by medical scientists, 22% by engineering/technology/math students, and 21% by science students will not be cited, followed by 18% by humanists and 17% by social scientists.

No significant difference was found between the respondent's discipline and the importance of the reading.

Differences of Article Reading Patterns by Status, Age, and Gender

Juris Doctor (JD) students tend to read more articles than other students ($F=3.802$, $p=.005$) and spend more time per reading ($F=1.306$, $p=.266$). JD students read, on average, forty-eight articles per month ($M=48.25$), followed by medical doctor (MD) students ($M=35.50$), doctoral students ($M=33.47$), master’s students ($M=27.94$) and “other” students ($M=16.23$). JD students spend approximately forty-seven minutes per article reading ($M=46.50$), followed by doctoral students ($M=43.79$), master’s students ($M=36.91$), “other” students ($M=36.21$), and MD students ($M=32.50$).

Table 25. Number of Article Readings and Time Spent Reading for US Graduate Students by Academic Status

	Number of article readings	Time spent per article reading (minutes)
Masters	27.94	36.91
Doctoral	33.57	43.79
JD	48.25	46.50
MD	35.50	32.50
Other	16.23	36.21

We found some differences between academic status and year of article publication ($\chi^2=26.503$, $p=.150$). Nearly half (47%) of the readings by JD students (7 of 15) are within their first two years of publication, followed by 39% by doctoral students (180 of 461), and one third by master’s students (117 of 356). Both article readings by MD students are within their first year of publication (2). One third (32%, 112) of the readings by master’s students are also within three to five years of publication, followed by 28% by doctoral students (128), and 27% by JD students (4). Doctoral students report more readings over

fifteen years old (13%, 60) than master's students (10%, 34) or JD students (7%, 1). No MD student reports readings over two years old.

We found a slight difference in status and how thoroughly the respondent read the article ($\chi^2=22.236$, $p=.136$). Article readings by MD students are read less thoroughly than readings by other students. Only half (1) of the readings by MD students are read with great care to all or parts of the article, while 69% by JD students, 68% by doctoral students, and 63% by master's students are read with great care. Half of the readings by MD students are also skimmed (1). Thirteen percent of the readings by JD students are skimmed, while just 6% by doctoral and master's students are skimmed.

JD students report finding out about information more from journals (80%) than any other source ($\chi^2=46.453$, $p=.016$). Only 31% master's students and 28% of doctoral students report finding out the information through a journal. One-quarter of doctoral students, however, report finding out about the information contained in the article through informal discussion with colleagues, followed by 21% of master's students, and 20% of JD students.

There are some differences between academic status and how the students becomes aware of the article reading ($\chi^2=45.578$, $p=.005$). Nearly a third of the readings by master's students (31%), doctoral students (32%), and JD students (31%) are found through searching. Neither of the readings by MD students are found through searching. However, half of the readings by MD students are found through browsing (1) and half through a citation (1). Thirteen percent of the readings by JD students, 12% by master's students, and 9% by doctoral students are discovered through browsing. Nineteen percent of the

readings by JD students are also discovered through a citation in another publication, followed by 15% by doctoral students, and 8% by master's students.

There is also significance between academic status and how readings are obtained ($\chi^2=85.673$, $p<.0001$). Thirty-nine percent of the readings by doctoral students, 34% by master's students, and one-quarter by JD students are obtained through a library subscription. One-quarter of the readings by doctoral students are also obtained through a school/department subscription, followed by 21% by master's students, and 13% by JD students. Half of the readings by MD students are obtained through a school/department subscription (1) and half through an author's website (1). One-quarter of the article readings by JD students are from a free web journal, followed by 14% by master's students and 6% by doctoral students.

Readings by master's (61%) are more likely to read articles in the home, while doctoral students' readings (45%) are more likely to read articles in the office or lab ($\chi^2=98.258$, $p<.0001$). Both readings by MD students are read in the home. Half of the readings by JD students are read in the library, but not 6% by doctoral students and 8% by master's students are read in the library.

JD and MD students report more article readings in electronic format than master's or doctoral students ($\chi^2=39.649$, $p=.023$). Sixty-three percent of the readings by JD students and both of the readings by MD students are in an electronic format (computer screen, mobile screen). Fifty-seven percent of the readings by master's students and 53% by doctoral students are in electronic format.

Readings by master's (40%) and JD students (31%) read more to complete course assignments, whereas doctoral students (39%) read more for theses or dissertations and

MD students report more required readings (50%) ($\chi^2=210.359$, $p<.0001$). Fourteen percent of master's students' readings are also read for theses or dissertations, and 10% by doctoral students are to help complete an assignment. Twenty-six percent of the readings by master's students, 19% by JD students, and 14% by doctoral students are required readings as well.

Readings by MD students are considered more important to the principal purpose than readings by other students ($\chi^2=21.618$, $p=.156$). Half of the readings by MD students are considered "very important" or "absolutely essential," followed by 41% by doctoral students, 40% by master's students, and 38% by JD students. Only 2% of the readings by master's and doctoral students are considered "not at all important." No JD or MD student reports an article reading to be "not at all important."

Readings by JD students are less likely to be cited than readings by other students ($\chi^2=44.875$, $p<.0001$). Over half of the readings by master's students (54%) and doctoral students (52%) and half by MD students have been or will be cited, but only 44% by JD students have been or will be cited. Furthermore, nearly one-third of the readings by JD students will *not* be cited, compared to just 21% by master's students and 16% by doctoral students.

In order to examine the differences in responses by age, respondents were grouped into two age categories: under 25 and 25 years and older. We did not find a significant difference in number of article readings or time spent per reading.

Older students report reading articles with more care ($\chi^2=10.139$, $p=.038$). Sixty-eight percent of the article readings by graduate students over 25 were read with great care to all or parts of the article, compared to 60% of readings by graduate students

younger than 25 years. Slightly more younger graduate students (9%) also report skimming articles than older graduate students (7%).

For students of all ages, the library is the main source to obtain article readings ($\chi^2=26.589$, $p=.003$). Thirty-eight percent of article readings by students 25 and older and 31% by students under 25 are obtained through a library subscription. However, readings by students under 25 years of age are more likely to be from free web journals (14%) and from colleagues/instructors (13%) than those by students 25 and older who obtain articles from free web journals at 8% and from colleagues/instructors (9%). Article readings by students 25 years and older are more likely to be obtained from a personal subscription (4%), and through course reserves (6%).

We also found significant differences in age and location of article reading ($\chi^2=8.442$, $p=.133$). Thirty-nine percent of the readings by students younger than 25 are read in the office/lab and 11% are read in the library. Only 7% of the readings by students over 25 are read in the library and one-third are read in the office/lab. However, over half (53%) of the readings by students over 25 are read in the home, compared to 44% by students under 25.

Students under 25 read articles for the principal purposes of required readings (21%), to help complete a course assignment (28%) ($\chi^2=24.278$, $p=.001$). Students 25 and older read for the primary purposes of course assignments (22%) and theses/dissertations (30%). Nine percent of the readings by younger students and 5% by older students are for personal interest.

Older graduate students are also slightly more likely to cite articles ($\chi^2=7.366$, $p=.061$). Fifty-three percent of the articles read by students over 25 have been or will be

cited compared to 49% by students younger than 25. One-quarter of the readings by younger students will *not* be cited. Only 17% of the readings by older students will *not* be cited.

No other significant differences were found between age of respondent, year of publication, how s/he becomes aware of the article reading, or the importance of reading.

Male graduate students read slightly more articles than female graduate students ($t=1.282$, $p=.200$). Male students read, on average, thirty-three articles per month, while female students read thirty articles per month. Male graduate students also spend more time per article reading ($t=1.222$, $p=.222$). Male students spend, on average, forty-three minutes per article reading, while female students spend thirty-nine minutes.

We found some differences in gender and year of article publication ($\chi^2=9.257$, $p=.099$). Male graduate students report more articles published within the last two years (40%, 129 of 321) than female graduate students (34%, 184 of 538). However, 37% of the readings by female students are over five years old compared to 30% of the readings by male students.

The majority of article readings by female respondents are discovered by searching (34%) and through a course outline (20%), whereas article readings by male respondents are more likely to be discovered in a variety of ways ($\chi^2=32.557$, $p<.0001$). Twenty-six percent of article readings by male respondents are discovered by searching, 16% through browsing, 15% through a citation, and 13% through a course outline. Fifteen percent of readings by female respondents were learned of through an instructor, followed by 10% through a citation, and 7% by browsing.

We also found some differences in gender and where the respondent obtains the article reading ($\chi^2=21.054$, $p=.021$). Thirty-eight percent of the readings by female graduate students are obtained through a library subscription, 20% through a school/department subscription, 11% through a colleague or instructor, and 10% through a free web journal. Thirty-four percent of the readings by male graduate students are obtained through a library subscription, 27% through a school/department subscription, and 10% through a free web journal. Only 7% of the readings by male students are obtained through an instructor.

Readings by female respondents are more likely to be done at home (58%) versus just 38% by male respondents are read at home ($\chi^2=38.254$, $p<.0001$). Readings by male respondents are far more likely to read in the office or lab (46%), while only 28% of article readings by female students are read in the office or lab. We also found some differences between gender and the format of article reading ($\chi^2=8.868$, $p=.181$). Readings by female students (46%) are slightly more likely to be in a print format (print journal, photocopy, downloaded and printed) than readings by male students (41%). Fifty-nine percent of the readings by male students are in an electronic format, and 4% of all readings are read on a mobile screen. By contrast, 53% of the readings by women are in an electronic format and only 3% of their readings are on a mobile screen.

We found some differences between gender and the principal purpose of article reading ($\chi^2=33.018$, $p<.0001$). Readings by male respondents are mostly for theses/dissertations (31%), to help complete a course assignment (16%), and required readings (15%). Readings by female respondents are most likely to help complete a course

assignment (27%), required reading (23%), and theses/dissertations (24%). Fourteen percent of readings by men and 10% of readings by women are for current awareness.

Male and female respondents did not significantly differ in year of article publication, the importance of the reading to the principal purpose or whether the article will be cited. Many of the differences between reading patterns of males and females may be explained by the differences in percentages of males and females in various subject disciplines.

Scholarly Book Reading

In other Tenopir & King studies, the *critical incident* of reading focused only on the last scholarly article reading. A 2011 study in the United Kingdom expanded the survey to examine the last book/book chapter and other publication readings of faculty members (Tenopir et al. 2012). This study is the first time we also included readings from books, book chapters, and other publications of graduate students. In this section of the report, we focus on book or book chapter readings by graduate students in the United States.

Total Amount of Book Reading and Last Incident of Reading

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 more concerned with the relative amounts of reading than the actual number, and for convenience, we often report readings per year by multiplying the monthly total by 12. Graduate students in the United States report an average of six book or book chapter readings per month or approximately 72 per year (M=5.59, SD=7.631).⁸ Or, using the more conservative estimate of ten months, graduate students read approximately 60 books per year. Sixteen percent of the respondents did not report any book readings in the past month, and 30% report over five book readings (Table 26).

⁸ Excludes outliers over 70. Including outlier the mean is 6.53.

Table 26. Number of Book Reading by US Graduate Students

Readings per month	Frequency	Percent
0	149	15.9
1 ~ 2	226	24.1
3 ~ 5	286	30.5
6 ~ 10	168	17.9
Over 10	109	11.6
Total	938	100.0

We followed the same variation of critical incident technique we used in the article section by asking respondents to focus on the last scholarly book reading. 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 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 asked the respondents to list the title or topic of the last book or book chapter they read, in order to help the respondent focus on the last reading from a book, book chapter, or part of a book.

Total Time of Book Reading

To get an indication of *exchange value*, we asked, “*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, graduate students read from a book or book chapter on five occasions (M=5.61,

SD=6.019).⁹ Eighteen percent of book or book chapter readings occur on only one occasion, while one quarter of the readings occur on more than five occasions (Table 27).

Table 27. Occasions of Last Book Reading by US Graduate Students

	Frequency	Percent
0	3	0.4
1	109	14.3
2 ~ 3	257	33.8
4 ~ 5	162	21.3
6 ~ 10	151	19.8
Over 10	79	10.4
Total	761	100.0

The average time spent reading, including on all occasions of reading, is two hours and twenty-two minutes (M=154.27, SD=166.889).¹⁰ Sixty percent of book readings take over one hour (Table 28). Only 23% of book or book chapter readings are thirty minutes or less.

Table 28. Time Spent on Last Book Reading by US Graduate Students

Minutes	Frequency	Percent
0-15	75	9.9
16-30	97	12.7
31-60	135	17.7
61-90	55	7.2
91-120	110	14.5
Over 120	289	38.0
Total	761	100.0

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

⁹ Excludes outliers over 50. Including outliers the mean is 6.85.

¹⁰ Excludes three outliers over 900. Including outlier the mean is 172.00.

kept the question and answers similar to the last article reading, and maintained the same definitions of browsing and searching. The last book or book chapter readings are found through a variety of methods: 31% through another person; 14% through searching and 9% through a citation (Table 29). Thirty-five percent are found through a source we did not list in our answer choices; these included a textbook or required reading, given by advisor or professor, Google Scholar, personal collection, and through a conference presentation. We did not ask the respondents to tell us what sources they browse or search.

Table 29. How US Graduate Students Initially Become Aware of Books

	Frequency	Percent
Found while browsing	44	5.8
Found while searching	106	13.8
Cited in another publication	72	9.4
Another person told me about it	238	31.2
Promotional email or web ad	7	0.9
Don't know or don't remember	29	3.8
Other	268	35.1
Total	763	100.0

Graduate students spend an average of twelve minutes becoming aware of a book or book chapter reading (M=11.61, SD=18.251).¹¹ Readings found by searching (M=19.40) take, on average, more time to become aware of than those found through browsing (M=15.52), a citation (M=15.46), another person (M=10.26), or promotional email/web advertisement (M=6.57).

¹¹ Excludes outliers over 180. Including outlier the mean is 15.40.

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. One quarter of the book readings are obtained from a library collection (Table 30). Similar to faculty members, more book readings are from purchased books than any other source (47%). Book readings are also obtained from a colleague (12%) or interlibrary loan (5%). Other sources include: Amazon, Google Books, a course, church, music library, online rental company, work, from a grant coordinator, Compass Course website, and the Internet. One respondent notes that s/he uses “Google books for 19th century texts and journal subscriptions through the school library,” but that print copies are “infinitely preferred.”

Table 30. How US Graduate Students Obtain Books

	Frequency	Percent
I bought it for myself	356	47.0 (100.0)
• Print	(336)	(94.4)
• Electronic	(20)	(5.6)
The library or archives collection	188	24.8 (100.0)
• Print	(171)	(91.0)
• Electronic	(17)	(9.0)
Interlibrary loan or document delivery service (print)	37	4.9 (100.0)
School or department collection	19	2.5 (100.0)
• Print	(16)	(84.2)
• Electronic	(3)	(15.8)
A colleague, author or other person provided it to me	88	11.6 (100.0)
• Print	(74)	(84.1)
• Electronic	(14)	(15.9)
A free, advance, or purchased copy from the publisher	20	2.6 (100.0)
• Print	(12)	(60.0)
• Electronic	(8)	(40.0)
Other source ¹²	49	6.5 (100.0)
• Print	(19)	(39.6)
• Electronic	(29)	(60.4)
Total	757	100.0

Much has been discussed recently about the future of electronic books. A 2009 CIBER study in the U.K. 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%). Similar studies in the U.S. have also shown that e-books are gaining in popularity and are a valuable library resource (CIBER 2009; Chrzastowski 2011). In our study, we found graduate students are reading more from e-books than are faculty members, but the overall percentage of book readings is still mostly from printed books. Just 12% of book

¹² One respondent who chose “other” did not answer the accompanying question about format.

readings by graduate students are from an electronic source (91 of 757), while just 8% of book readings by faculty members are from e-books (42 of 503). Twelve percent of undergraduate book readings are also from e-books (55 of 460). One respondent comments, "An enormous role since young people today are very much into using e-resources rather than print copies of books, journals, etc. I am primarily interested in teaching and so I want to introduce today's students to the wealth of information at their fingertips as in e-books, and such sources as JSTOR." But other respondents prefer print books, including one respondent who says, "I miss books," and another who says "Electronic books [are] sometimes useful, though I typically prefer hard copies of books." While electronic resources for books have yet to reach the popularity as journals, e-books are becoming a part of academic culture.

Alternative to Obtain Book

To determine *contingent valuation* for book reading, we asked, "*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?*" Eighty-seven percent of respondents indicated that they would obtain the information from another source (657 of 757). We did not specify what alternative source they would use.

Twenty percent of books originally obtained from the library (38 of 188), and 16% from interlibrary loan (6 of 37) would not be obtained from an alternative source. Value to academic work, therefore, would be lost if the library collection were not available. Seven percent of purchased copies (26 of 327) and 10% of readings obtained through another person (9 of 87) would not be obtained from another source if the original source were no

longer available. Seventy-nine percent of the books obtained through a school/department subscription and three-quarters of the books obtained through a publisher would be obtained from an alternative 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?*” Required reading for a course is the most frequent principal purpose of reading by graduate students (Table 31). Over one third (35%) of the readings are required readings, 26% are for a thesis or dissertation, and 13% help complete a course assignment or paper. The other principal purposes include: background information on a topic, clinical awareness, professional interest, investing, data analysis, to study for comprehensive exams, a project, reading/discussion group, work-related, and to catalog a book.

Table 31. Principal Purpose of Book Reading by US Graduate Students

	Frequency	Percent
Required reading for course	264	34.7
Helped complete course assignment or paper	95	12.5
For thesis or dissertation	200	26.3
Assisted teaching duties	27	3.5
To keep informed	54	7.1
Personal interest	52	6.8
Writing proposals, reports, articles	31	4.1
Other	38	5.0
Total	761	100.0

The most frequent method to become aware of a reading, regardless of the principal purpose of reading, is through another person. There are some variations between where the book reading is obtained and the principal purpose of reading (Table 32). The majority of required readings are purchased (70%), while 44% to complete an assignment, 41% assist teaching duties and for personal interest, 37% to keep informed, 31% for thesis or dissertation, and 13% for writing are purchased.

Table 32. Association between Principal Purpose and How US Graduate Students Obtain Book Readings

	Purchased	Library Collection	Interlibrary Loan	School/Dept. Collection	From another person	From a publisher	Other	Column Total
Required reading for course	182 69.7%	17 6.5%	10 3.8%	4 1.5%	27 10.3%	2 0.8%	19 7.3%	261 100.0%
Helped complete course assignment or paper	41 44.1%	30 32.3%	2 2.2%	2 2.2%	10 10.8%	4 4.3%	4 4.3%	93 100.0%
For thesis or dissertation	61 30.7%	79 39.7%	20 10.1%	6 3.0%	23 11.6%	2 1.0%	8 4.0%	199 100.0%
Assisted teaching duties	11 40.7%	6 22.2%	0 0%	4 14.8%	3 11.1%	2 7.4%	1 3.7%	27 100.0%
To keep informed	20 37.0%	19 35.2%	1 1.9%	0 0%	10 18.5%	4 7.4%	0 0%	54 100.0%
Personal interest	21 41.2%	16 31.4%	1 2.0%	1 2.0%	5 9.8%	3 5.9%	4 7.8%	51 100.0%
Writing proposals, reports, articles	4 12.9%	14 45.2%	2 6.5%	0 0%	4 12.9%	1 3.2%	6 19.4%	31 100.0%
Other	16 42.1%	6 15.8%	1 2.6%	2 5.3%	6 15.8%	2 5.3%	5 13.2%	38 100.0%
Row Total	356 47.2%	187 24.8%	37 4.9%	19 2.5%	88 11.7%	20 2.7%	47 6.2%	754 100.0%

To measure value in relation to principal purpose, we asked, “*How important is the information contained in this book to achieving your principal purpose?*” Nearly all (99%) of the book or book chapter readings are considered at least “somewhat important” (Table 33). Over half (59%) are considered “absolutely essential” or “very important” to the principal purpose (451 of 759). While only 2% of article readings are considered “not at all important,” 27% of article readings are considered “somewhat important,” only 15% of book readings are considered “somewhat important,” and only 2% are considered “not at all important.” Overall, graduate students considered book readings to be more important to the principal purpose than article readings.

Table 33. Importance of Book Reading to the Principal Purpose of US Graduate Students

	Frequency	Percent
Absolutely essential	199	26.2
Very Important	252	33.2
Important	182	24.0
Somewhat important	114	15.0
Not at all important	12	1.6
Total	759	100.0

The principal purpose of reading significantly influences the importance of the book reading ($\chi^2=68.061$, $p<.0001$). Two-thirds of the readings to assist teaching, 64% to help complete an assignment, 63% for thesis or dissertation, 62% of required readings, 52% for writing proposals/reports are considered “very important” or “absolutely essential.” Only 31% of book readings for personal interest are considered “very important” or “absolutely essential.” Moreover, 12% of personal interest readings are considered “not at all important,” compared to just 3% for writing, 2% of required readings, and 1% to complete

an assignment. No readings for thesis/dissertation, to assist teaching, or to keep informed are considered “not at all important.”

Outcomes of Book Reading

To look at value to principal purpose more closely, we asked, “*In what ways did the reading of the book affect the principal purpose?*” “Inspired new thinking,” “improved the result,” and “narrowed/broadened/changed the focus” are the most frequent outcomes (Table 34). While less than one percent of book readings by faculty members (0.6%, 3 of 509) and just 3% of the readings by graduate students (18 of 774) are considered a waste of time, 6% of the readings by undergraduate students are considered a waste of time (28 of 463). The other outcomes of the book reading include provided “essential information,” helped complete an assignment, and aided in the understanding of material. Sometimes book readings provided a respite for perhaps more onerous or complex work. One respondent enthusiastically states that it made him/her “happy,” and that it was a “great read,” while another says that the book reading “let me spend time enjoyably.”

Table 34. Outcomes of Book Reading for US Graduate Students*

	Frequency	Percent
Inspired new thinking	437	56.5
Improved the result	366	47.3
Narrowed/broadened/changed the focus	242	31.3
Saved time or resources	151	19.5
Resulted in faster completion	140	18.1
Resolved technical problems	130	16.8
It made me question my work	86	11.1
Resulted in collaboration/joint research	49	6.3
Others	42	5.4
Wasted time	18	2.3
Total	774	

*Respondents could select more than one outcome.

Nearly half (48%) of the book or book chapter readings will be cited or have been cited (Table 35); twenty-seven percent of the readings will not be cited. As the book reading's importance to the principal purpose increases, so does the chance it will be cited ($p < .0001$).

Table 35. Citation of Last Book Reading by US Graduate Students

	Frequency	Percent
No	206	27.2
Maybe	187	24.7
Already cited	216	28.6
Will in the future	147	19.4
Total	756	100.0

There is some association between principal purpose of book reading and whether the reading will be cited ($\chi^2=159.131$, $p < .0001$). Readings for thesis/dissertation (73%), writing proposals/reports (65%), to complete an assignment (59%), and to keep informed are more likely to have been or will be cited. Only 36% of required readings, 26% to assist teaching, and 8% of personal interest readings have been or will be cited.

Differences of Book Reading Patterns by Demographics

Differences of Reading Patterns by Discipline

Graduate students in the humanities report more book readings than students in other disciplines ($F=20.391$, $p<.0001$). Table 36 shows differences between each discipline. Humanities graduate students report an average of twelve book readings per month ($M=12.25$), followed by “other” disciplines” ($M=5.95$), social sciences ($M=5.62$), engineering/technology/math ($M=4.94$), medical sciences ($M=3.50$), and sciences ($M=3.35$).

However, graduate students in “other” fields spend the most time per book reading ($F=5.952$, $p<.0001$). “Other” students spend, on average, four hours per book reading ($M=246.21$), followed by humanities students ($M=179.91$), social science students ($M=163.86$), engineering/technology/math students ($M=156.05$), medical science students ($M=147.04$), and science students ($M=94.74$).

Table 36. Number of Book Readings and Time Spent Reading for US Graduate Students by Discipline

	Number of book readings	Time spent per book reading (minutes)
Sciences	3.35	94.74
Medical Sciences	3.50	147.04
Engineering / Technology / Math	4.94	156.05
Social Sciences	5.62	163.86
Humanities	12.25	179.91
Other	5.95	246.21

Medical students report reading on more occasions from the same book reading ($F=1.977$, $p=.080$). Medical science graduate students read, on average, eight times from the same book ($M=7.88$), followed by science students ($M=5.67$), social science students

(M=5.43), humanities students (M=5.35), “other” students (M=5.17), and engineering/technology/math students (M=5.09).

We found some differences in discipline and how the respondent becomes aware of the book reading ($\chi^2=48.316$, $p=.018$). In contrast to article readings, more respondents become aware of book readings through a colleague/instructor or through an “other” means. The majority of readings by engineering/technology/math graduate students (41%, 61 of 150), science students (35%, 45 of 129), and humanities students (33%, 30 of 92) are discovered through a colleague, instructor, or other person. However, the majority of readings by medical science graduate students (48%, 27 of 56) and social science students (40%, 108 of 272) are discovered through “other” means such as a class, textbook, church, and Amazon.com. Only 26% of the readings by social science students (70) and 18% by medical science students (10) are discovered through a colleague, instructor, or other person. Only 35% of the readings by engineering/technology/math students (53), 30% by science students (39), and one-quarter by humanities students (23) are discovered through “other” means.

Excepting the humanities, most respondents obtain book readings through purchases ($\chi^2=56.707$, $p=.002$). Over half of the readings by medical science students (59%) and social science students (55%), and 43% by engineering/technology/math students are obtained through purchases, while just 39% by science students and 38% by humanities students are purchased. However, 41% of the readings by humanities students are obtained through the library, followed by 27% by science students, one-quarter by engineering/technology/math students, 20% by social science students, and 14% by medical science students. Sixteen percent of the book readings by science and

engineering/technology/math students are obtained through a colleague, while just 9% of the readings by social science students, 8% by humanities students, and 7% by medical science students are obtained through a colleague.

We found a slight association between discipline and format of book reading ($\chi^2=7.608$, $p=.179$). Medical science students (7%) and humanities students (5%) are slightly less likely to read books in an electronic format. Fifteen percent of the readings by engineering/technology/math students, 13% by social science students, and 12% by science students are read in an electronic format.

Book readings by humanities students (38%), scientists (38%), and engineering/technology/math students (30%) are more likely to be for theses/dissertations than other disciplines ($\chi^2=84.725$, $p<.0001$). Only 18% of social science and 16% of medical science readings are for theses/dissertations. Forty-four percent of the readings by social scientists, 41% by medical scientists, 34% by engineering/technology/math students, 27% by humanists, and 17% by scientists are for required readings.

Book readings by humanists, medical scientists, and social scientists are considered more important to the principal purpose than readings by other disciplines ($\chi^2=31.815$, $p=.045$). Sixty-nine percent of the readings by humanists, 66% by medical scientists, and 62% by social scientists are considered “very important” or “absolutely essential.” However, only 54% by scientists and 52% by engineering/technology/math students are considered the same. Four percent of the readings by medical scientists, 3% by scientists, 2% by humanists, and 1% by engineering/technology/math students are considered “not

at all important.” No reading by social science students are considered “not at all important.”

Book readings by humanists, medical scientists, and social scientists are also more likely to be cited than readings by other disciplines ($\chi^2=42.869$, $p<.0001$). Over half of the readings by humanists (56%), social scientists (53%), and medical scientists (52%) have been or will be cited. Only 40% of the readings by scientists and engineering/technology/math students have been or will be cited. On the other hand, 39% of the readings by medical scientists, 35% by engineering/technology/math students, 28% by science students, 23% by social science students, and just 16% by humanists will *not* be cited.

We did not find any associations between the respondent’s discipline, the format of reading, and the importance of the reading to the principal purpose.

Differences of Reading Patterns by Status, Age, and Gender

Juris Doctor (JD) students report more book readings than other graduate students ($F=1.619$, $p=.167$). JD students read, on average, ten books or book chapters per month ($M=10.00$), followed by doctoral students ($M=5.67$), master’s students ($M=5.47$), “other” students ($M=4.17$), and MD students ($M=4.00$). Master’s students spend more time per book reading ($F=2.308$, $p=.057$). Master’s students spend, on average, three hours per book reading ($M=178.98$), followed by JD students ($M=156.25$), doctoral students ($M=139.88$), “other” students ($M=132.86$), and MD students ($M=17.50$).

Book readings by master’s, doctoral students, and JD students are more likely to be discovered through a colleague or instructor, while readings by MD students are more

likely to be discovered through browsing ($\chi^2=80.559$, $p<.0001$) (Table 37). Sixteen percent of book readings by doctoral students and 12% of those by master’s students are discovered through searching.

Table 37. Association between Academic Status of US Graduate Students and how Students become Aware of Book Readings

	Master’s Student	Doctoral Student	JD Student	MD Student	Other	Column Total
Found while browsing	15 4.9%	27 6.7%	0 0%	1 50.0%	1 4.35%	44 5.9%
Found while searching	36 11.7%	65 16.2%	2 15.4%	0 0%	1 4.3%	104 13.9%
Cited in another publication	16 5.2%	54 13.5%	1 7.7%	0 0%	0 0%	71 9.5%
Another person told me about it	98 31.7%	126 31.4%	4 30.8%	0 0%	5 21.7%	233 31.1%
Promotional email or web ad	3 1.0%	5 1.0%	0 0%	0 0%	0 0%	7 0.9%
Don’t know or don’t remember	7 2.3%	15 3.7%	3 23.1%	1 50.0%	0 0%	26 3.5%
Other	134 43.4%	110 27.4%	3 23.1%	0 0%	16 69.6%	263 35.2%
Row Total	309 100.0%	401 100.0%	13 100.0%	2 100.0%	23 100.0%	748 100.0%

There are significant variations between how graduate students obtained the last book reading ($\chi^2=52.389$, $p=.001$). Thirty-two percent of the readings by doctoral students, 31% by JD students, and 23% by master’s students are obtained from a library or school/department collection. Most books, regardless of academic status, are obtained through purchases. Fifty-two percent of the book readings by master’s students (159 of 309), half of the readings by MD students (1), 46% of the readings by JD students (6 of 13), and 42% by doctoral students (170 of 401) are obtained through purchases.

Nearly half (48%) of the readings by Master’s students are required readings, and 15% are to help complete assignment and 12% are for thesis or dissertation ($\chi^2=135.213$,

$p < .0001$). Doctoral students, on the other hand, read primarily for thesis or dissertation (40%), for required reading (22%) and only 11% are to help complete a course assignment. Forty-six percent of law students' readings are required readings, only 23% are to help complete a course assignment, and 15% are for personal interest.

We found some differences in academic status and whether the book reading will be cited ($\chi^2=37.341$, $p < .0001$). Over half (52%) of the readings by doctoral students, 46% by JD students, and 45% by master's students have been or will be cited. Thirty-nine percent of the readings by JD students, 33% by master's students, and 21% by doctoral students will *not* be cited. Of the two MD student book readings, one reading will be cited and one will *not* be cited.

We did not find any associations between the respondent's academic status and format of reading or the importance of the reading to the principal purpose.

We found a slight difference in age and number of book readings ($F=1.786$, $p=.182$). Graduate students 25 years and older read, on average, six books per month ($M=5.82$) while those under 25 years read five books per month ($M=5.03$). However, graduate students under 25 years spend slightly more time per book reading ($F=1.383$, $p=.240$). Students under 25 spend two hours and forty-five minutes per book reading ($M=166.57$) while those 25 years and older spend approximately two and a half hours per book reading ($M=149.58$).

Graduate students 25 years and older obtain more books from the library than younger graduate students ($\chi^2=19.99$, $p=.003$). Twenty-six percent of the book readings by graduate students at least 25 years old are obtained from the library (144 of 549), while 20% by graduate students under 25 years are obtained from the library (36 of 183). Half of

the readings by graduate students under 25 years and 46% by students 25 years and older are purchased.

We found some differences in the students' age and purpose of book reading ($\chi^2=23.926, p=.003$). Forty-one percent of readings by students under 25 are for required reading, 16% to help complete a course assignment, and 16% are for theses/dissertations (Table 38). By contrast, 30% of the readings for students at least 25 years are for theses/dissertations.

Table 38. Association between Principal Purpose of Book Readings and Age of US Graduate Students

	24 and under	25 and over	Column Total
Required reading for course	75 40.8%	179 32.5%	254 34.6%
Helped complete course assignment or paper	30 16.3%	63 11.4%	93 12.7%
For thesis or dissertation	29 15.8%	163 29.6%	192 26.1%
Assisted teaching duties	4 2.2%	23 4.2%	27 3.7%
To keep informed	14 7.6%	38 6.9%	52 7.1%
Personal interest	16 8.7%	34 6.2%	50 4.1%
Writing proposals, reports, articles	3 1.6%	27 4.9%	30 4.1%
Other	13 7.1%	24 4.4%	37 5.0%
Row Total	184 100.0%	551 100.0%	735 100.0%

Younger students report readings to be more important to the principal purpose of reading ($\chi^2=10.369, p=.035$). Sixty-nine percent of the book readings by students under 25 are “very important” or “absolutely essential.” Only 57% of book readings by students 25 years and older are considered to be “very important” or “absolutely essential.”

There are no significant associations between age and how the respondent becomes aware of the book reading, the format of reading, or whether the reading will be cited.

Male graduate students tend to read more from the same scholarly books/book chapters ($F=3.904$, $p=.049$). Men read, on average, six times from the same book ($M=6.17$) while women read five times from the same book ($M=5.26$).

There is some association between gender and how the respondent becomes aware of a book reading ($\chi^2=20.227$, $p=.003$). One-third of the book readings by male graduate students are discovered through another person, 13% through a citation, and 12% through searching. Thirty percent of the book readings by female graduate students are discovered through another person, 15% through searching, and just 7% through a citation. Women are more likely (39%) than men (29%) to discover a book reading through a means not listed in the survey (i.e., a course, textbook, Amazon, etc.).

We also found some differences between gender and how the student obtains the book reading ($\chi^2=12.900$, $p=.045$). Both genders purchase books more often than they obtain them from the library. Forty-eight percent of the book readings by women and 46% by men are purchased. Twenty-eight percent of the readings by men and 23% by women are obtained through the library. Women (6%) are slightly more likely to obtain them from interlibrary loan than men (4%). Also, 14% of the readings by men are obtained through a colleague or other person, while just 10% by women are obtained that way.

There are also some differences between gender and purpose of book readings ($\chi^2=14.246$, $p=.047$). Thirty-seven percent of the readings by female graduate students are required readings compared to 30% by male graduate students (Table 39). However, 31% of the readings by male students are for theses/dissertations compared to just 23% by

female students. As with article readings, differences in book reading patterns by gender may be explained by the disproportionate distribution of males and females across some subject disciplines.

Table 39. Association between Principal Purpose of Book Readings and Gender of US Graduate Students

	Male	Female	Column Total
Required reading for course	83 30.0%	175 37.2%	258 34.5%
Helped complete course assignment or paper	34 12.3%	61 13.0%	95 12.7%
For thesis or dissertation	87 31.4%	110 23.4%	197 26.3%
Assisted teaching duties	9 3.2%	18 3.8%	27 3.6%
To keep informed	21 7.6%	33 7.0%	54 7.2%
Personal interest	20 7.2%	30 6.4%	50 6.7%
Writing proposals, reports, articles	15 5.4%	14 3.0%	29 3.9%
Other	8 2.9%	30 6.4%	38 5.1%
Row Total	277 100.0%	471 100.0%	748 100.0%

We did not find any significant associations between gender and number of book readings, time spent reading, format of reading, the importance of the reading to the principal purpose, or whether the book reading will be cited.

Social Media Participation and Creation

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 UK JISC website, social media or Web 2.0 technologies are, “innovative online tools designed to enhance communication and collaboration” (2010). Social media includes blogs, twitter, online videos, social networks, and other online and electronic tools.

A 2010 study by the Research Information Network (RIN) 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.). 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 (RIN 2010). Our findings support the 2010 RIN findings.

Participation and Creation of Social Media

Graduate students in the United States participate 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 explains that social media enriches his/her wealth of knowledge,

“[e-resources] also allows me the flexibility to subscribe to RSS feeds, blogs, etc. in order to get info from a variety of sources rather than just a few which broadens the scope,” and another graduate student says, “I find many articles online, and I use googledocs, e-mail, Facebook, and other networking sites to collaborate.” Other graduate students confirmed the idea that social media may help spread some ideas and provoke thoughts but are not as valuable as traditional scholarly material.

Social networking, collaborative authoring, and video sharing are the most popular social media tools (Table 40). Two-thirds of the respondents participate in social networking, 64% in collaborative authoring, and 60% participate in video blogging at least occasionally. One respondent states, “[I] often use Facebook to ask fellow students about homework or classes,” and another says, “I occasionally search for discussion blogs and tutorials.” The majority respondents never participate with social tagging (84%) or microblogging (73%).

Table 40. Participation in Social Media by US Graduate Students

	Daily	Weekly	Monthly	Occasionally	Never	Total
Blogging	89 10.0%	118 13.2%	45 5.0%	203 22.7%	438 49.0%	893 100.0%
Microblogging	60 6.7%	49 5.5%	20 2.2%	105 11.8%	657 73.7%	891 100.0%
RSS Feeds	80 9.2%	52 6.0%	31 3.6%	130 14.9%	580 66.4%	873 100.0%
Social Networking	273 30.6%	110 12.3%	40 4.5%	173 19.4%	296 33.2%	892 100.0%
Social Tagging	17 1.9%	19 2.1%	19 2.1%	85 9.6%	744 84.2%	884 100.0%
Collaborative Authoring	70 7.8%	138 15.4%	109 12.2%	259 29.0%	318 35.6%	894 100.0%
Comments in articles	26 2.9%	71 8.0%	63 7.1%	220 24.8%	506 57.1%	886 100.0%
Image sharing	15 1.7%	35 3.9%	54 6.1%	152 17.1%	635 71.3%	891 100.0%
Audio sharing	22 2.5%	59 6.7%	56 6.3%	164 18.5%	585 66.0%	886 100.0%
Video sharing	50 5.6%	133 14.9%	109 12.2%	245 27.5%	355 39.8%	892 100.0%

Fewer respondents create social media, and 31% do not create any of the social media tools listed (258 of 838). Forty-two percent of the respondents create only one or two social media tools (349). Social networking and collaborative authoring content are the most frequently created (Table 41). Twenty-three percent of the respondents create social networking content daily, weekly, or monthly, and 18% create it occasionally. Twenty percent create collaborative authoring content daily, weekly, or monthly, and 22% create it occasionally. Less than 10% of the respondents create RSS feeds or social tagging content.

Table 41. Creation of Social Media by US Graduate Students

	Daily	Weekly	Monthly	Occasionally	Never	Total
Blogging	6 0.7%	46 5.2%	22 2.5%	111 12.6%	695 79.0%	880 100.0%
Microblogging	17 1.9%	30 3.4%	12 1.4%	60 6.8%	760 86.5%	879 100.0%
RSS Feeds	2 0.2%	12 1.4%	6 0.7%	31 3.6%	815 94.1%	866 100.0%
Social Networking	59 6.7%	87 9.9%	57 6.5%	144 16.4%	532 60.5%	879 100.0%
Social Tagging	4 0.5%	11 1.3%	12 1.4%	43 4.9%	802 92.0%	872 100.0%
Collaborative Authoring	36 4.1%	86 9.8%	76 8.6%	219 24.8%	465 52.7%	882 100.0%
Comments in articles	6 0.7%	30 3.4%	31 3.5%	106 12.1%	706 80.3%	879 100.0%
Image sharing	2 0.2%	6 0.7%	21 2.4%	82 9.3%	767 87.4%	878 100.0%
Audio sharing	0 0%	6 0.7%	11 1.3%	61 7.0%	797 91.1%	875 100.0%
Video sharing	3 0.3%	6 0.7%	30 3.4%	122 13.9%	717 81.7%	878 100.0%

Participation and Creation of Social Media and Scholarly Reading

One reason we examined the use and creation of social media was to see how it influenced the use of traditional scholarly material. Are graduate students using social media for information instead of journal articles? Are they using and creating social media as a form of collaboration and to share ideas? Is social media replacing traditional material? Do graduate students who participate and create social media read fewer articles, books, and other publications? By comparing the respondent's reading patterns with his or her use and creation of social media, we hope to address these questions.

Respondents who use social media at least occasionally read more articles ($F=2.446$, $p=.063$). Respondents who use at least three social media tools read, on average, 33

articles ($M_{3-5\text{tools}}=32.52$, $M_{6+\text{tools}}=32.74$), while those who use only one or two tools read 26 articles ($M=25.85$), and those who use no social media tools read only 25 articles ($M=25.42$). Respondents who use social media also read slightly more books ($F=.720$, $p=.540$). Respondent who report using no social media tools at least occasionally read only four books per month ($M=4.42$), while those who use one or two social media tools read five books per month ($M=5.43$), and those who use at least three tools read six books per month ($M_{3-5\text{tools}}=5.74$, $M_{6+\text{tools}}=5.89$).

Graduate students who create more social media content also read more scholarly articles ($F=2.433$, $p=.064$). Students who create content for at least social media tools read, on average, 37 articles ($M=36.84$), those who create content for between three and five tools read 34 articles ($M=34.44$), and those who create content for only one or two tools read 31 articles ($M=31.26$). Students who do not create content for any social media tool read only 27 articles per month ($M=26.89$).

There is a slight association between creation of social media content and number of books read ($F=.765$, $p=.514$). Students who create content for at least six tools read, on average, seven books per month ($M=6.84$), while those who create content for between one and five tools read six books per month ($M_{1-2\text{tools}}=5.47$, $M_{3-5\text{tools}}=5.96$). Graduate students who do not create any social media content read five books per month ($M=5.40$).

Participation in Social Media and Demographics

For our analysis, we define participation and use of social media as using the tool occasionally to daily. Table 42 represents the number of respondents and the percentage within each discipline who participate in the social media tool daily, weekly, monthly, or

occasionally. Overall, more social scientists and humanists participate in social media than respondents in sciences, medical sciences, engineering/technology disciplines. We found a significant association between discipline and all forms of social media listed in our survey.

Table 42. Percentage of US Graduate Student Respondents Who Participate in Social Media by Discipline

	Sciences	Medical Sciences	Engineering/ Technology /Math	Social Sciences	Humanities
Blogging	66 38.4%	23 34.3%	96 55.2%	178 54.3%	61 64.2%
Microblogging	25 14.6%	10 14.7%	47 26.9%	107 32.7%	19 20.4%
RSS Feeds	50 29.6%	13 20.0%	70 41.2%	111 34.6%	31 34.1%
Social Networking	97 57.1%	48 69.6%	101 58.0%	242 73.8%	65 69.1%
Social Tagging	14 8.3%	6 8.8%	33 18.9%	62 19.3%	13 13.8%
Collaborative Authoring	105 61.5%	33 48.5%	121 69.1%	216 65.9%	56 58.9%
Comments in articles	49 28.7%	28 41.8%	77 44.3%	152 46.9%	46 48.4%
Image sharing	48 28.1%	17 25.4%	42 24.0%	87 26.6%	41 43.6%
Audio sharing	45 26.5%	20 29.4%	59 33.9%	111 34.5%	44 46.3%
Video sharing	80 47.1%	39 57.4%	106 60.5%	204 62.2%	71 75.5%

There are some associations between academic status and participation in microblogging ($\chi^2=24.175$, $p<.0001$), social networking ($\chi^2=8.892$, $p=.064$), social tagging ($\chi^2=8.644$, $p=.071$), user comments in articles ($\chi^2=7.561$, $p=.109$), image sharing ($\chi^2=11.351$, $p=.023$), and audio sharing ($\chi^2=13.034$, $p=.011$). Master's students participate most in microblogging (33%), social networking (72%), user comments (48%), image sharing (34%), and audio sharing (39%). Twenty percent also participate in social tagging.

Over half of doctoral students participate in social networking (63%), user comments (40%), audio sharing (29%), image sharing (25%), microblogging (22%), and social tagging (13%). Two-thirds (69%) of JD students participate in social networking, 44% in user comments, one-quarter in audio sharing and social tagging, 19% in microblogging, and 13% in image sharing. All MD students participate in microblogging (2), social networking (1), and audio sharing (1).

There is a significant difference between the respondent's age and participation in blogging ($\chi^2=6.298$, $p=.012$), RSS feeds ($\chi^2=1.701$, $p=.192$), user comments ($\chi^2=3.108$, $p=.078$), audio sharing ($\chi^2=3.803$, $p=.051$), and video sharing ($\chi^2=3.968$, $p=.046$). In general, graduates students at least 25 years old participate more in these social media tools. Sixty-two percent of students participate in video sharing, 54% in blogging, 45% in user comments, 36% in audio sharing, and 35% in RSS feeds. Over half (55%) of younger students participate in video sharing, 44% in blogging, 38% in user comments, 30% in RSS feeds, and 29% in audio sharing. We found no other associations between graduate students' age and participation in social media.

Female graduate students participate in social networking ($\chi^2=13.332$, $p<.0001$), collaborative authoring ($\chi^2=7.237$, $p=.007$), image sharing ($\chi^2=5.930$, $p=.015$), and video sharing ($\chi^2=6.297$, $p=.012$) than male students. Seventy-one percent of women participate in social networking, 68% in collaborative authoring, 66% in video sharing, and 32% in image sharing. Fifty-nine percent of men participate in social networking and collaborative authoring, 55% in video sharing, and 24% in image sharing. We did not find any other differences between gender and use of social media.

Creation of Social Media and Demographics

For our analysis, we defined the creation of social media as daily to occasionally. More respondents in each discipline do not create each social media tool than create it. Overall, more social scientists and humanists create social media than scientists, medical scientists or engineers. Table 43 represents the number of respondents and the percentage within each discipline who participate in the social media tool daily, weekly, monthly, or occasionally. We found a significant association between discipline and all forms of social media listed in our survey, except image sharing.

Table 43. Percentage of US Graduate Student Respondents Who Create Social Media Content by Discipline

	Sciences	Medical Sciences	Engineering/ Technology /Math	Social Sciences	Humanities
Blogging	20 11.8%	6 9.2%	39 22.7%	77 23.8%	32 33.7%
Microblogging	14 8.3%	4 6.2%	23 13.6%	59 18.2%	10 10.4%
RSS Feeds	6 3.6%	0 0%	12 7.1%	25 7.9%	6 6.4%
Social Networking	54 32.1%	23 35.4%	63 36.6%	147 45.5%	39 41.1%
Social Tagging	9 5.4%	1 1.6%	19 11.1%	32 9.9%	7 7.5%
Collaborative Authoring	76 44.7%	16 24.6%	92 53.2%	158 48.8%	44 46.3%
Comments in articles	22 13.0%	5 7.7%	28 16.4%	80 24.8%	20 21.1%
Image sharing	20 11.8%	4 6.3%	20 11.6%	43 13.3%	15 15.8%
Audio sharing	5 3.0%	3 4.7%	9 5.3%	41 12.8%	12 12.8%
Video sharing	21 12.5%	7 10.8%	34 19.9%	64 19.8%	25 26.6%

We found some associations between academic status and the creation of microblogging ($\chi^2=8.473$, $p=.076$), social tagging ($\chi^2=15.750$, $p=.003$), user comments in articles ($\chi^2=8.926$, $p=.063$), and image sharing ($\chi^2=7.893$, $p=.096$). Seventeen percent of master's students create microblogging content, followed by 115 of doctoral students, and 6% of JD students. Master's students also create more content for user comments (24%) and image sharing (15%). Eighteen percent of doctoral students and 13% of JD students create user comments. Only 11% of doctoral students create image sharing content, but no JD or MD students does. However, JD students create more social tagging content (13%), whereas only 10% of master's students and 6% of doctoral students create social tagging content. In addition, the sole MD student respondent creates social tagging content.

Women also *create* more content for blogging ($\chi^2=7.681$, $p=.006$), social networking ($\chi^2=8.107$, $p=.004$), collaborative authoring ($\chi^2=6.327$, $p=.012$), image sharing ($\chi^2=6.966$, $p=.008$), and audio sharing ($\chi^2=3.437$, $p=.064$). Fifty-one percent of women create content for collaborative authoring tools, 43% for social networking, 24% for blogging, 15% for image sharing, and 10% for audio sharing. Forty-two percent of men create content for collaborative authoring tools, 33% for social networking, 16% for blogging, 9% for image sharing, and 7% for audio sharing.

There are no significant differences between graduate students' age and the creation of social media content.

Open Ended Questions

At the end of the survey, we asked, “*What role do electronic resources play in your school work?*” We hoped the open-ended questions would provide the forum for the respondents to address any issues or topics that were not addressed in the survey. In addition, the open-ended comments provide another dimension to understand the value of scholarly reading and library resources. We received 825 comments to the question.

The majority of the comments praised the role of electronic journals in their course work and research activities, and especially noted the importance of the library’s electronic collections. Many respondents also encouraged the use of electronic resources as a way to collaborate and share ideas with colleagues and classmates, through blackboard or social media.

The comments can be categorized into five groups: importance of scholarly articles, the role of the library, use of electronic resources, value and use of books, use of social media, and use of mobile screens. Nearly all of the comments stressed the importance of electronic resources to their graduate work.

The following are the comments we received:

Importance of scholarly articles

- *i use databases to find all resource articles I use*
- *For my research I read articles daily.*
- *Read articles*
- *I get all of my journals and articles online. I buy print materials from Amazon. I am in an online program and use blackboard and voice thread.*
- *A very big role. To the extent possible I retrieve journal articles online. I prefer to purchase print copies of books rather than read online. E-resources are critical for the classes I've taken and the classes I teach.*
- *Online journal access is essential as I live/work off campus.*
- *I download most articles and read from my computer*
- *They're useful in finding articles and allowing for collaboration with colleagues*

- *hmmmm many ways to answer this. I would say they play a supporting role, sometimes a lead role if the class is based on articles.*
- *That is where I get all of my journal articles from.*
- *I read online articles for school each week. I use databases frequently and the internet.*
- *Utmost importance. I use online journals to get all of my research information and to find methods which I will use in my own research.*
- *Very large role. I find all of my articles for school in electronic format - and I read them electronically. (My process includes finding the article, saving a PDF or XPS document, and then inserting the document into Microsoft OneNote so I can highlight and make comments).*
- *Some role, reading online journal articles for research on a topic*
- *My literature searches are practically exclusively from e-resources - I can access all the journal articles I need online.*
- *An essential one - I rely on my online access to academic journals to keep up with assigned reading and to find sources for projects. If I am unable to find a particular resource online, I will typically not pursue a physical copy.*
- *A large role given the number of journal articles I need to read.*
- *I rely on electronic journals to find the articles which I need for my research.*
- *arge. I read all of my journal articles on line*
- *They are my primary source for finding scholarly articles*
- *i use online journals and full-copy texts quite frequently in my research*
- *I utilize online journals to get articles but I then generally print them out to read*
- *critical our field is evidence-based practice and I constantly refer to current research I don't have access to any of those articles except online*
- *I continually access articles regarding my research and my coursework. They are convenient to access this way.*
- *Significant role. I prefer to read all articles on Mendeley.*
- *e-resources play a heavy role in my school work. While scholarly articles figure little into my research, sites like IBISWorld, Data Monitor and other aggregations of industry and company data are very useful to me.*
- *I use electronic articles as my primary source for obtaining literature*
- *Makes information easily obtainable. Course websites keep me informed and are used to share files. Finding articles and homework help.*
- *Major. Access to almost all journal articles comes from e-resources for me.*
- *searching for articles in psychinfo database*
- *This is a poor question. I read a lot of articles on the web for my research.*
- *Huge role. I read a lot of journal articles online.*

- *Being able to access e-resources is extremely important for me. It makes my research much more doable considering I am balancing being both a doctoral student a mother/wife. The convenience of obtaining articles, especially, is essential.*
- *online resources are the primary way for me to locate articles that support my work. I also make heavy use of google products like gmail, google scholar, and google calendar to coordinate projects and find articles.*
- *They allow easy and quick searching for articles and research*
- *Heavy use. I download lots of article PDFs and the school's subscription to online journals is vital*
- *Big. I get all my journal articles online. I use the internet to connect with supercomputers in California, to do number crunching. I use open-source computer programs.*
- *Major - it is the primary way for me to find articles*
- *I use e-resources on a daily basis. Not having digital access to journal articles makes it significantly more time consuming and difficult to do research.*
- *Very important role. The majority of the scholarly articles I read/use come from the university's e-journal subscriptions, which are invaluable resources to me.*
- *E-resources are a huge part of searching for and downloading peer-reviewed articles.*
- *Give fast access to publications and scholar articles pertaining our research work. Also, they facilitate the communication between individuals for the purpose of collaboration.*
- *Periodical articles available online play a major role in my research: e-books not at all.*
- *The journal articles available through e-resources have been very important for courses and helping me choose a research adviser. I know that once I start research, they will be vital for that as well.*
- *Very important role. Nearly all articles and books I read are in electronic format.*
- *I read all of my journals through the school subscriptions for research purposes.*
- *Electronic journal articles are very important for my research. I can't even imagine doing research without being able to download the article I need right from my laptop, whether at the office or at home or at a coffee shop.*
- *I get 99% of my scholarly articles online.*
- *I read a lot of articles online or collect online then print.*
- *I access articles online.*
- *Online access to journals is very important. I enjoy being able to browse e-books online. In both cases, I much prefer to have a paper copy (printed article or actual book) for the serious reading that is necessary for my research, but the e-resources help greatly in finding the texts that I will look for in hard copy.*
- *Crucial, most of my work is journal articles*
- *Access to articles and communication with colleagues*

- *Essential to my courses and research. I access articles and information daily.*
- *I use journal searches and online journal access all the time.*
- *Basically everything I do is facilitated by e-resources since a majority of my work is based on research articles.*
- *I use electronically available journal articles daily for class, research, and additional projects.*
- *Every article I read is obtained online. I also use molecular biology tools available on the internet.*
- *highly important - saves time in finding required articles. easy to go back and find articles. i know i have the right article.*
- *a large role. most course readings are pdfs from online journal databases.*
- *Downloading and reading recent journal articles to obtain data for running reactions. Also for seeing if there is any precedent for the reactions I hope to undertake.*
- *E-resources play a large role in my school work. They are nearly always the main source of articles that I use in papers.*
- *Vital for my research and class projects. Would be lost without Web of Science for current articles and the electronic document delivery system for older articles and reports.*
- *Every journal article I read comes from an online database as a PDF, which I then print in order to read.*
- *I rely quite heavily on electronic copies of journals or academic articles for my research. I also rely heavily on electronic readings from journals and on multimedia available online for teaching undergraduate courses.*
- *They are the primary way that I obtain research articles and search for previous information in my field.*
- *E-resources (PsycINFO and Google Scholar) are the only sources I use to retrieve scholarly articles.*
- *read many articles for meta-analyses and for my research*
- *Research Assistant--I use e-resources almost daily to find articles for scholarly resources Student--I print off online journal articles and e-reserved book chapters daily*
- *Huge role as I am always looking for new articles/information*
- *Very important, most articles I read are from e-resources if they are available in that format.*
- *the internet plays a prominent role in my studies, mostly with accessing journal articles online.*
- *They're absolutely critical; I access journal articles daily from pubmed as well as access notes for classes I'm taking and teaching.*

- *Extensively for scholarly articles. Almost necessary to complete publications or research papers.*
- *accessing articles for reading groups, class, and for posting materials for my students when I teach.*
- *Nearly every article I read I get electronically. I use online resources (like Wikipedia) to get a bird's eye view of things. Reverse search is very helpful.*
- *accessing articles from peer reviewed journals is incredibly important to keep up to date on the latest research and technology to aid in the development of my current research.*
- *very important. I usually use electronic, full-text articles exclusively.*
- *Access to journal articles for the purposes of teaching and completing my dissertation.*
- *Extremely important. I much prefer to access information online. I often come across citations and search for articles as I am researching. When possible, I try to scan print articles / chapters so I can have them available to me. I also constantly use the internet as I research and write to check facts, add context, etc.*
- *e-journal articles keep me up-to-date on new developments in field.*
- *It is the main source of all of my references (i.e. journal articles, reports, etc)*
- *I try to skim most journal articles in electronic form I search electronic journals all the time to write the dissertation.*
- *Read electronic journal articles constantly, frequently do preliminary research on websites to get scope of ideas and directions to take for projects before going to primary sources, list serves and online professional resources also serve a useful function*
- *I use them constantly for independent study as well as in my classes. I mostly use Westlaw and Lexisnexis. However, I am doing an independent study and have used the electronic journals as well.*
- *I use online copies of journal articles and books. So I would say there is a heavy influence.*
- *Access journal articles daily.*
- *They are vital; I really on electronic access to journal articles constantly.*
- *Significant, since I need access to journal articles on a daily basis.*
- *I use e-resources almost everyday to find relevant articles quick and fast*
- *I primarily use journal articles obtained in electronic format for my research.*
- *Almost all of the scholarly articles I access are electronic. I store and share research electronically, conduct most of my research electronically, and communicate electronically. E-resources are essential to almost all of my school work.*
- *A fairly large role. I utilize a lot of journals in electronic form. All are scholarly sources, however.*
- *Essential - need access to numerous journals.*

- *I like to be able to do extensive research using the IEEE database from home - I find it very valuable to be able to read articles from my home computer, rather than having to download them on campus and read them later.*
- *Efficiently obtain articles for class, and more importantly, thesis research.*
- *I read papers online all the time. If I didn't have access to electronic journals, my research would be severely hindered.*
- *e-journals greatly help in easy access and saving time. I have to constantly refer to journals for my PhD research.*
- *I use e articles for class readings, sharing with colleagues, and dissertation literature review.*
- *I do not understand the question. I rely on the AIAA website to find conference and journal articles, though. I also rely on a computer.*
- *electronic journal access is critical to my work, for literature searches of previous work, keeping abreast of current results, and inspiration for my own research*
- *Quite essential. I use it all the time whenever I search for articles.*
- *Collecting articles in order to write my thesis or complete school work*
- *I read all research articles online*
- *Very important, use e-resources almost every day to search online academic articles, and also to view course articles*
- *I look up facts online to help me complete my homework; I read articles for class projects*
- *They are very important. Most of my research searches are done in sci-finder, and, unless the article is extremely pertinent, I won't even try to get it if it's not available electronically.*
- *A very important role. Most of the cases we read, articles we research, are only available, or more easily available online.*
- *Electronic access to journal articles (and statistical reference books, when available) are vital, as are the databases that help me locate articles. Most of my knowledge of my field comes from journal articles, and electronic access to them is a huge savings of time, paper, and hassle.*
- *Online resources for journal/article searching is absolutely essential to understanding the previous literature and finding out about new research.*
- *Electronic searches for articles, manuscript images, digital collections, TEAMS for reading sources, articles*
- *If the article isn't available electronically, it gets put on a list of "things to photocopy" that has never gotten shorter. I.e, if it isn't electronic, it doesn't get read.*
- *They are essential because that is how I read articles and information for class*
- *journal articles for my research/classes*

Role of the library

- *A huge part. I find most of my research materials with the online resources, esp. from the library*
- *Absolutely essential. It's endlessly frustrating when my library doesn't have a subscription to a journal that I need. This happens too often.*
- *Essential--I am always using the library databases and e-journals for all my research*
- *My school the University of Illinois at Urbana-Champaign, has a magnificent library with many subscription to scholarly journals and articles so it's just convenient to search for relevant e-resources through the school subscription for classwork, homework, and thesis related work.*
- *Little, accept library data bases*
- *I use Blackboard to download articles and the library database to search for stuff. I prefer to read everything in print though- reading from the computer bothers my eyes.*
- *Almost all course readings other than books are available electronically, either through course reserves or through the library's e-journal subscriptions.*
- *I use the library catalog, bibliographic databases, and google scholar to find articles and books on new topics and also to locate particular articles and books for quick reference. I prefer to work with printed materials, however, for the actual process of reading.*
- *Absolutely essential: being able to collect information without driving to various libraries is fantastic.*
- *Many of my courses use Illinois Compass, both as student and as a TA. I use the UIUC library website to search for journal articles related to my research.*
- *They are vital. Finding a paper that is posted on a researcher's website or some other free place is trivially easy, and is very helpful to my work. A paper that is posted online in a non-free place (like a publisher's website) is significantly more irritating to access, though it is not impossible. However, if I ever work at a less prosperous university, it may become impossible. Finding papers that are not on the internet is difficult and very time-consuming, and requires some luck regarding the library.*
- *Huge. Have obtained 90% of all materials used during graduate work via UT Library journal subscriptions.*
- *I do computational research, so I'm almost always on my computer for school work. I save and highlight electronic versions of papers that I find through Web of Science and the library's electronic collection. I read E-books that the library has. I search for books and articles exclusively online so the online catalog and article finders are crucial to my work.*

- *Vital. Much of my early work consisted of a literature survey, conducted primarily online using the library's journal subscriptions.*
- *Very important. I access the library almost daily to utilize journal subscriptions.*
- *A rather significant part; subscriptions to databases that are available on the UT Libraries website are invaluable to me. Many aspects of my coursework depend on access to them.*
- *They are very helpful and easy access. saves a lot of time from trip to library. It also help to find connecting articles while using e-resources.*
- *A great deal as It allows me to save time when doing literature review by using "related publications" functions, and also avoids a trip to the library.*
- *E-resources play a major role in my school work. I often am required to find scholarly articles through library databases (e.g., Ebsco, Academic Search Premier, ProQuest).*
- *A very important role. I could not complete research in a timely fashion without the resources obtained through the library on campus.*
- *Huge role. Google Scholar searches wherein the library proxy provides the article are critical to my research.*
- *I read online journals via the web and SHUs various databases very regularly*
- *A huge role: I depend on the internet to complete my work. My projects always start by looking at the library's databases and collections online.*
- *a big role, as I download most of the papers from the web/library*
- *They are very important. I am able to look up articles online and download them through the library website which is convenient and saves a lot of time. Also some courses have electronic reserves for the reading materials so instead of having to buy books we can download PDFs of the chapters that appear on the syllabus.*
- *A very significant role. I browse and read articles through the library subscription on a very regular basis. I try to use it to keep up with the most recent developments as well, outside of dissertation work.*
- *They are extremely important to my work! It's convenient to be able to browse through journals from my home or any other place. It saves me time from having to go to the library and I am able to print them. Being able to access e-resources has made my life so much more easier. THANK YOU!*
- *Pretty big for my current class as we are required to seek out additional materials and readings for our assignments. It is extremely helpful that I have access through UT libraries.*
- *Very important as source of information - convenient, access to a larger collection of resources outside our own library system (through our library as well as from free sources), current publications, easier sharing with colleagues; environmentally desirable*

- *E-resources are crucial to me, as I am a distance student and unable to visit the library on a regular basis.*
- *Vital for finding information; I use PubMed.gov and our library's subscriptions to get articles from electronic journals constantly. Having to rely on paper searches and trips to the physical libraries would drastically slow me down and/or reduce the amount of searching/finding/reading I do.*
- *In order to have time to write papers and do well, I LOVE being able to search articles and read them from home. I can't imagine taking the time to physically go to the library and find print resources. I wouldn't be able to write my papers without e-resources.*
- *they're pretty much everything. I have never checked out a book from the library, I get everything online.*
- *Very important source of information to inform current research, especially as library does not have full physical collections to all journals of interest to my field.*
- *Major - University has most resources only electronically*
- *I use them often, especially since I do not live near the campus library.*
- *They're really important - I am on fellowship this year and living away from my university, so I don't have physical access to a library. E-resources have made working off-campus much easier than it would have been otherwise.*
- *Essential. I would have much greater difficulty if I had to go to the library every time I needed a source. E-resources are crucial to my success as a student.*
- *I get almost everything I read on pdf from the library.*
- *A great role but I use them in conjunction with visiting the physical library frequently.*
- *I almost never go to the physical library. E-resources are essential!*
- *most of my research to locate articles is done on the university's library site. when teaching I try to use relevant, interesting videos (youtube) and other such things available for free online.*
- *If I can get a print source in an electronic version, I prefer that so I can save it. That way, I have my own copy. Electronic sources save time because I do not have to make a trip to the library. I almost always end up printing the electronic sources, however, especially if it is in PDF form.*
- *They are essential because some articles are only available online as the library does not have a print subscription. Additionally, they allow me to do research and course work on my own time anywhere.*
- *I use it every day looking up articles and doing research for my thesis. The library provides free access to a lot of major publications that I wouldn't be able to get otherwise.*
- *A huge role! I could not do my work without access to the many journals that the library subscribes to online.*

- *The resources at our school, especially those found online, allow me to use my time efficiently.*
- *I read a lot of articles that are found online or put into an e-reserve database by the main library staff.*
- *In general, I'd have access to a print copy of anything I can find online, but it's much more convenient downloading it from my office than going to the library.*
- *e-resources have played a major role in my research due to the university libraries often not having resources needed and the inability to get them quickly; whereas e-books and articles can be accessed from jstor and rism in a quick, prompt manner*
- *Allow me to access journals easily and quickly so I do not need to spend a large amount of time copying articles in the library.*
- *Then enable me to carry on my research and writing from home and/or at times when the library is not open. I can get both primary and secondary sources through Google Books, JSTOR, ILL, etc. that make my research and scholarship possible. Without them? I would be less productive.*
- *A large role; I acquire nearly all of my required course reading on library e-reserves. Articles I need for my own research, I primarily use online resources (library search engines, online collections) to satisfy my needs.*
- *Quite a significant role. Online access to the library and other resources is where I pull the most significant portion of my research.*
- *I'm an off-campus student, so they are extremely valuable. Access to electronic journal articles in full-text pdf versions is essential. However, it becomes difficult to navigate the web of databases/access points/etc among the massive amount of UIUC library resources. It's a little overwhelming and can be intimidating. Links and e-resources keep course content current. Also allows flexibility to deal with the readings in print or on the laptop, ipad or computer. Very useful.*
- *They play a significant role, as I am currently living out of state with my family while writing my dissertation. E-resources provide the main link back to my university, as it is VERY difficult to get scholarly affiliation with local university libraries for access to the materials I need.*
- *University library's subscription to web-based full-text databases of academic journals (EBSCO, JSTOR, etc.) are absolutely essential to my everyday activities.*
- *I use CU's online subscriptions to access all my journal articles needed for lit review, experimental design, and writing.*

Use of electronic resources

- *I use e-resources almost exclusively when researching topics for my manuscripts or school-assigned papers and projects.*
- *I use Google, library databases, and scholarly websites every day.*
- *i use them constantly.*
- *I get almost all of my resources electronically.*
- *research, communication*
- *Our professors make frequent use of them, mainly through their own websites or course organization websites such as Blackboard.*
- *Wikipedia's got my back.*
- *I used them constantly for research when I was in classes. I am now student teaching and I use various e-resources for lesson planning.*
- *Work on assignments and regular study*
- *Essential*
- *Sole use for Literature review. I started this over the summer but have not worked on it in the past 30 days. I will pick it back up in Jan.*
- *Very important*
- *research purposes*
- *I could not complete my degree without them.*
- *A significant one; I obtain all the papers I read from online sources.*
- *a big one*
- *Significant, will be more so in my future*
- *I prefer hardcopy for most resources*
- *I check out DSLR cameras from the art school media pool and use the mdid image archive*
- *Preparing for papers and presentations*
- *I get most of my research for projects from e-resources.*
- *Major!*
- *large role, almost all my papers come from e-resources*
- *essential*
- *Not enough of a role -- there are barely any available that are relevant*
- *huge role -- used all the time when taking classes and now use all the time for writing my dissertation*
- *Online journals and textbooks. Have used iPad for textbook purchases.*
- *Critical to obtaining the information I need to complete my degree.*
- *I use them frequently.*
- *a fairly large role, as my classes are online and I often get e-resources through Blackboard*

- *A large role... (Why is this a qualitative question??? This could be on a likert scale... it could be a little bit more directive.... Think a little harder about how to create survey items.)*
- *A large one; most reading is done at a computer*
- *Downloading required reading.*
- *Significant*
- *Minimal*
- *My program is primarily web-based, so a lot of print source are offered electronically.*
- *Top priority for doing my research- primary source of coursework, special projects, reading beyond courses*
- *major part of my day*
- *Very essential in gathering material for course work and for resource purposes in my research.*
- *they are a primary resource*
- *a very heavy one - most of the papers I read are acquired through e-resources*
- *E-resources play a very prominent role in my school work. I would say around fifty percent of my research is collected via e-resources.*
- *Can't live without the online library.*
- *vital*
- *Huge role. Most of what I use for work is an e-resource.*
- *I use psychinfo and ERIC almost daily to read articles and research papers.*
- *An essential role*
- *They are essential. I am an online student, so I use a lot of e-resources for class.*
- *research and fact checking*
- *That is where the majority of my research is.*
- *extremely useful for gaining additional information on topics*
- *None. Although I did research curriculum throughout the country through the internet. I do not use technology that much in the classroom. I show movies from you-tube and hulu sometimes.*
- *very important. it's my source of knowledge*
- *important role*
- *Very important--all course materials are listed online and most articles assigned for class are available through the online course website or course reserves.*
- *I use them continuously: to define words, use a thesaurus, find articles/sources/books, purchase and request books via interlibrary loan, find information on authors, correspond with advisors, do research, read web articles on professional development, search and apply for jobs, schedule interviews...etc. etc.*
- *Reading present and past literature (technical journal articles) concerning my field of study.*

- *Helps me to access research materials instantly when I need them.*
- *Significant. I teach undergrads how to use them, I use them myself, and I'm developing an interest in digital humanities.*
- *I'm not sure that I could complete my program without available e-resources.*
- *Essential to writing my dissertation.*
- *Primary source for most information I receive and integrate into my school work*
- *Must use for research purposes*
- *I utilize e-resources for practically all of my assignments.*
- *-Take an online course through the library science program -Access most course reserves (articles) through the online ereserves -Search for answers to questions about programming through google, etc. -Required to post to a message board for a class. (Is this an "e-resource"?) -Online library catalog used quite frequently to borrow books/do ILL*
- *provide efficient way to collect reading materials and data for class assignment*
- *They are essential in completing my work.*
- *primary since I work full-time and am a distance education student*
- *none*
- *Most of the readings are found online.*
- *They play a large role. I find out about/read most articles online. I also use e-resources in my teaching and to help me collaborate with research partners.*
- *Very beneficial due to saving time and convenient storage/access aspects of e-resources*
- *They make my school work possible: I couldn't take class or access resources without e-accessibility.*
- *Essential.*
- *Absolutely essential. Almost all research done online.*
- *It is very important as my studying and classwork are entirely online.*
- *some*
- *They are extremely important. The availability of electronic copies of scholarly articles is probably the largest determiner of whether I will read the material.*
- *very important, use a number of ebooks and journal articles either posted to blackboard by a professor or obtained through Library databases*
- *I use them for almost all of my course work. I wish ALL of my course work were available electronically.*
- *Use them every single day.*
- *50% of reading materials - books, article, news, etc.*
- *I get almost everything from them*
- *A major role!*
- *A large role, almost all resources are e-resources*

- *I use them almost daily to access the resources I need both for coursework and for my own research. They definitely make my life much easier.*
- *Absolutely vital. I am constantly looking up journal articles relevant to my research*
- *They are essential. Almost 100% of what I read is downloaded electronically.*
- *Huge role in preliminary research for homework, projects and thesis level work. If legitimate sources are available online (usually the case), final research will also be done online.*
- *I rely on them for 80% of my work.*
- *a large role. We have course websites where teachers post hw, reading, solutions, grades, etc*
- *Required.*
- *Essential!!*
- *Invaluable. A majority of assigned readings are posted through Blackboard, and the e-reserves and online databases are essential to research papers.*
- *Research, class assignments*
- *They are absolutely crucial to all my research.*
- *Use them often for research and writing papers.*
- *Use them all the time for my research - keeping up with new results in the field, trying to understand more about the history of my work and theories that underlie my experiments. And sometimes I also use them for class work.*
- *When the occasion arises to further my background in a subject they are my first approach to finding information*
- *could live without them*
- *Critical*
- *thesis research and class work*
- *Very important. Quick access to the latest research is key.*
- *E-resources make up 80% of the reading I do for school.*
- *They are indispensable. It would be much harder to do legal research without electronic databases.*
- *Saves me time from research, since everything is accessible quickly online*
- *Research reference*
- *Large role - my whole program is facilitated online.*
- *My work is completely online. Therefore e-resources play a very significant role in it.*
- *getting journals online is essential to quickly getting information that I need*
- *need them to incorporate in my responses to discussions*
- *It would be impossible for me to complete tasks without them. This includes homework, research, programming assignments, etc.*
- *they are absolutely essential in helping me find sources for papers and my independent study.*

- *A lot*
- *Important Role*
- *They are important for getting scientific journal information for classes, teaching and research. In the future, they will be very important in regard to getting my research published.*
- *I use them for my PhD research and classes.*
- *extremely important - I work full-time AND attend school full-time. I rarely have the opportunity to use the library in person. I rely heavily on the access e-resources offer.*
- *Major*
- *E-resources are easily accessible forms of print resources - so very important*
- *Essential for informing and disseminating my research. Also for keeping tabs on trends in my field, professional networking*
- *teachers, students, work all use them. (this is a badly worded question - what exactly are you looking for? Their role is for transmission of Information.)*
- *A great deal*
- *I use them daily.*
- *Critical for reading papers and organizing collaborations*
- *great*
- *I use e-resources almost exclusively in my teaching and research work.*
- *I use them daily to inform research, explain phenomena, and complete assignments.*
- *they are the main resources I rely on*
- *I use them a lot.*
- *big role*
- *Most of my school work is on the web*
- *Huge! Most of what I read are e-resources, and for my research I rely really heavily on using e-resources. I live pretty far from campus, so I don't like to have to make a ton of trips down to campus. E-resources help me out a lot!*
- *I read the majority of articles for my courses through e-resources*
- *A big one*
- *Very important for research, looking at previous work to create ideas, use techniques, and plan my future work.*
- *essential for achieving goals. Time saver. Convenient.*
- *I use e-resources on a daily basis since my grad program is online.*
- *Large, for class assignments and papers.*
- *e-resources are absolutely essential to my progress as a student. I rely heavily on electronic information sources to improve my understanding of class material, and to educate myself on the current literature.*
- *They are the majority of my work.*

- *without e-resources, it would be nearly impossible for all the graduate students in our department to get our work done*
- *I collect them for my thesis as well as use them for extra help in my classwork.*
- *vital.*
- *Critical. Huge. Couldn't do school work without them.*
- *A big one.*
- *They are used weekly in at least one class.*
- *read papers and books*
- *Very high usage rate when I was completing my dissertation proposal.*
- *Big role*
- *I use them quite frequently*
- *provide source of information*
- *Very little.*
- *I use email and version control. For finding papers, I use the internet exclusively.*
- *research for papers and to answer questions regarding qualitative problem solving*
- *useful*
- *Used for just about everything I do*
- *I look up sources online almost exclusively*
- *Significant role. I prefer to read all articles on Mendeley.*
- *Major!*
- *Big role*
- *I use them quite frequently*
- *provide source of information*
- *Very little.*
- *I use email and version control. For finding papers, I use the internet exclusively.*
- *research for papers and to answer questions regarding qualitative problem solving*
- *useful*
- *Used for just about everything I do*
- *I look up sources online almost exclusively*
- *I use very often to find out relevant work for my research, teaching, and other interests in more general.*
- *They are often used by professors to instruct or provide background information. They are a main source when I write papers.*
- *most imp*
- *I use them extensively in researching topics related to my research.*
- *Very important for researching academic journals, communication, and managing paper work (payroll, travel)*
- *Vital*

- *Significant and essential*
- *I am a distance education student, I couldn't take classes or prepare any of my assignments without e-resources*
- *A large part of researching*
- *Increasingly available so they they are being used more and more*
- *absolutely essential. most of course materials*
- *The majority of my research is done electronically*
- *Most of my e-resources come from the library search engine. It's a great tool for looking for citations and keeping up with publications, but I also prefer to read print.*
- *A pivitol role*
- *Research, sources for papers*
- *huge. i'm at my computer all the time. finding papers, emails, writing my thesis, analyzing data, etc.*
- *They are central.*
- *E-resources play a huge role in my work because I live in Chicago, making it easier to access primary/secondary sources without leaving my desk.*
- *Main source of content in field and work*
- *They are very important*
- *Essential. I almsot exclusively use online resources.*
- *50%*
- *Pdfs are pretty much my 3rd job*
- *Free journal articles on campus are essential for quick access to relevant and new works in my field*
- *Supplementary materials and lecture notes.*
- *Very important to stay informed and up to date in my field. Also, when determining efficacy for treatment options*
- *Important*
- *EEverything I read for school work is an electronic resource. If it doesn't exist online, it effectively doesn't exist — partly because I won't put much effort into finding a print copy, and partly because 98% of the readings relevant to my field are available electronically anyway.*
- *They are essential for my course research.*
- *a huge role, especially in my current dissertation work*
- *I am doing my program online so e-resources make up a vast majority of my school work.*
- *Journal articles accessed through online databases = Indispensable to my school work. Electronic books = Sometimes useful, though I typically prefer hard copies of books.*
- *I read e-resources daily.*

- *I find and read nearly every article (and many book chapters) that I read or cite online. Most of my classes have online sites where course materials are posted, and some of them have online quizzes. I also use GoogleDocs for both my classes and my research.*
- *I very heavily depend on e-resources for completing my work. Without resources like Jstor and EBSCO I would not be able to complete my thesis.*
- *Many required readings are provided online. Also much of the research I conduct for papers and course projects I obtain online, often from the ERIC database.*
- *Mostly all readings/resources*
- *I use e-resources to conveniently and quickly search literature for my dissertation.*
- *necessary source of information to inform research efforts*
- *They are the major source of information.*
- *I need them to survive*
- *online communication online tests and study guides lectures given in electronic form some print books have e resources*
- *About 75-80% of what i read could be called an e-resource*
- *I use e-resources for both completing assignment within the context of class (and so not necessarily related directly to my research) as well as for independent research on research interests. E-resources, particularly access to databases/full pdfs as well as e-books are crucial to my studies.*
- *They are incredibly useful since they allow for immediate access. Further, since multiple people can access them at the same time it makes materials more accessible. I also use them for the classes I teach.*
- *Large part of course reserves, easiest and best way to get materials from JSTOR, RILM, etc.*
- *Use almost all online resources searching journal databases, google scholar, ect.*
- *They are absolutely critical for gaining a decent amount of information in a reasonable amount of time, as well as for sifting through the depth of papers in my field.*
- *they are an essential part of my research and practice, I would have to completely relearn my job as a librarian without them*
- *ALL my sources are e-sources -- I'm an online-only student.*
- *Everything*
- *They are critical to setting up every reaction I run every day.*
- *a huge role. I am a mother and a PhD student and without the great support from my university to obtain electronic resources, I will have great difficulty in making an efficient use of my time and gaining more knowledge for my research and writing.*
- *need to do research several times throughout the year, almost all of it done with e-resources*

- *It's the main source for me to search articles and books.*
- *e-awesome*
- *Major*
- *An enormous and integral role; would not be able to do school work without them.*
- *Vital*
- *Huge; for classes, for papers, for writing articles, for background research, and for private study.*
- *A HUGE role. Almost all the articles and books I read are electronic. I use software to organize my collection of articles (Papers).*
- *I have tried to move to electronic reading rather than printing out the large volume of assigned readings. It has worked well so far.*
- *e-resources are central to my dissertation progress*
- *very important*
- *Key role*
- *Essential!! I need access to e-resources or I would greatly struggle with completing my degree*
- *Perhaps 15%-20% of the articles and books I have researched have been e-resources. They help a great deal when I cannot access print documents.*
- *Information gathering and sharing, communication*
- *They are the primary resource used for assigned class readings as well as for research used in papers and projects.*
- *Significant*
- *They play an important role because I can find a number of useful sources that have been made available on line relating to the subject I study.*
- *They are vital, also convenient.*
- *Essential resource used nearly daily.*
- *references for writing*
- *Help with Dissertation.*
- *Use them as a additional resource*
- *They are essential. I use them daily.*
- *these drive my research*
- *I use them all the time.*
- *minimal*
- *Find articles, dropbox to share and back up files*
- *a great deal*
- *Provide insight into previous research related to my project.*
- *They are critical*

- *They are vital in my learning experience as I do not have as easy an access to sources on campus.*
- *reference*
- *e-Resources are a vital role in my work and my primary mode of access.*
- *the majority of my resources are in electronic format*
- *A central role. I use articles and books on an almost daily basis.*
- *Use them every day to conduct research and developments in my field*
- *I use them all of the time*
- *It was essential*
- *moderate role...basic background research*
- *E-resources do not play a very important role in my school work.*
- *Heavy role, most information and work is distributed electronically.*
- *A huge one*
- *They play a vital role in the development of my research. Aside from actually learning a technique in the lab, electronic resources are the sole source of information.*
- *A huge role!*
- *They play an integral role in my research and interaction with material and colleagues.*
- *HUGE for finding articles easily*
- *A crucial roll, a majority of my reading is done via e-resources. I believe my productivity is significantly enhanced by e-resources.*
- *They are a first source for information, but typically we will still need to find a PDF that is a copy of the original paper version.*
- *Use them in all of my research papers and studies.*
- *I use them daily.*
- *They are necessary to obtain information needed for scholarly research.*
- *they are essential to most of my work for courses and assitantships*
- *Essential, lack of e-resources would have an extremely negative impact on my school work. E-resources help me greatly to be more efficient in time management.*
- *I use e-resources to find and read articles and to communicate with my advisor and collaborators. They are integral to my research and functioning as a grad student.*
- *Big role*
- *Essential tools*
- *references for papers and daily assignments*
- *very important - they provide easy and quick access to many academic fields*
- *Very important to obtain publications.*
- *very important*

- *They are an extremely valuable resource that I am constantly using. If I did not have e-resources, I would fail at school.*
- *Central role*
- *90%*
- *big part*
- *Major. I am actually an online student which allows me to work and go to grad school simultaneously.*
- *major resource*
- *useful*
- *absolutely essential*
- *They are important. I have access to so many research papers and I can quickly discover whether they are appropriate for the subject I am researching. Also I have access to very recent publications electronically without having to wait for printed versions.*
- *They not only play a critical role in my reading, e-resources are also one focus of my dissertation research*
- *A big role*
- *very important, especially while doing research for classes and papers*
- *A very large role. I'm not sure how I would complete my thesis without them.*
- *significant*
- *None*
- *major role*
- *A very large role since I am a distance student*
- *they are essential*
- *great*
- *Use them to access papers.*
- *I use them for research.*
- *as large as print format*
- *i look at more things that are electronic*
- *a large role to write papers and complete assignments.*
- *Course reserves; e-books; databases; abstract indexes; online library catalog; apps*
- *Critical*
- *Major part of school work is obtaining sheet music for class.*
- *E-resources plays a vital part in my school work since I am a distance education student. In fact, I don't think I could survive without them!*
- *necessary for completion of assignments -- access to current research from multiple locations*

- *E-resources are crucial, because I cannot always go somewhere to find the print source of a book, article, etc. E-resources are very helpful and convenient for my schedule.*
- *Important*
- *very important as a distance student*
- *I use them constantly.*
- *very important*
- *I use them extensively for research purposes.*
- *Very crucial role. E-resources supply more than 80% of the information that I absorb and utilize.*
- *95% of sources for assignments.*
- *mainly research. they are central to finding sources, i usually like to print out the articles I really like. I also use the internet to contact peers and people I am working with (email), I have to use blackboard a lot because I am a student. i have to google information about computer programs fairly often (I am getting a stats minor). I use them a lot. I am on the computer daily typically for multiple hours working*
- *I do the vast majority of my research online and look for pdfs. If something is only available in print I am much less likely to seek it out, unless it is extremely relevant.*
- *I almost always only use e-resources when researching, and reading school readings.*
- *'Required sources for discussion.*
- *I use them all of the time.*
- *I use e-resources for majority of my literature review and research projects. Also for coursework assignments.*
- *major*
- *Major source of technical information for completing research.*
- *E-resources are an essential part of my school work. It has everything from sources to read to assignments that are due for clases.*
- *Essential tool for my dissertation research*
- *I would not be able to be as efficient or thorough if I did not have access. Very important to me.*
- *Essential to completion of assignments, for researching topics, for broadening my understanding, and for keeping up with advancements in the field.*
- *I use 95% e-resources for reading assignments for class and my own research. 100% for information seeking.*
- *major*
- *important*
- *Almost all papers I read come from e-resources; the internet is fundamental in getting to know new research.*
- *work information, research, investigation, type writing. all of this are for academical formation*

- *important*
- *Essential. It facilitates the process of academic research and writing tremendously.*
- *Very important, almost most material nowadays are online*
- *They are essential. The majority of my research is conducted with the assistance of internet resources.*
- *they serve as the primary source from which I gain access to research and class materials*
- *I use e-resources for my papers and for classes*
- *Main source of information*
- *vital for research for academic papers*
- *All my research is done online. I take part in an online discussion board in Blackboard for a class I co-facilitate*
- *Used for completion of assignments*
- *Integral. All day every day.*
- *primary information source.*
- *Critical. Use them constantly*
- *important role*
- *It is absolutely essential*
- *I rely heavily on them for research.*
- *I use them primarily to find information about publications, to document myself*
- *They play a very important role. I get most of my information from e-resources.*
- *Important*
- *Very crucial for research purposes.*
- *Essential*
- *Essential for all aspects: literature searches, data storage and manipulation, manuscript preparation and submission*
- *Very important for quick access to journals and some books.*
- *Significant. In reading literature about my research, preparing for teaching, etc.*
- *Major*
- *Essential! It is not economically possible to retrieve/purchase/print everything I need and/or want to read. e-resources add to diversity, breadth, depth of information. e-resources allow me to access materials printed abroad which would be extremely prohibitive in print. e-resources are incredibly convenient; I can search and retrieve items at my convenience, from home, school or where ever I happen to be at the time.*
- *a huge role. I use library databases constantly and rarely venture outside of e-resources.*
- *I use them almost everyday.*
- *Almost all of my work is researched on the internet.*

- *A large role, if it's not electronic I might not be able to get it as quickly.*
- *They provide nearly 100% of the scientific literature that I review in my work.*
- *I use them on a daily basis*
- *Very large role - important for writing papers.*
- *couldn't get by without them*
- *I am done with school work but try to do scholarly work and E-resources play a big role.*
- *A considerable role*
- *As in work, they play a heavy role. Lectures, PowerPoints, the transfer of data or assignments and the research required to complete assignments are all done electronically.*
- *availability of the books and article to read*
- *very important*
- *essential*
- *Assist me in research needed for research papers/presentations*
- *Necessary role for my research and coursework*
- *use them every day*
- *very important because all of the materials for the classes are offered online.*
- *They are essential, though I try to print my readings: reading them on the computer itself can be very distracting (the internet and media I have on the computer draws focus).*
- *Essential*
- *They are vital in gathering information for my research.*
- *important role*
- *necessary for off-campus access*
- *Moodle and online readings are very common, as well as forum postings*
- *Essential to do research and learn about my field*
- *About 80% of information obtained*
- *Enormous. I search and read from online subscription sources such as Westlaw and download materials posted online by professors on a daily basis.*
- *They are essential to keeping updated about current trends in my field and are large contributor to my research*
- *i use them for dissertation*
- *Required References for supporting papers*
- *I couldn't be a student without them, I need remote access and database services to complete both my coursework and my research.*
- *It is the primary method for obtaining course readings*
- *A very significant role as I am currently away from campus.*

- *A tremendous role! E-resources is incredibly helpful!!*
- *use daily*
- *I use them often.*
- *major source for completing a term paper*
- *They are a major part of my research for class discussion and course papers*
- *I use these resources to get information, save my work, share my work and learn.*
- *Essential. Provide the bulk of information I obtain for my research and coursework.*
- *Extremely important role. My sole means of gaining resources for school assignments.*
- *I use them as a doctoral student and as an instructor.*
- *main source of information about 90%*
- *All research starts online, and usually ends there, too. I am focused on digital media technology, so basically everything I do relates to e-something-or-another.*
- *They are how I stay abreast of my research field. They also help me research new topics I will be working on. VERY helpful.*
- *Very important. I use them all the time. I would say essential.*
- *Vital! this has become in the most important resource. Without this tool I would be much less efficient.*
- *They play a large role. I have to do a lot of research for different assignments and e-resources are the easiest way to do that.*
- *Essential.*
- *Dissertation and teaching*
- *I get most of my resources/citations electronically*
- *Critical for research and study.*
- *Start point to do my work very essential to access the right information Provide me with important up to date data and knowledge*
- *huge*
- *Significant role in research and background material on various subjects*
- *digital is everywhere, very important to daily life.*
- *very important. get most articles from this resource*
- *Obtaining reaction schemes.*
- *Important*
- *Large. They are of primary educational use both for class and my internship.*
- *They are my primary source of resources.*
- *Assignments, independent research.*
- *A lot. All I have left is my thesis.*
- *They are very important for the scholarly papers I have to write, as well as for beginning work on my thesis.*
- *I use e-resources to do all of my research for class*

- *99% of the time I use e-resources for school*
- *updating resources and reading on my research 2. browsing/reading for the topics that I am personally interested in, whether or not the topic is related to my research/school work*
- *It is important.*
- *Mandatory*
- *All of it*
- *Huge.*
- *Main source for my research idea and data*
- *none*
- *used on an as needed basis.*
- *Necessary Role, needed for all class assignment*
- *Very important*
- *Very important.*
- *I get all my readings from e-resources. I'm not exactly clear what you mean by e-resources.*
- *Quick access to essential articles and texts or their whereabouts. Often used in lieu of course textbook to learn about course subjects.*
- *Important, at least half and half with print resources*
- *Nearly all my literature searches*
- *I use them for almost everything in terms of research and required class readings*
- *I read almost everything online. I use the internet to access required articles and books for class. I use it to find good sources when doing research for papers.*
- *very valuable and large role*
- *very important*
- *Guidance*
- *Extremely valuable for online students*
- *Critical*
- *It helps in answering every day questions*
- *Very Important*
- *I read articles (through databases) for classes, researched for my instructor (I'm a GTA), and read articles for a research proposal I'm working on. I also looked at research guides on the library website and used online tools to help with my research (endnote, Google docs, etc.)*
- *Everyday activities*
- *They have become the main ones.*
- *Crucial role, weekly, sometimes daily*
- *I am using them more frequently. I find them to be very helpful.*

- *i am a distance learner, so they are nearly all of my resources.*
- *a great deal. finding books at the library, e-journals, email, etc...*
- *Huge part...use them almost daily*
- *a major role*
- *Huge, they are used in every class*
- *Use them for required readings*
- *download papers*
- *Large role*
- *A significant role-use almost daily*
- *very important*
- *Papers and books from online sources*
- *A great role--use them weekly*
- *Significant*
- *essential*
- *Critical - required for classes and research*
- *major role; online classes, online research, emailing*
- *An important role.*
- *Vital in the development of my dissertation.*
- *I am a distance ed student, so they play a vital role. They are essential.*
- *E-sources are essential when I am conducting research for a paper, and also for my own curiosity.*
- *Majority*
- *they are essential - I'll be sad when I lose access when I graduate in May!*
- *I use them all the time.*
- *A very significant role. The majority of the reading for my courses are e-resources.*
- *Frequently, more important than print.*
- *My courses will be taken entirely online.*
- *They play a major role in learning evidence-based practices. The ability to access and critique studies is integral to being a successful speech-language pathologist.*
- *A large role. I read e-resources daily, multiple times during the day.*
- *I primarily rely on e-resources, such as Jstor for my classes and research.*
- *Pretty big part.*
- *I require them for research. They are very important to have.*
- *they are very important; often, I can do much of my research from home, which is nice.*
- *They're basically the only resource I use for class and my research.*
- *Not much - most Professors are not inept enough*
- *I use them often for course reading and research.*
- *needed*

- *A big role - I use them for every class I have, whether it is for assigned reading or for writing papers/other assignments*
- *I don't know what that means. But I do use Pubmed nearly daily.*
- *A major role in helping me research and write assigned papers effectively.*
- *Important because, is the main information resource that I used*
- *Large*
- *E-resources play an essential role in my work and I wish they played more of one. There are so many more opportunities for the things I do for e-resources to be involved, but it would really take more buy-in from my colleagues and institution, not to mention the academic culture I'm in (at many levels).*
- *E-resources are an increasingly-important aspect of school work. However, they have not yet replaced other resources in importance.*
- *None, currently*
- *Major*
- *I'm in the distance education program, so everything I do it through e-resources.*
- *A scientist MUST stay up to date on research being done elsewhere. I spend at least an hour a day reading on subjects of varying relation to my research.*
- *They are essential to my work on papers and my thesis.*
- *Essential; assigned reading and for assignments*
- *To assist with: preparing for classes, conducting research, and teaching my own class*
- *They are a profoundly convenient way to acquire and transmit information on a variety of topics that inform my teaching and scholarship.*
- *Huge amount. I rely on them almost exclusively for both my research and publications.*
- *I base all my work on e-resources. I prefer them over hard copies*
- *resource for literature referencing.*
- *They are my primary source when I have to write a paper or have another project.*
- *assignment completion, black board discussion. A major role*
- *Large*
- *Often for research and ideas, I use Google Scholar daily*
- *Essential role to me*
- *A comprehensive role*
- *I am a LEEP student, so they play a very large part.*
- *The majority of my doctoral dissertation has been completed from home using online resources*
- *A central and critical role. I would be much more limited in my scholarship without them.*
- *Absolutely essential*
- *for collecting critical data or ideas related to my course subjects*

- *A huge role. I use e-resources (especially bibliographies) to track down sources I need for my dissertation. I prefer digital copies to print, but I track down print copies of all sources I need.*
- *I use them constantly to keep updated on literature.*
- *very important*
- *It's very important*
- *Everything*
- *They are a strong proponent in the my research on contemporary queer studies. I use e-resources almost daily.*
- *research*
- *Important*
- *important*
- *They are absolutely essential since I work full-time and can access documents from my home.*
- *It is a vital source of my research and work!*
- *Couldn't work without them - not like I work now anyway.*
- *important*
- *Exclusive...I even digitize any and all print material so that I run exclusively on e-resources.*
- *They are invaluable. I use them every single day. Absolutely essential.*
- *They play an important part in my school work*
- *A significant role*
- *Most of the information I need for my research & course work is found using Blackboard, PsycInfo, Google Scholar, Mendeley, and email.*
- *I use Pub-Med on a daily basis.*
- *Provide valuable sources of information related to the field of research I am in.*
- *Essential to my research & study*
- *Very important*
- *e-resources are my first choice when conducting research for my thesis or school work and therefore, are critical toward achieving my goals.*
- *I use them daily. I'd be lost without them.*
- *A large role in research*
- *Significant help with research.*
- *that is how I complete all of my research for papers*
- *Not a huge part unless you include online publications, that is where I focus most of my research.*
- *I prefer items in print, but I do use e-resources occasionally.*
- *Personal Research/Education Class Assignments*

- *I use them every day for legal research and my work with the courts.*
- *E resources play a large role, majority of reading for projects and some of assigned reading is online.*
- *most often in looking for information in papers. We also use them to collect data.*
- *Vital.*
- *i use them for research papers as well as weekly reflections for class*
- *Absolutely essential. I couldn't be successful without them.*
- *Very important.*
- *The are the primary role*
- *Almost all of the research material I read is found online.*
- *A very big role. It is the easiest way to obtain the information I need for school.*
- *E-resources ensure that my research is relevant and timely.*
- *Very important in research*
- *Essential*
- *Incredibly important; all of my literature searches are electronic, and most of my literature access is through the internet.*
- *Absolutely essential to my job and academics*
- *Very important.*
- *key role*
- *Very significant portion of my readings*
- *Essential*
- *Significant*
- *They are essential. I get nearly ALL of my resources from the Internet in some form.*
- *Enormous, internet information is essential in obtaining modern research*
- *They are essential in gathering information on current and previous work in a scientific subject.*
- *A large role (daily usage/dependence)*
- *Very Important*
- *A big role, they are very helpful for research papers and manuals.*
- *Vital. Could not accomplish my work without it*
- *Ideas/resources for thesis, lecture supplements for coursework on difficult topics*
- *essential*
- *I complete my studies entirely online, so e-resources play a MAJOR role.*
- *none*
- *sources for Research projects and papers, case studies, group projects*
- *Large role*
- *I use them every day. They're much more convenient and widely accessible than hard copies.*

- *Huge role. Any time I want a copy of an article, I use the library's online subscriptions or the arXiv to find it; I also occasionally use online textbooks (or googlebooks to find textbooks that might be relevant).*
- *I use them to search for papers that I would like to read. Quick searches for words/terms I am not familiar with. Many internet distractions.*
- *A significant role - I use e-resources on a daily basis*
- *I am a distance student, so e-resources play a very significant role in my school work. I utilize them everyday for research, communication with classmates, attending class, submitting assignments, etc.*
- *They help me get a lot of information very quickly*
- *A lot. They are very important as this is how I mainly get data*
- *journal articles for research are primary source of references*
- *Very large role.*
- *Very important*
- *Very important. Much of my reading is posted on the TWEN site through Westlaw.*
- *Fundamental*
- *All my seminar readings are downloaded, read, and marked up on my computer*
- *it gives me a lot flexibility to do my research at home*
- *Pretty in integral- use daily. Conduct almost all my research online.*
- *Vital role*
- *very important*
- *Substantial source for class readings and writing assignments*
- *very important for time management*
- *e-resources are extraordinarily important to my work. I am on the computer more than 8 hours a day, constantly using digital archives, online catalogues, library journal and reference databases, digital collections, repositories at universities, government sites, and other institutional sources, Google Books, archive.org -- the works!*
- *I research necessary information to complete school assignments and learn about whatever topic I am discussing for the week*
- *All course materials digital, with majority reading done on ipad*
- *Many of my course readings are on e-reserves*
- *A huge role, I often look at resources online and print them out so I can take them with me if I think they are important. I also work FT, so I often do homework on my commute or during my breaks so it's important for me to be able to have resources I can take with me.*
- *They are used for reading and researching. They are a very large part of my work.*
- *to keep me up to date with the latest research being done in my field*
- *Large role*

Value and use of books

- *Massive amounts of web research; I have an ebook for one of my classes.*
- *Fairly heavy, mostly through Google books for 19th c. texts and journal subscriptions through the school library; I infinitely prefer print, though.*
- *Electronic access to journals very helpful, but with books, I would rather have the hard copy.*
- *Everything is online - I miss books*
- *A vast majority of the articles I read for my classes, special fields exam, and dissertation are/will be downloaded electronically. I also request all library books through the library website.*
- *E-resource journals, available from my office, are indispensable. More e-books would be great. If I need to read something in depth, I can print it out or check it out.*
- *I access e-resources on a daily basis, particularly for finding articles and books, and occasionally for reading articles. I do believe, however, that many useful resources are not available electronically, particularly books. Books tend to have a more holistic view than articles (which I'd call "bite-size"). Also, many fundamental things are so well established that the best resource from which to obtain the information is a book. Books are often not online. I feel most researchers are not interested in going to the library, and their research is suffering as a result.*
- *A significant role: I read primarily through e-resources and try to access e-books as much as possible.*
- *A lot, now all my textbooks are e-books*
- *Little, Mostly textbooks or class notes but e-resources for back-up information are sometimes used*
- *They are a very important part and mostly what I use other than textbooks.*
- *Crucial! But could use further access to books!*
- *absolutely essential (with the only exception that I still prefer to read "real" paper books)*
- *They play a major role in my school work. I only have three textbooks this semester, and need to use e-resources often to bolster my studies.*
- *I access e-articles all the time and occasionally books.*
- *An enormous role since young people today are very much into using e-resources rather than print copies of books, journals, etc. I am primarily interested in teaching and so I want to introduce today's students to the wealth of information at their fingertips as in ebooks, and such sources as JSTOR.*

- *The are an inherent part of my school-work. We were not assigned any required books for class. All required readings are electronic.*
- *They are supplemental to the print casebooks we are required to read. I often access them to get a better understanding of the material on my own. More rarely, professors may assign some material to be completed for the course.*
- *I prefer e-resources for scholarly journals. It's very convenient to have them available in full text links. For books and most other materials, I will always prefer a hard copy.*
- *to supply my students with valid information. to give me valuable resources and information for my own education. to better my interpretation of music based on historical and theoretical analysis.*
- *Nearly all of my school work is completed using e-resources.*
- *E-resources have become the de facto standard for both assimilation of information/knowledge and dissemination of my work. I almost always use an electronic resource when available (from any source). The only times when I have to fallback to printed material is when, for instance, even a scanned version of a paper is not available or a book is not yet (because, it may be older than 20 years or out of print) available in an electronic form, or on occasions, when it is a classic. Even in the last case, I would prefer having an electronic version of the classic book for travel or otherwise when it may not be readily accessible to me.*
- *very convenient and helpful*
- *I use pubmed frequently.*
- *Essential.*
- *High*
- *Learning new information; staying up to date on new research and techniques; collaborating with classmates*
- *important in easy and convenient access to more material*
- *Very large-- do most my research online and only get paper copies if not available online. Journal articles more so online. I skim books online and if they look promising I will seek out a hard copy otherwise what I see online may be sufficient.*
- *I find all articles for my area of research online and often browse e-books that I think could be helpful. E-resources are the main way I stay up to date in my field.*
- *Huge - I look up just about everything electronically (except books and textbooks)*

Use of social media

- *A major role. I find many articles online, and I use googledocs, e-mail, facebook, and other networking sites to collaborate.*

- *Huge -- lots of courses have no required textbook or have an e-reader version of the textbook, and lots of class projects and group collaborations are done using e-resources or creating e-resources (blogs, wikis, etc.)*
- *I access articles this way, access online versions of books, collaborate, read academic blogs, stay caught up with journals in my field, find resources for technical work (both math and programming)*
- *Online scholarly journals are critical, message boards helpful.*
- *They are very important. I couldn't do my research without the collaborative tools and articles found online.*
- *Retrieve journal articles, share information, and blog*
- *I use search engines to find resources, and occasionally search for discussion blogs and tutorials.*
- *Essential. 95+% of my reading is done online through PDF organization software (Papers on Mac) and personal wikis.*
- *They are my main source of journal articles. I keep up to date with recent literature via RSS feeds, and I only search for articles via Web of Science and Google Scholar.*
- *Mainly use e-resources for course readings and research. Sometimes required to keep a blog for a course. Often use Facebook to ask fellow students about homework and classes.*
- *If by e-resources you mean any articles that can be downloaded online via Google Scholar or a library database, then I love them and find them thoroughly helpful! If you mean information from blogs, facebook, or other threads, I don't typically find those sources very useful for work purposes.*
- *Essential, especially for interacting with other scientists through Twitter and blogs, reading papers through my library's subscriptions, and interacting and working with my colleagues via e-mail and Google Docs.*
- *A very important role since I work full-time and have a family it makes things easier to acquire by not having to get to campus. It also allows me the flexibility of when I can access it. It also allows me the flexibility to subscribe to RSS feeds, blogs, etc. in order to get info from a variety of sources rather than just a few which broadens the scope.*

Use of mobile screens

- *E-Resources are vital to my schoolwork. I rely on databases for research, and I hardly ever print any articles anymore. I download them to my computer or kindle and read everywhere.*
- *I like e-journals for searching and storing, but I don't tend toward e-books on my computer. That may change if I interact with an e-reader in the future. E-ink is a perfectly fine technology in e-readerdom. Not a fan of tablets for reading.*

- *Major role - I have PDFs of all my articles cataloged and saved on my computer for easy access. I also read them using my iPad.*
- *Almost all of my reading assignments are in PDF form, which I read on my Kindle Fire.*
- *I use a tablet to read the majority of journal articles assigned as course readings. I also do most of my research on my university's library website and with Google Scholar. E-resources are very important to my school work and I don't think I would be as efficient without them.*
- *I am given many of my readings electronically and I read them on my Kindle. I also use applications like Google Docs, Google Sites, and the GSLIS Moodle to complete and improve assignments. Everyday I use online search engines and online library tools.*

Overall, the comments show a dependence on e-resources by graduate students.

The advent of technology and the adaptation of technology into classwork have made it almost essential for students to have access to e-resources to complete their work. Many respondents note that they are “essential,” “vital,” and significant to their roles as researchers, students, and instructors. They appreciate the convenience and accessibility of e-resources, including those provided by the library, and e-resources are quickly becoming the first and often only resource of scholarly information.

Role of Library Collections

We re-categorized how someone obtains scholarly reading material into three basic categories: “library-provided,” “personal subscription/purchase,” and “other.” We included interlibrary loan and school or department collection or subscription with the “library-provided” category. We included free web journal, course reserves, colleague or another person, and website in “other.” While articles are primarily obtained from a library or school-provided subscription, graduate students obtain book readings from a variety of sources (Table 44). Thirty-two percent of book readings are obtained from a library or school-provided collection, 47% are purchased and 21% are from another source, including colleague or publisher.

Table 44. Source of Reading by US Graduate Students

	Article		Book	
	N	%	N	%
Library-provided	575	59.8	244	32.2
Personal source	33	3.4	256	47.0
Others	354	36.8	157	20.7
Total	962	100.0	757	100.0

The library’s collections provide access to older articles in addition to the current collections. Sixty-four percent of the library-provided articles are at least two years old (Table 45). Regardless of the age of the publication, the majority of library-provided articles are from its electronic collections. Eighty-nine percent of the library-provided articles published over ten years ago are from an electronic subscription. Our findings show the library’s back files in addition to current subscriptions are a key investment.

Table 45. Association between Source of Article and Year of Publication for US Graduate Students

	Library Provided	Personal Subscription	Others	Row Total
Over 15 years (Before 1997)	66 11.8%	0 0%	39 11.4%	105 11.3%
11 ~ 15 years (1997-2001)	35 6.3%	0 0%	27 7.9%	62 6.7%
6 ~ 10 years (2002-2006)	92 16.5%	0 0%	63 18.5%	155 16.6%
2 ~ 5 years (2007-2010)	165 29.6%	7 21.9%	99 29.0%	271 29.1%
One year (2011)	92 16.5%	5 15.6%	43 12.6%	140 15.0%
Less than 1 year (2012)	108 19.4%	20 62.5%	70 20.5%	198 21.3%
Column Total	558 100.0%	32 100.0%	341 100.0%	931 100.0%

There are some differences between the principal purpose of reading the source of article reading ($\chi^2=155.963$ and $p<.0001$) and the source of book reading ($\chi^2=124.874$ and $p<.0001$). Library-provided articles are most likely read for a thesis or dissertation (32%), while 26% of personal subscriptions, and just 16% of other sources are read for a thesis or dissertation. Thirty-two percent of personal subscriptions are read for personal interest, while just 5% of library-provided articles and 6% of other sources are read for personal interest. Library-provided article readings are also read to help complete a course assignment (24%), for required readings (11%), to keep informed (13%), writing proposals/reports (7%), and teaching (2%). Nineteen percent of personal sources and other sources are read to complete a course assignment. Thirty-eight percent of other sources are read for required readings, but only 3% of personal sources are required readings.

While the majority of book readings obtained from a personal resource (51%) and other source (31%) are required readings, only 13% of library-provided books are required readings. Instead, library-provided books are read for a thesis/dissertation (43%), to help complete a course assignment (14%), current awareness (8%), writing proposals/reports (7%), and teaching (4%). Only 12% of other sources and purchased books help complete a course assignment. Since the library does not usually carry textbooks (required readings), that explains why there is a lower percentage of library-provided article and book readings; instead, what it shows is that students turn to the library for course material because they depend on the library for material to support course work but not specifically assigned.

One measure of value of the library for scholarly work and the research can be represented by how many hours per year each graduate student dedicates to library-provided reading. Based on past methodology that creates a formula to measure graduate output based on library input, we measured the library's value by the time spent using library reading material, assuming that scholarly readings are important for quality graduate work and their professional development (Luther 2008). We can illustrate the total amount of reading by each graduate student 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.¹³ We then multiply the total amount by the percentage obtained from the library to determine the number of hours per year each graduate student devotes to library-based work (Table 46).

¹³ Excludes outliers.

Table 46. Value of Library Resources to US Graduate Students

	Time per reading	Number read per month	Multiplied by 12 months	Percent from library	TOTAL
Article	41	29	12	.60	143 hours
Book	154	6	12	.32	59 hours

Graduate students spend the most time on library-provided article readings-- approximately 143 hours each year. They spend approximately 59 hours on library-provided book readings. Annually, graduate students spend 202 hours of their work time with library-provided material, or the equivalent of 25 eight-hour days. Clearly, the amount of time spent reading library-provided material has a profound impact on the quality and focus of graduate work.

We assume that graduate students spend more time per academic year (twelve months) with library-provided articles and books compared to faculty and undergraduate students in the United States. Faculty spend approximately 76 hours with library-provided articles, while undergraduate students spend 25 hours in a year (9 months). Graduate students spend 143 hours with library-provided articles. Faculty also spend around 40 hours per year (12 months) and undergraduate students spend around 35 hours per year on library-provided books, graduate students spend on average 59 hours per twelve months dedicated to library-provided books. These differences are because graduate students obtain more articles (60%) from the library than undergraduates (40%) and faculty (55%), and read more articles than undergraduates (M=15) and faculty (M=21). Graduate students also obtain more books (32%) from the library than undergraduates (22%) and faculty (28%), but read fewer books than faculty (M=7). Graduate students read approximately the same number of books per month as undergraduates (6).

Graduate students are prolific readers of journal articles and books, and the library is an important resource for them. They often face strict personal budgets and are pressed for time, and the library's collections, in particular its e-collections, provide free resources in a timely manner. Scholarly reading remains a vital part of graduate work, as the students increase their knowledge in their field, work on their own research, and start out in their academic career. Maintaining the quality of the library's collections will enable the budding professionals to have access to important information, and will improve the future of the academic endeavor.

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Copy of Survey

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, websites, 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. Number of articles read (including skimmed) in the past month:

2. Approximately how many of these articles were for a class you were taking?

The following questions in this section refer to the SCHOLARLY ARTICLE YOU READ MOST RECENTLY, even if you had previously read this article. Note that while this last reading may not be typical, it will help to establish the range of patterns in reading behavior.

3. 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?

4. What year was the last article you read published/posted?

5. 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 with attention to the main points
 - I read only specific sections (e.g., figures, conclusions)
 - I skimmed it just to get the idea

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
- No

8. 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)
- Website of author
- Institutional Repository
- Other (please specify): _____

9. How did you become aware of the last article you read?

- Found while browsing (without a specific objective in mind)
- Found while I (or someone on my behalf) was searching (e.g., by subject or author's name)
- Cited in another publication
- An instructor told me about it
- It was in the course outline / reading list
- Do not know / Do not remember
- Other (please specify): _____

10. Found while browsing:

- Personal subscription
- Library subscription
- School, department, etc. subscription
- Website
- Other (please specify): _____

11. Approximately how much time did you spend browsing:

In minutes: _____

12. Found while I (or someone on my behalf) was searching:

- Web search engine (e.g., Google or Google Scholar)
- Electronic indexing / abstracting service (e.g., Academic Search Premier, ERIC)
- Print index or abstract
- Online journal collection (e.g., Current Contents)
- Preprint / e-print service (e.g., arXiv.org)
- Other (please specify): _____

13. As a result, how many articles did you read and/or plan to read?

14. After you became aware of this article, from where did you obtain it?

- Personal subscription
- Library subscription
- School, department, etc. subscription
- Course reserves
- Free web journal
- Preprint copy
- Copy of the article from a colleague, instructor, author, etc.
- Interlibrary loan / document delivery service
- An author's website
- Other website
- Other (please specify): _____

15. This source was:

- Print
- Electronic

16. Where were you when you read this article?

- Office or lab
- Library
- Dormitory
- Home (off-campus)
- Traveling or commuting
- Elsewhere (please specify): _____

17. How long did you spend reading this last article?

In minutes: _____

18. In what format was the 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): _____

19. Thinking back to the source of the article, where would you obtain the information if that source were not available (e.g., library or personal subscription, archive, etc.)?

- I would not bother getting the information
- I would obtain the information from another source

20. For what principal purpose was this article read? (Choose only the best answer)

- This article was required reading in a course
- I read this article to help complete a course assignment or a course paper (but it was not specifically required)
- This article was for my thesis or dissertation
- This article assisted in my teaching duties
- I read this article to keep informed about the developments in my main field of study
- This article was just of personal interest
- Writing proposals, reports, or articles
- Other (please specify): _____

21. 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

22. 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 tone
- 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 made me question my work
- It saved time or other resources
- Other (please specify): _____

23. Did you cite this article or do you plan to cite it in a paper or report?

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

Section 2: Book Reading (print and online)

24. In the past month (30 days) approximately how many books or parts of books did you read for school work? Include reading from a portion of the book such as skimming or reading a chapter. Include books read in print or electronic format. (If none, please enter "0" instead of leaving a 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 establish the range of patterns in reading behavior.

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

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

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

28. How did you become aware of this last book from which you read?

- Found while browsing (without a specific objective in mind)
- Found while I (or someone on my behalf) was searching (e.g., by subject or author's name)
- Cited in another publication
- Another person (e.g., a colleague) told me about it
- Promotional email or web advertisement
- Do not know / Do not remember
- Other (please specify): _____

29. Approximately how much time (in minutes) did you or someone on your behalf spend becoming aware of this publication? (e.g., browsing, searching)

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

- I bought it for myself
- The library or archive collections (including main or branch)
- Interlibrary loan or document delivery service
- School or department collection (e.g., not managed by library)
- A colleague, author, or other person provided it to me
- A free, advanced, or purchased copy from the publisher
- Other (please specify): _____

31. In what format was the book when you obtained it?

- Print
- Electronic

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

- I would not bother getting the information
- I would obtain the information from another source

33. For what principal purpose was this book read? (Choose only the best answer)

- This book was required reading in a course
- I read this book to help complete a course assignment or a course paper (but it was not specifically required)
- This book was for my thesis or dissertation
- This book assisted in my teaching duties
- I read this book to keep informed about the developments in my main field of study
- This book was just for personal interest
- Other (please specify): _____

34. 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

35. 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 tone
- 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 made me question my work
- It saved time or other resources
- Other (please specify): _____

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

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

Section 3: Social Media

37. How often do you read / view / participate in each of the following electronic / social media for *school related purposes*?

	Daily	Weekly	Monthly	Occasionally	Never
Blogging (e.g., WordPress, Blogster)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Microblogging (e.g., Twitter)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
RSS feeds	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Social networking (e.g., Facebook)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Social tagging (e.g., Delicious)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Collaborative authoring (e.g., Google docs, CiteULike)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
User comments in articles	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Image sharing (e.g., Flickr)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Audio sharing (e.g., Podcasts)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Video sharing (e.g., YouTube)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

38. How often do you create each of the following electronic / social media tools for *school related purposes*?

	Daily	Weekly	Monthly	Occasionally	Never
Blogging (e.g., WordPress, Blogster)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Microblogging (e.g., Twitter)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
RSS feeds	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Social networking (e.g., Facebook)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Social tagging (e.g., Delicious)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Collaborative authoring (e.g., Google docs, CiteULike)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
User comments in articles	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Image sharing (e.g., Flickr)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Audio sharing (e.g., Podcasts)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Video sharing (e.g., YouTube)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section 4: Demographics

This section is about you. The purpose of collecting this information is to give us the opportunity to search for additional meaningful patterns in the collected data. You are almost finished!

39. What is your academic status?

- Master's student
- Doctoral student
- JD student
- MD student
- Other (please specify): _____

40. What is your major?

41. What is your age?

42. Are you:

- Male
- Female

43. Are you a full- or part-time student?

- Full-time
- Part-time

44. What role do e-resources play in your school work?

You've reached the end of the survey. We appreciate your participation. Thank you!