Research Publication Characteristics and Their Relative Values: A Report for the Publishing Research Consortium

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September 2010

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Executive Summary

Scholars consider many factors when judging the potential quality of articles and deciding which articles to read. These factors may also influence their perception of the overall quality of the article. The goal of this project is to examine and measure the relative values of selected research publication characteristics to scientists and scholars and to understand the trade-offs readers make between these characteristics. Since readers cannot know the intrinsic value of an article before reading it, they must use other clues to judge its quality and to estimate what value it may have to them. For example, how important is the author reputation or type of journal in relation to other characteristics, or how important is online accessibility to the reader?[1]

Over 400 faculty members and researchers from 12 countries responded to a survey that asked questions about article characteristics, reading choices, and reading patterns. Ranking of characteristics and conjoint measurement were two techniques used to help measure choices. Conjoint analysis is a statistical technique that has been used in market research for over 30 years to identify and measure the relative value of product attributes. It was chosen as one method to be used for this study because it not only provides valuable information about the relative importance of various characteristics, but can also provide information about the value of various levels of a single characteristic.

Key findings of the study include:

1. Topic of the article was ranked by all demographic groups as the most important characteristic that helps in choosing an article to read.

2. After topic, the next most important characteristics selected were online accessibility and source of article.

3. Author(s), type of publisher, and author(s)' institution were consistently ranked last.

4. Overall, online accessibility was considered more important than author reputation in the conjoint analysis, and much more important than type of journal.

5. Online access with a direct personal cost to the reader was rated as strongly negative; such a pricing model significantly reduces value to the user and thus likelihood of use.

6. Articles from known top authors or unknown authors are more likely to be read than those by known, but weak authors. Articles from top-tier peer reviewed journals or lower-tier peer reviewed journals are more likely to be read. Readers are less likely to read an article from a non-peer reviewed journal than from a non-journal source.-.

7. The highest rated conjoint profile was "Written by an author I recognize as a top scholar, in a top-tier peer-reviewed journal, and available online at no [personal]

[1] Online accessibility does not imply any specific business model.

cost"; while the lowest profile was "Written by an author I recognize as a weaker scholar, in a journal that is not peer-reviewed, and available online at some cost".

8. Readers from all disciplines ranked topic as the top characteristic. After that, there were some differences in the rankings of the other characteristics based on subject discipline. For example, respondents in engineering, science, and professional disciplines placed more emphasis on journal title than other disciplines. The professional fields ranked online accessibility lower than any other discipline.

9. There was no difference in ranking of characteristics by gender or age. However, for geographic location, there were two characteristics where the differences were statistically significant. Source of article was more important to North Americans, while online accessibility was more important to researchers elsewhere.

10. There was no difference in article characteristic rankings between respondents with high or low authorship. However, when removing topic and online accessibility, high authorship respondents ranked journal title as significantly more important.

11. Based on open-ended comments, there were indications that there are other characteristics of interest. These include readability, editing quality, and graphic design that clearly and efficiently supplements the text.

12. There are considerable differences by discipline in the number of articles read per month, although disciplinary differences were not as evident in the number of journal titles from which articles are read regularly. Younger scholars (those under age 40) reported that they read slightly fewer articles each month and that they read significantly fewer journals on a regular basis.

Introduction

In a time of abundant choices of individual articles, understanding how readers choose from among alternatives is becoming increasingly important. When searching in a web search engine, abstracting & indexing database with an underlying library link resolver, or a federated search system, hundreds or thousands of articles on the topic are often displayed to the user. Some of these articles are from institutional or subject repositories, others from an author's website, some from an aggregator, and still others from a publisher's platform. How do readers select from among this abundance?

Readers may browse in recognized journal titles that they read regularly. Journal title in these cases offers a first filter for quality. Searching in a web search engine or an abstracting and indexing database, on the other hand, displays articles from many sources together. Is the journal name still important to readers as a quality brand? Does a recognizable author name mean more than a journal name? Since many journals are offered from the same publisher, does the publisher's name influence readers' choices? One goal of this study is to understand the relative role of the journal's name, as well as other identifying factors, in the reader's selection process.

When scholars select certain research articles or papers to read, they consider a range of factors in order to judge the expected value of the research article. These factors may also influence their overall perception of the quality of the article. The goal of this project is to examine and measure the relative values of certain research publication characteristics in terms of prompting the interest of readers and in influencing their judgments and perceptions of quality. While there are rich histories of research studies that examine both information-seeking behavior among scholars and relevance judgments, few studies have used ranking and conjoint measurement techniques in attempting to gauge the relative importance and value of scholarly article characteristics in reading decisions and quality perceptions.

The current study identifies and measures the relative importance to readers of various characteristics of scholarly publications that are presented on an article level. Recent research indicates a growing shift from "a journal economy to an article economy" (Rowlands 2007, Tenopir et al. 2003), making this examination particularly timely and relevant.

Many generic characteristics of the scholarly journal system have been identified in the past (Tenopir and King 2000), as have relevance factors (Schamber 1994). A recent study found that a paper published in a journal with a high impact factor receives approximately twice as many citations as the same paper published in a low impact journal (Larivière and Gringas 2009). Although number of citations is a compound factor in that study (since impact factor of a journal is based on number of citations) looking at characteristics other than the topic of an article holds great promise in further understanding how readers judge quality and potential of articles.

The focus in this study is on six non-topical characteristics of research articles:

- the prominence of the journal in which the article appears,
- the reputation of the author(s),

- the institutional affiliation of the author(s),
- the type of publisher of the article,
- the online accessibility of the article, and
- the source of the article (refereed journals or non-journal sources)

This study seeks to understand the trade-offs that readers make when they decide which articles to read. In addition, this study looks to answer several related questions, including:

- do readers in different disciplines value different article characteristics?
- what is the full range of article characteristics that readers find important?
- does age or gender of the reader, or geographic location make a difference in what characteristics are valued the most??

Related Research

Prior research into relevance judging has examined why readers choose an article to read from among the abundant choices available to them. In 1994, Schamber identified 80 factors that influence relevance judging. Among these are authorship, publication source, and recency of publication date. Others have found that the institutional affiliation and perceived status of the author(s), as well as the readers' familiarity, or lack thereof, with the author(s) of an article were used to judge potential relevance, as were the perceived quality of a journal and the reader's familiarity with it (Maglaughlin and Sonnenwald 2002). "Relationship with author", "source quality", and "source reputation/visibility" are also among the many characteristics that students and faculty use to estimate relevance (Barry 1998).

Several other studies have similar findings, using slightly different labels for similar concepts (Saracevic 2007; Harter 1992), but little has been done to show the relative value and importance of characteristics, as can be done with conjoint analysis.

Conjoint analysis is a statistical technique used in market research for over 30 years to identify and measure the relative value of product attributes. Because of its success at predicting consumer behavior (Green and Wind 1975; Green, Kreiger, and Wind 2001), it has been rapidly adopted by researchers throughout the world (Wittink and Cattin 1989; Wittink, Vriens, and Burhenne 1994). Today, it is the method of choice for the complex task of analyzing trade-offs in consumer preferences (Green, Kreiger, and Wind 2001). Although the method originated in mathematical psychology from the seminal article by Luce and Tukey (1964), it was quickly co-opted by market researchers because it helped solve a difficult problem: how to measure the relative value judgments that consumers make when faced with a decision about what products to buy when two or more attributes vary at the same time. Conjoint analysis has been used to measure relative values of numerous attributes; experts recommend that the number of attributes be limited to six or less to keep surveys manageable for participants (Green and Srinivasan 1978) and that advice has been followed in the current project.

To date, only a handful of information science studies have made use of this method. One early paper by Ramsing and Wish (1982) advocated the use of conjoint analysis, expecting it "to prove itself as a powerful tool for determining what library users value." One reason that this prediction has not been fulfilled is its cost--true conjoint analysis requires gathering responses to a relatively large number of items from a fairly large sample, and employs a sophisticated statistical analysis.

Halperin and Strazdon (1980) asked 100 students to rank 20 characteristics in 16 possible combinations of reference services. The resulting data allowed the researchers "to find the particular mix of service factor levels that would maximize students' satisfaction with a reference service under given restraints". Similarly, Landrum's (1995) study asked librarians to rank CD-ROM titles for possible use in their library and to list criteria for their choices. These criteria were then used to perform a conjoint survey which indicated the accuracy of conjoint analysis in predicting what titles librarians would select for collection development.

Griffiths and King (1991; 1993) used conjoint analysis to relate amount of use to the level of user satisfaction with bibliographic services, rating the characteristics of relevance, speed of response, and price. They found that overall relevance was valued most highly, but that a slightly lower level of relevance could be acceptable at a lower cost or increased timeliness of response. This demonstrated the trade-offs users make in decision-making regarding library services.

In the ProSeBiCA project (ProSeBiCA is an acronym based on the German translation of ''prospective control of academic library services by means of conjoint analysis'') two surveys at Bielefeld University and at Cottbus University collected almost 5000 responses from students, faculty, and others (Decker and Hermelbracht 2006). The conclusions of the study are timely in their identification of the importance to users of the "hybrid library" as well as the availability of media. The survey also helped identify which new services would be well-received by users and which were of little interest to them (Hermelbracht and Koeper 2006).

Beckett and Inger (2006) used conjoint analysis to rank characteristics of articles that affect librarians' acquisitions decisions and found that the article's quality achieved the highest ranking of importance (24%), followed by cost (19%), recency (18%), reliability (14%), version availability (13%), and proportion of articles available. A recent study by Ithaka (Schonfeld and Housewright 2010), compared responses from over 3,000 faculty members based at US four-year colleges or universities to previous surveys from 2000, 2003, and 2006 on a variety of key questions facing academic libraries and their parent institutions. The study found that there remains a fundamental conservatism towards systematic or dramatic change to the scholarly communication system, suggesting that traditional journal article characteristics may remain important.

A common theme in the studies mentioned here is the importance of the quality of information to users. Quality is measured in different ways and users consider different characteristics and levels of these characteristics to determine quality.

Methodology

Contacts at 24 universities worldwide agreed to distribute the survey to some or all of their faculty members.[2] Respondents were asked a total of 15 questions regarding reading habits, publishing record, and personal demographics. The instrument also included characteristics to rank and 16 items specifically for the conjoint analysis. The questionnaire (see Appendix 1) allowed us to measure reading choices in more than one way and provided information about why choices may vary according to factors such as subject discipline, age, or amount of reading.

The core of the survey consisted of the opportunity to rank 7 article characteristics in order of preference and then to assess 16 article profiles and rate them on a scale of 1 to 10 for likelihood of reading each article profiled. These two methods are complementary. Direct ranking, unlike conjoint analysis, allowed a measure of the relative importance of all 7 article characteristics of interest to be obtained with relatively light cognitive load placed on the respondent.

Conjoint measurement was also chosen as a method to quantify the judgment of the relative value of various characteristics of research articles, characteristics that exist in addition to the topic of the article. This technique not only provides valuable information about the relative importance of various characteristics, but can also provide information about the value of various levels of a single characteristic. Conjoint measurement can be designed as a nine-cell matrix, as a series of pairwise statements, or as a series of profiles each with three or more variables. After a pilot study of 42 participants, it was decided to use a series of conjoint analysis profiles, each with varying levels of the same three characteristics.[3]

The three characteristics that were examined with conjoint analysis were: journal prominence, author(s) reputations, and online accessibility. Four levels were constructed for two characteristics (author and journal) and three levels for one characteristic (accessibility). In order to capture their judgments, participants were presented with a series of 16 profiles with different combinations of the three characteristics, and were asked to rate each profile on how likely they were to read the article described. Each profile was rated on a scale of 1-10, where 1 was “absolutely would not read” and 10 was “absolutely would read.”

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[2] Because the survey was distributed by contacts at various universities to all or some of their faculty members, it is impossible to know exactly how many people received the survey or to calculate an exact response rate. A reasonable estimate is that approximately 2000 faculty members received an invitation to complete the survey.

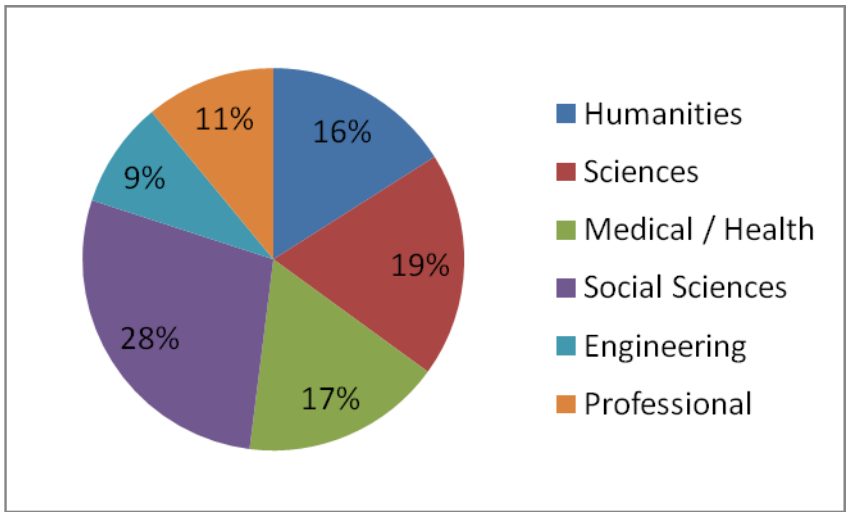
[3] In order to determine if this method is manageable for a reading preference study and to test the research instrument, a pilot study was undertaken at the request of the Publishing Research Consortium. The pilot study was conducted in two phases, with a total of 42 respondents. We found from respondent feedback that the survey questions were viable but that a 9 cell matrix approach to conjoint analysis caused a great deal of fatigue and some confusion among participants. It was therefore decided to instead use a limited number of profiles for the final survey.

Demographics of Respondents

The survey yielded 445 responses from 12 countries with a nearly equal number of male (N=199) and female (N=205) respondents (41 failed to respond to the question on gender). The average age of respondents is 44. Faculty members comprise 67.5% of respondents, with the remaining respondents coming from graduate students (20%) and research staff (9%). Business, industry and government respondents account for just .8% of responses.

Respondents represent a variety of academic disciplines, with the largest number coming from the social sciences (28%), including sociology, psychology, communications, and other social sciences. Science (19%), medical/health (17%), and humanities (16%) disciplines are almost equally represented, with the remaining respondents coming from technology/engineering, and professional fields such as law, business, and social work (Figure 1).

Figure 1 Academic Disciplines of Respondents

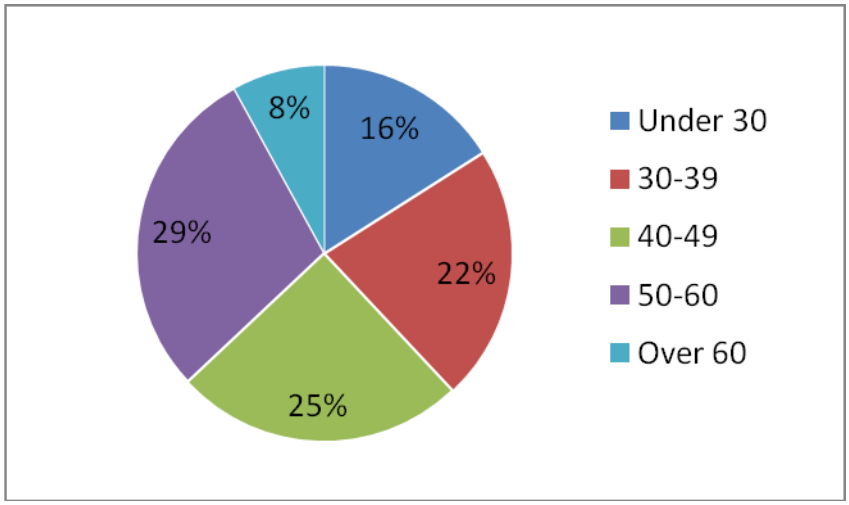


Most respondents are located in North America (68.2%), with 18.8% from Europe, and 13% from South America, the Middle East, and India (Figure 2).

Figure 2 Geographic Regions of Respondents

Respondents ranged in age from 22 to 85, with 38.2% of respondents under 40 (Figure 3).

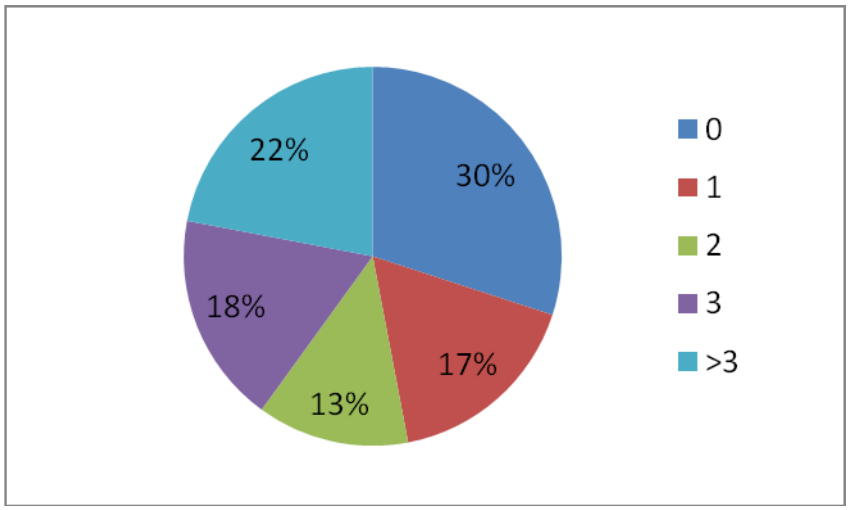
Figure 3 Ages of Respondents



Scholarly productivity of respondents can be measured in several ways. One of these is research funding. Approximately half of respondents reported that they have received external funding for their research. For these researchers, funding sources have included a government grant (36.6%), a university-provided grant (18.2%), a foundation grant (16.2%), or an industry grant/contract (12.5%). In addition, many conduct research just as part of their role at their university (not specifically funded). Note also that respondents may have received funding from more than one type of source.

Another measure of current productivity is the number of publications a scholar has published recently. Respondents were asked to report on how many articles, books, and other publications they published in the last two years. Less than a third (30.4%) reported they had published no articles in refereed scholarly journals in the last two years, while 16.7% published one article and 12.6% published two refereed articles. Nearly a quarter (22.5%) reported publishing four or more articles in the last two years. Other types of publications are less common--fewer than half of the respondents reported other types of publications in the past two years. (Figure 4.)

Figure 4 Number of Refereed Articles Published in the Last Two Years by Respondents



Findings

Article Characteristic Rankings

Respondents were asked to consider and rank seven article characteristics that they might consider when choosing articles to read. The characteristics were: Article Topic[4], Online

[4] While we were focusing on non-topical characteristics in the study since previous research shows that topic relevance is the most important characteristic, article topic was added to the direct rankings after the pilot study, in response to comments from participants.

Accessibility, Author(s) Reputation, Author(s) institutions, Article Source, Type of Publisher, and Journal Title. They were asked to rank the characteristics from 1 (most important) to 7(least important), with each number assigned only once.

Each of the characteristics was defined with a range of possibilities:

- **Article Topic** (this could range from a topic in your main research area to a peripheral topic)
- **Online Accessibility** (this could range from online articles available at no direct personal cost to an article only available at modest direct personal cost to being available only in print)[5]
- **Author(s)** (this could range from top scholars to those completely unknown to you)
- **Author(s)' Institution** (this could range from top-tier institutions to those institutions unfamiliar to you)
- **Source of Article** (this could range from top refereed journals to non-refereed or unpublished articles not in a journal)
- **Type of Publisher** (this could range from scholarly societies and commercial publishers to university/government or other not-for-profit publishers)
- **Journal Title** (this could range from a title that you regard highly to a title you find acceptable to a title unknown to you)

The mean score for each of the seven characteristics were calculated to determine the relative importance of each variable (Table 1). The most important characteristic to these readers was the topic of the article (mean = 1.55). The following three characteristics (online accessibility (mean = 3.28), source of article (mean = 3.46), and journal title (mean = 3.57)), were close in the rankings. In fact, online accessibility and source of article were not statistically different from each other, and source of article and journal title were also not statistically different from each other. Author(s) (mean = 4.07), type of publisher (mean = 5.19) and author(s)' institution (mean = 5.81) were ranked the lowest in importance by the readers.

Key Finding 1

Topic of the article was ranked by all demographic groups as the most important characteristic that helps in choosing an article to read.

Even with the large standard deviations for online accessibility and type of publisher, a series of paired-samples t-tests found that each of the characteristics were significantly different from all the other characteristics with the exception of the "online accessibility - source of article" pair

[5] This characteristic is based on reader perception only. We did not test any particular business model.

and the “source of article - journal title” pair. It is likely that the large standard deviations are artifacts of the reader's age and discipline.

Table 1 Ranking of Article Characteristics (lower score is better)

	n	Mean	Std. Deviation
Article topic	431	1.55	1.368
Online accessibility	431	3.28	1.753
Source of article	427	3.46	1.503
Journal Title	427	3.57	1.459
Author(s)	429	4.07	1.605
Type of publisher	428	5.19	1.711
Author(s)' Institution	427	5.81	1.480

Key Finding 2

After topic, the next most important characteristics selected were online accessibility and source of article.

When multiple articles are available on the same topic, readers need additional clues to judge the potential value and quality of the article. Convenience, through easy access of online accessibility, is clearly of great importance. Next most important are the source of article and journal title. Ranked as much less important were the author(s), type of publisher, and author(s)’ institution.

Key Finding 3

Author(s), type of publisher, and author(s)’ institution were consistently ranked last.

Since article topic and online accessibility could be considered extrinsic characteristics, an analysis of the rankings of the remaining five intrinsic characteristics was undertaken (Table 1A). In this analysis, topical relevance and online accessibility were assumed, and the rankings were reordered from 1 (most important) to 5 (least important). Note that the relative rankings among these five characteristics remain the same as in the initial analysis shown in Table 1.

As in the initial analysis, there was no significant difference between the rankings of source of article and journal title, but all other pairs of characteristics differed significantly from each other.

Table 1A Ranking of Article Characteristics Assuming Topical Relevance and Online Accessibility. Rankings were from 1 (most important) to 5 (least important).

	n	Mean	Std. Deviation
Source of article	419	2.02	1.106
Journal Title	419	2.14	1.094
Author(s)	419	2.57	1.228
Type of publisher	419	3.54	1.275
Author(s)' Institution	419	4.06	1.129

Conjoint Analysis

Conjoint analysis measures the relative characteristics of the product and the value of each single characteristic in the selection process. Respondents were asked to consider 16 article profiles, each consisting of a different permutation of article characteristics, two examples of which are shown in Figure 5. They were then asked to indicate how likely they were to read an article based on the profiles (all profiles are shown in Appendix 1) and rate each profile on a scale of 1-10 where 1 was "absolutely would not read" and 10 is "absolutely would read."

Figure 5 Two Profile Questions from the Conjoint Analysis Section of the Survey

Profile 1

How likely are you (on a scale of 1 to 10) to read an article with these characteristics?

Written by an author I recognize as a good (but not top) scholar, in a peer-reviewed journal outside the top tier, and available online at no [personal] cost.

Absolutely would not read →1…2…3…4…5…6…7…8…9…10 ← Absolutely would read

Profile 16

How likely are you (on a scale of 1 to 10) to read an article with these characteristics?

Written by an author I recognize as a good (but not top) scholar, in a journal that is not peer-reviewed, and available only in print.

Absolutely would not read →1…2…3…4…5…6…7…8…9…10 ← Absolutely would read

Items that employ conjoint measurement ask respondents to weigh the importance of characteristics against one another in a variety of permutations. Analysis of the results then tells the researchers which characteristics are consistently found to be most important to the group. The analysis of these survey results shows that the most valued of the three characteristics included in conjoint analysis for those choosing articles to read are, in order of importance: 1) online accessibility, 2) author, and 3) type of journal. Accessibility of the article and the type of author were found to account for approximately 72% of the rationale used by a reader when selecting an article.

Key Finding 4

Overall, online accessibility was considered more important than author reputation in the conjoint analysis, and much more important than type of journal.

Each of the three characteristics measured in the conjoint analysis included a range of three or four sub-choices from which respondents were asked to choose:

1) Author (an author I recognize as a top scholar; an author I recognize as a good (but not top) scholar; an author I don't recognize; an author I recognize as a weaker scholar)
2) Journal (in a top-tier peer-reviewed journal; in a peer-reviewed journal outside the top tier; in a journal that is not peer-reviewed; from a source other than a journal)
3) Online Accessibility (available online at no direct personal cost to the reader; available online at a modest direct personal cost to the reader; available only in print).

In this study, the accessibility of the article was found to be the most important characteristic to readers of journal articles. When the reader is able to access the article online without a cost to them personally (even though their institution may bear the cost), readers say they are more likely to read and cite the articles than if the article appeared in print only or if there is a direct personal cost to the reader associated with the online access. Journals available online with a direct personal cost to the reader were less desirable even than print-only journals.

Key Finding 5

Online with a direct personal cost to the reader was rated as strongly negative; such a pricing model significantly reduces value to the user and thus likelihood of use.

The second most highly rated characteristic for readers was the author of the article. A top-tier well known author will attract many readers, while a lesser-known author will attract fewer readers, although these articles are still considered to be worth reading. Readers say they are more likely to read an article by an unknown author than by an author known to be weak.

The final characteristic tested was the type of journal. An article from a top-tier peer-reviewed journal is the most likely to be read, while a lower-tier peer-reviewed article is less likely to be read than an article from a top-tier journal, but more likely to be read than an article from a non-journal source or a non-peer reviewed journal. . Respondents indicated that they are least likely to read an article from a non-peer-reviewed journal, even less likely than an article from a non-journal source.

Key Finding 6

Articles from known top authors or unknown authors are more likely to be read than those by known, but weak authors. Articles from top-tier peer reviewed journals or lower-tier peer reviewed journals are more likely to be read. Readers are less likely to read an article from a non-peer reviewed article than from a non-journal source.-

All conjoint profiles are listed in Appendix 1. Taken together the profiles are used to calculate overall ratings for each individual characteristic within them, but the profiles themselves can also be ranked, where the highest score is most likely to be read. Profile 7 "**Written by an author I recognize as a top scholar, in a top-tier peer-reviewed journal, and available online at no** [personal] **cost"** was rated the highest (nearly 9 on a 10-point scale). Profile 14 "**Written by an author I recognize as a weaker scholar, in a journal that is not peer-reviewed, and available online at some cost"** was rated the lowest (only 2.3 on a 10-point scale).

Key Finding 7

The highest rated conjoint profile was "**Written by an author I recognize as a top scholar, in a top-tier peer-reviewed journal, and available online at no [personal] cost"**; while the lowest profile was "**Written by an author I recognize as a weaker scholar, in a journal that is not peer-reviewed, and available online at some cost"**.

Beta-scores, (a measure of the desirability of a profile) for all 48 possible profiles can be computed from the utility scores for each item. Within the top eight profiles, the first three are strongly predictive, while those that are in the 4th-8th position are somewhat less predictive. There is low confidence in the predictive nature of those below the 8th position. In this case, higher scores are better (Table 2).

Table 2 Top 8 Profiles with Beta Scores

1. Top Tier Author, Top Peer Reviewed Journal, No Cost to Reader Online Access	8.892
2. Top Tier Author, Other Peer Reviewed Journal, No Cost to Reader Online Access	8.155
3. Good Author, Top Peer Reviewed Journal, No Cost to Reader Online Access	7.866
4. Top Tier Author, Not a journal, No Cost to Reader Online Access	7.260
5. Good Author, Other Reviewed Journal, No Cost to Reader Online Access	7.129
6. Unknown Author, Top Peer Reviewed Journal, No Cost to Reader Online Access	6.875
7. Top Tier Author, Not peer reviewed, No Cost to Reader Online Access	6.808
8. Top Tier Author, Top Peer Reviewed, Only Print	6.791

Article Characteristic Rankings Examined by Demographics

In many other studies, subject discipline has been the major predictor of article reading patterns. (Tenopir et al 2009b) This was also the case in the article ranking in this study. While all disciplines rank article topic as the most important characteristic, and consider type of publisher and author's institution least important, there are some differences in the rankings of the other characteristics based on subject discipline. Respondents in engineering, science, and professional disciplines place more emphasis on journal title than other disciplines. The professional fields rank online accessibility lower than any other discipline, placing it at position 4 (Table 3).

Table 3 Ranking of Article Characteristics by Academic Discipline by Rank

	Humanities	Sciences	Medical	Social Sciences	Engineering/Tech	Professional
Topic	1	1	1	1	1	1
Online Accessibility	3	2	2	2	2	4
Authors	5	5	5	5	5	5
Institution	7	7	7	7	7	7
Source (journal)	2	4	3	3	4	2
Type of Publisher	6	6	6	6	6	6
Journal Title	4	3	4	4	3	3

Key Finding 8

Readers from all disciplines rank topic as the top characteristic. After that, there were some differences in the rankings of the other characteristics based on subject discipline. For example, respondents in engineering, science, and professional disciplines place more emphasis on journal title than other disciplines. The professional fields rank online accessibility lower than any other discipline.

If topic and online accessibility are held constant (Table 3A), the relative rankings of the remaining five intrinsic characteristics are very similar to the results of the initial analysis shown in Table 3. Authors, type of publisher, and institution, in that order, were unanimously relegated to the last three places. Journal title was judged most important by respondents in the sciences and engineering, while respondents in the remaining four disciplines would place source of article in that position.

Table 3A Ranking of Article Characteristics by Academic Discipline Assuming Topical Relevance and Online Availability at no Personal Cost. Rankings were from 1 (most important) to 5 (least important).

	Humanities	Sciences	Medical	Social Sciences	Engineering/Tech	Professional
Authors	3	3	3	3	3	3
Institution	5	5	5	5	5	5
Source (journal)	1	2	1	1	2	1
Type of Publisher	4	4	4	4	4	4
Journal Title	2	1	2	2	1	2

Age

Respondents under 40 and those 40 and above ranked article characteristics similarly. In fact, independent samples *t* tests showed no significant differences in the way the two groups ranked any of the characteristics. Prior studies that examine age-based differences found only some significant differences between reading behaviors in faculty members aged thirty and younger and older faculty members. Younger faculty members are more likely to read a higher percentage of articles from e-journals, are slightly more likely to read on-screen, and have fewer personal subscriptions (Tenopir et al 2009b) (Table 4).

Table 4 Ranking of Article Characteristics by Age of Respondents (lower score is better)

	Under 40	40 and Above
Article Topic	1.54	1.49
Online Accessibility	3.23	3.30
Authors	4.14	4.05
Institution	5.93	5.80
Source of Article	3.56	3.43
Type of Publisher	5.43	5.10
Journal Title	3.73	3.49

Holding topical relevance and online accessibility constant, respondents under 40 and those 40 and above ranked the remaining five intrinsic characteristics similarly (Table 4A).As in the case of the initial analysis (Table 4), independent samples *t* tests found no significant differences.

Table 4A Ranking of Article Characteristics by Age of Respondents Assuming Topical Relevance and Online Accessibility at No Personal Cost. Rankings were from 1 (most important) to 5 (least important).

	Under 40	40 and Above
Authors	2.56	2.60
Institution	4.12	4.04
Source of Article	2.08	2.00
Type of Publisher	3.69	3.47
Journal Title	2.22	2.11

Gender

Findings for gender indicate that there are no significant differences in how characteristics are ranked (Table 5).

Table 5 Ranking of Article Characteristic by Gender of Respondents (lower score is better)

	Male	Female
Article Topic	1.64	1.42
Online Accessibility	3.40	3.08
Authors	4.11	4.09
Institution	5.78	5.91
Source of Article	3.51	3.44
Type of Publisher	5.17	5.28
Journal Title	3.50	3.64

As in the initial analysis of Table 5, holding article topic and online accessibility constant results in no significant differences between the ratings of characteristics by males and by females (Table 5A).

Table 5A Ranking of Article Chacteristics by Gender of Respondents, Assuming Topical Relevance and Online Accessibility at No Personal Cost. Rankings were from 1 (most important) to 5 (least important).

	Male	Female
Authors	2.59	2.58
Institution	3.99	4.12
Source (journal)	2.06	1.99
Type of Publisher	3.49	3.62
Journal Title	2.06	2.20

Geographic Location

Respondents in North America and respondents elsewhere ranked article characteristics similarly. However there were significant differences in the way the two groups ranked online accessibility ($t(409 = 3.090, p<0.05)$ and source of article ($t(406) = 3.191, p<0.05$). Source of article was more important to North Americans, while online accessibility was more important to researchers in other parts of the world (Table 6).

Table 6 Ranking of Article Characteristic by Geographic Location of Respondents (lower score is better)

	North America	Other Continents
Article Topic	1.46	1.64
Online Accessibility	3.45	2.89
Authors	4.01	4.21
Institution	5.85	5.82
Source (journal)	3.29	3.79
Type of Publisher	5.25	5.21
Journal Title	3.64	3.51

Key Finding 9

There was no difference in ranking of characteristics by gender or age. However, for geographic location, there were two characteristics where the differences were statistically significant. Source of article was more important to North Americans, while online accessibility was more important to researchers elsewhere.

As in the initial analysis shown in Table 6, when topic and accessibility are held constant (Table 6A), there was a significant difference in the way Source of Article was viewed ($t(401) = 3.273$, $p<0.05$). In addition, there was a significant difference of opinion on the value of Journal Title ($t(401) = 2.224$, $p<0.05$). Source of Article was more important to North Americans, while Journal Title was more important to researchers in other parts of the world.

Table 6A Ranking of Article Chacteristics by Geographic Location, Assuming Topical Relevance and Online Accessibility at No Personal Cost. Rankings were from 1 (most important) to 5 (least important).

	North America	Other Continents
Authors	2.52	2.67
Institution	4.10	3.98
Source of Article	1.89	2.26
Type of Publisher	3.59	3.49
Journal Title	2.24	1.99

Publishing Productivity

Respondents who published two or more articles in the last two years and those who published zero or one articles did not differ in their rankings of which article characteristics were important in helping them choose which articles to read. Article topic was followed by online accessibility, source of article, and the other factors, for both groups (Table 7).

Table 7 Article Characteristic Rankings by Low and High Article Authorship of Respondents (lower score is better)

	Low Authorship (0-1 Articles)	**High Authorship (>1 Article)**
Article Topic	**1.57**	**1.48**
Online Accessibility	**3.38**	**3.16**
Authors	**4.12**	**4.03**
Institution	**5.80**	**5.84**
Source of Article	**3.49**	**3.44**
Type of Publisher	**5.05**	**5.35**
Journal Title	**3.72**	**3.47**

Assuming topical relevance and online accessibility at no personal cost, the remaining intrinsic characteristics were rated very similarly by readers with low authorship and those with high authorship (Table 7A). However, there was a significant difference in the way the two groups ranked Journal Title, ($t(393) = 2.515$, $p<0.05$). Journal Title was more important to the group with high authorship.

Table 7A Ranking of Article Chacteristics by Low and High Article Authorship of Respondents, Assuming Topical Relevance and Online Accessibility at No Personal Cost. Rankings were from 1 (most important) to 5 (least important).

	Low Authorship (0-1 Articles)	High Authorship (>1 Article)
Authors	**2.64**	**2.52**
Institution	**4.04**	**4.06**
Source of Article	**2.05**	**2.00**
Type of Publisher	**3.43**	**3.65**
Journal Title	**2.28**	**2.01**

Key Finding 10

There was no difference in article characteristic rankings between respondents with high or low authorship. However, when removing topic and online accessibility, high authorship respondents ranked journal title as significantly more important.

Other Journal Characteristics

Respondents were given the opportunity to list up to three other journal characteristics that may not have been included in the rankings. While many used this section to reiterate their preferences among the seven characteristics discussed previously or used it as a place to add miscellaneous comments unrelated to rankings, a number introduced new characteristics such as the importance of readability, editing quality, and good graphic design. Table 8 lists the most frequently noted characteristics along with the number of votes for each category.

Table 8 Other Important Journal Characteristics

Category	n
Readability (Layout, font, clarity)	31
Editing Quality	21
Good Graphic Design	18
Impact Factor / Citation Count	14
Easy Downloads	11
Full Abstracts	9

Key Finding 11

Based on open-ended comments, there were indications that there are other characteristics of interest – such as readability, editing quality, and graphic design that clearly and efficiently supplements the text.

Other Comments

The final question of the survey gave respondents the opportunity to make comments without any suggestion on our part as to what the content of those comments should be. Table 9 lists the themes that emerged from the open-ended responses, along with the number of comments in each category. Only categories that are relevant to this report and contain more than one comment are listed.

Table 9 Themes in Open Ended Comments

Category	n
Article Topic	19
Online Accessibility	7
Interlibrary Loan	3
Abstract / Title	2
The Future	2
Print Journals	2

Many respondents echoed the well established fact that article topic is by far the most important characteristic. Seven emphasized the importance of online accessibility at little to no direct personal cost to the reader. Respondents 811 and 883 (R811 and R883) stated

> **R811:** *Faculty researcher salaries are not generous. Free access is the only way to get information for many of us.*
>
> **R883:** *I like to be able to keep up on certain topics in a range of journals rather than relying on just a few top journals. Online access at no cost is important to me, and partly allows for this wider coverage.*

Three comments were received on the value of interlibrary loan as an alternate means of obtaining journal articles, while two respondents commented on the value of the title and/or abstract in selecting what to read. Two were bold enough to predict the future.

R402: *My answers reflect my very strong support of refereed open access journals, which I consider the proper way to go for the future of scientific discourse.*

R852: *An iTunes model, downloading pdfs as relevant (and making them available when accepted, not waiting for "volume numbers" to be complete) is surely the future.*

And finally, two respondents felt the necessity to defend print journals.

R292: *Let's stop all this talk of abandoning print journals and going to electronic-only format. There are distinct advantages offered by print journals.*

R475: *I do not like the current trends in academic libraries to drop print versions of journals. Many electronic versions do not have everything that is in print versions.*

Reading Patterns

Ongoing studies by Tenopir and King since 1977, (Tenopir and King 2000; Tenopir and King 2004,) show that the number of article readings per month increased overall nearly 85% from 1977 to 2005 among U.S. academic scientists and social scientists (Tenopir 2009a). Much of this additional reading is from articles available in e-journals or from other e-articles. In this study we asked respondents to estimate their number of article readings in a typical month.

Amount of Reading by Discipline

The average number of articles read in a typical month across all subject disciplines is 15.82 (Std Deviation 19.642). There are considerable differences by discipline in the number of articles read per month. Humanities scholars report reading fewer articles monthly (11) than scholars in any other disciplines, while scientists report reading the most (nearly 19) (Table 10). These findings are consistent with other ongoing studies, although the overall amounts of readings are somewhat lower (Tenopir et al 2009b; Tenopir & King 2000).

Table 10 Articles Read in a Typical month (30 days) by Discipline of Respondents

	Mean	Std. Deviation	Std. Error Mean
Humanities	11.08	10.364	1.295
Science	18.56	17.404	1.983
Medical/health	18.29	14.794	1.794
Social Sciences	16.18	28.654	2.684
Engineering	11.59	11.273	1.805
Professional	16.89	16.085	2.398

	Mean	Std. Deviation	Std. Error Mean
Humanities	11.08	10.364	1.295
Science	18.56	17.404	1.983
Medical/health	18.29	14.794	1.794
Social Sciences	16.18	28.654	2.684
Engineering	11.59	11.273	1.805
Total	15.82	19.642	0.974

In addition to ranking and conjoint analysis, respondents were asked to estimate how many journals they read at least several articles regularly from most issues. Across all subject disciplines, respondents reported they read 3.79 journals regularly. (Std Dev 3.719) (Table 11). Journals read regularly are often personal subscriptions and can be considered core journals to their readers. Articles are often located in these journals by browsing (Tenopir & King 2000).

Table 11 Journals Read Regularly by Discipline of Respondents

	Mean	n	Std. Deviation	Std. Error Mean
Humanities	3.54	63	4.185	.527
Science	3.82	77	3.444	.392
Medical/Health	3.99	68	4.076	.494
Social Sciences	3.73	112	3.241	.306
Engineering	3.41	39	3.582	.574
Professional	4.26	43	4.288	.654
Total	3.79	402	3.719	.186

Disciplinary differences are not as evident in the number of journals read regularly, with only scholars in the professional disciplines reporting they read more than four journal titles on a regular basis on average.

Amount of Reading by Age

There are few significant differences by age in the number of articles read each month and journals read regularly. Younger scholars (those age 40 and under) report they read slightly fewer articles each month and they read significantly fewer journals on a regular basis (Tables 12 and 13). This is consistent with earlier studies by Tenopir & King that found younger scholars have fewer personal subscriptions to journals.

Table 12 Articles Read in a Typical Month (30 Days) by Age of Respondents

	Mean	Std. Deviation	Std. error Mean
Under 40	14.17	12.422	1.032
40 and above	15.60	14.536	0.956
Total	15.05	13.759	.710

There is no statistical difference between these two groups.

Table 13 Journals Read Regularly by Age of Respondents

	Mean	Std. Deviation	Std. error Mean
Under 40	2.84	2.363	.198
40 and Above	4.22	4.229	.279
Total	3.69	3.688	.191

There is, however, a statistical difference between these two groups, with the older population regularly reading more journals than their younger colleagues ($t(369) = 3.508$. $p<.05$).

Key Finding 12

There are considerable differences by discipline in the number of articles read per month, although disciplinary differences are not as evident in the number of journals read regularly. Only scholars in the professional disciplines reported reading more than four journal titles on a regular basis on average. Younger scholars (those under age 40) report they read slightly fewer articles each month and they read significantly fewer journals on a regular basis.

Interdisciplinary Reading

In order to gauge the current degree of reading outside one's discipline, we asked respondents to estimate the percentage of their reading that is done inside of their major field of study. Approximately 20% of respondents reported that the majority of their reading was done outside their major field of study, while for nearly 80% of respondents half or more than half of their readings are inside their major discipline (Table 14A). Even though reading patterns differ by the discipline of a reader, interdisciplinary reading is common.

Table 14A Of the articles that you read in a typical month, what percentage is within your major field of study?

	Frequency	Percent
1-49% of articles read	95	20.7
50% and over	364	79.3
Total	459	100.00

Just as in the case of the total amount of reading, there are differences by discipline in the proportion of reading that is outside their discipline. Over a third (38.7%) of respondents in engineering report (by implication) that the majority of their reading is outside their field, while only 8% of scientists make this claim (Table 14B). Interdisciplinary reading is done in all fields, but is especially frequent in engineering.

Table 14B Of the articles that you read in a typical month, what percentage is within your major field of study, by discipline of respondent?

	1-49% of articles read	50% and over
Humanities	19.6% (11)	80.4% (45)
Science	8.0 _(6)	92.0 (69)
Medical/Health	19.2 (10)	80.8 (42)
Social Sciences	20.6 (21)	79.4 (81)
Engineering	38.7 (12)	61.3 (19)
Professional	30.0 (12)	70.0 (28)
Total	20.0% (72)	79.8% (284)

However, there is no significant difference in interdisciplinary reading by age or by publishing activity (Tables 14C and 14D).

Table 14C Reading within Major Field of Study by Age (percent of total and frequency for each age group)

	1-49% of articles read	50% and above
Under 40	17.2% (25)	82.8% (120)
40 and over	20.6 (48)	79.4 (185)
Total	19.3% (73)	80.7% (305)

Table 14D Reading within Major Field of Study by Publishing Activity (percent of total and frequency for each publishing level)

	1-49% of articles read	50% and above
Low Publishing Activity	21.1% (44)	78.9% (165)
High publishing Activity	18.4 (43)	81.6 _(191)
Total	19.6% (87)	80.4% (356)

Implications for Publishers, Editors, and Librarians

Scholars read many articles, both from journals they read regularly and from articles they find through searching. Scientists and faculty in professional fields such as law and business read more articles on average than scholars in the humanities, but faculty members in all subject disciplines read many articles in a typical month.

With widespread availability of e-articles, the problem of searching for and finding articles to read has been solved, but a new problem has arisen—that of deciding from among a multitude of alternatives. Scholars must choose from among these alternatives and use clues or characteristics to do so. Topic is by far the most common characteristic that helps them choose what to read, but characteristics beyond topic help them refine their choices. This study shows that author stature, peer reviewed journals, and no direct personal cost to readers for access are important in the choice of what articles to read. Although these characteristics may seem to be in conflict, publishers, editors, and librarians can assure that they are all present to best serve readers.

These findings have several implications for publishers, editors, and librarians. For all, the message is clear that peer reviewing and journal reputation matters, not only for authors but for readers as well. Academic faculty readers value the peer review process and the reputation implied by a top tier journal. Articles that are not in peer reviewed journals are not well regarded unless they come from top authors and have online access at no direct personal cost to the reader. Peer review matters less if an author is one of the top authors in his or her discipline and the reader is familiar with the author's reputation.

It may come as no surprise that readers do not want to pay themselves for access to scholarly

articles. This does not mean that the content is free, just that it is free of charge to the end user. For readers affiliated with a university or other research institution this can mean articles available through subscriptions paid by the library (currently the most common way academics get access to scholarly articles) or it can be through open access publications. For the readers in this study, the subtleties of economic models were not probed; but the message is clear that they do not want to pay out of their own pockets to read articles.

While journal title is one factor in judging quality, readers are interested in reading articles from peer reviewed sources other than traditional journals if the quality is perceived to be high. Publishers can provide alternative formats for content delivery, as long as there is a recognized peer review mechanism. What could be important in the near future is helping readers judge the quality of these sources and the articles provided outside of traditional journal issues or in articles removed from the journal. Top tier or good authors is clearly one important judge of quality for subject experts who are familiar with the authors in their field, but it does not work for all readers. Interdisciplinary readers or students, for example, may not be as familiar with the reputation of all authors.

A majority of scholarly readers indicate they read some articles outside of their discipline, a trend that will accelerate as many disciplines become more interdisciplinary and new trans-discipline fields emerge. This poses a special challenge as well as an opportunity for publishers. When reading outside of their discipline, scholars may not be able to as easily assess the quality of the author or recognize top authors, so the role of an easily recognized indicator of peer review may take on extra meaning. In this study, note that the two options that include unknown authors that appear in the top 15 profile rankings (see Appendix 2) have a strong peer review characteristic. Ways to make authors' stature more visible, such as including visible measures of impact or quality for articles or their authors may help readers choose high quality articles. This can be accomplished by linking article or author citation counts or download counts or by providing monitored comments sections that allow readers to rate and comment on articles or authors. Article level metrics (such as those now provided by Public Library of Science) are not a new concept for publishers, but they are as yet unfamiliar to most readers. We predict these types of value clues will become widely accepted as they become more commonplace.

Journal editors already know that top authors make an article more appealing to subject experts and this study reinforces that fact. However, giving an unknown author a chance can be a good strategy if other value measures are in place and is likely to mean an article will be more interesting than one authored by a known, weak author. Perhaps more surprisingly, the affiliation of the unknown author seems to have much less influence on readers' choice of articles.

Librarians may use the results of this study to gain insights into how academic readers make quality judgments. These insights can help in the design of instructional materials for undergraduate and graduate students and for interdisciplinary readers. The instruction can be geared towards helping students recognize the importance of quality clues such as the value of peer reviewed journals and author prominence. As academic librarians know, there is also a growing need to brand the library-provided materials and to help readers understand the difference between free online resources and resources that are free to the user because the institution is paying for them. This study also reinforces the importance of library-subsidy of

scholarly articles that are available in a subscription model.

This study does not answer all the questions about how academics choose which scholarly articles to read, but it does provide some insights into the thought processes that occur frequently when scholars are faced with an abundance of article choices on their topic. These issues will only become more important as more articles are available through a variety of interlinked search and retrieval systems.

Quality clues must be obvious and clear—since top author is important, how does an interdisciplinary reader recognize who is top? Since peer review is important, how does a reader recognize the peer reviewed version if multiple versions of an article are available or when articles are removed from the journal issue? And since access at no direct cost to the reader is important, publishers and librarians must continue to help readers get to the best articles without a direct charge for readership.

And, in the future, the combination of the unwillingness of readers to pay out of their own pockets for articles, the willingness to read from non-journal peer-reviewed sources, and the growing availability of alternatives provides a warning for publishers and librarians. If publishers and librarians are to remain relevant to readers in the future, value needs to be provided beyond access to content.

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Appendix 1

Survey Instrument

RESEARCH ARTICLE CHARACTERISTICS STUDY

INFORMED CONSENT

You are being invited to participate in a research study investigating the perceived value of several research publication characteristics. In it, you will be asked to compare several sets of research article characteristics, and to provide some general background information on your research activities. The survey should take no more than 10-15 minutes to complete.

Your participation in this research is voluntary, and you may decline to participate without risk. While it is useful to be complete in your responses to the survey, you are also free to not answer any questions you are uncomfortable with, and you are free to withdraw from the study at any time until your survey is completed (after that, we have no way of identifying your particular responses). We will not link your survey responses to you in any way, and we ask that you do not put any other identifying marks or information on the survey itself. This will help ensure that survey responses will be anonymous. In addition, individual responses will be kept confidential, and information from the survey will only be reported in aggregate. As such, we do not anticipate that your participation poses any risk.

Your responses will help us better understand how scientists choose which research articles to read, and may contribute to facilitating scholarly communication in the future.

If you have any questions about the study or procedures, please feel free to contact Dr. Carol Tenopir at ctenopir@utk.edu or (865) 974-7911. If you have questions about your rights as a participant, contact the University of Tennessee Office of Research Compliance Officer at (865) 974-3466.

By proceeding to complete the survey, you are indicating that you have read and understood the information above, and are agreeing to participate.

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RESEARCH ARTICLE CHARACTERISTICS STUDY

Thank you for agreeing to participate in this research study.

Please answer the following questions about your scholarly reading and publishing. If you do not know the exact numbers, please estimate.

Q1. In a **typical month (30 days)**, approximately how many scholarly articles do 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.

Number of articles read in a month:

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What do you consider to be the top three journals in your field?

Q2a. 1.

Q2b. 2.

Q2c. 3.

Q3. How many journals do you regularly read? (That is, that you read at least several articles from most issues.)

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Q4. Of the articles that you read in a typical month, what percentage is within your major field of study? (Select one):

- None
- 1% - 24%
- 25% - 49%
- 50% - 74%
- 75% - 99%
- All

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In the past **TWO YEARS**, how many of the following have you published? (If none enter 0):

Q5a. Articles in refereed scholarly journals: ☐

Q5b. Non-refereed articles: ☐

Q5c. Chapters in books, proceedings, etc.: ☐

Q5d. Entire books: ☐

Q5e. Other publications: ☐

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[this page contingent upon answers of 1 or more for the "refereed" question on the previous page]

For the **last refereed scholarly article** that you published:

Q6a. How many co-authors did you have, if any?

Number of co-authors:

How was the research effort funded? Select all that apply.

- **Q6b1.** Government grant
- **Q6b2.** Foundation grant
- **Q6b3.** Industry grant/contract
- **Q6b4.** University-provided grant
- **Q6b5.** As part of my role at University (not specifically funded)
- **Q6b6.** Other

Q6b61. If other, please describe:

Q6c. How many total publications have resulted to date from this research effort?

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Article Characteristics

Please rank each of the following article characteristics from 1 (most important) to 7 (least important) to you as a reader of scholarly journals. Use each number only once.

- **Q7a. Article Topic** (this could range from a topic in your main research area to a peripheral topic)
- **Q7b. Online Accessibility** (this could range from online articles available at no personal cost to an article only available at modest personal cost to being available only in print)
- **Q7c. Author(s)** (this could range from top scholars to those completely unknown to you)
- **Q7d. Author(s)' Institution** (this could range from top-tier institutions to those institutions unfamiliar to you)
- **Q7e. Source of Article** (this could range from top refereed journals to non-refereed or unpublished articles not in a journal)
- **Q7f. Type of Publisher** (this could range from scholarly societies and commercial publishers to university/government or other not-for-profit publishers)
- **Q7g. Journal Title** (this could range from a title that you regard highly to a title you find acceptable to a title unknown to you)

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Article Profiles

Now we ask you to consider some of the article characteristics together. For each of the following article profiles, please indicate how likely you would be to read the article (on a scale of 1-10 where 1 is "absolutely would not read" and 10 is "absolutely would read.") **Please consider each profile as a whole.** There are a total of 16 profiles.

Profile 1

How likely are you (on a scale of 1 to 10) to read an article with these characteristics?

P1. Written by an author I recognize as a good (but not top) scholar, in a peer-reviewed journal outside the top tier, and available online at no cost.

Absolutely would not read-→1…2…3…4…5…6…7…8…9…10←-Absolutely would read

Profile 2

How likely are you (on a scale of 1 to 10) to read an article with these characteristics?

P2. Written by an author I recognize as a good (but not top) scholar, in a top-tier peer-reviewed journal, and available online at some cost.

Absolutely would not read-→1…2…3…4…5…6…7…8…9…10←-Absolutely would read

Profile 3

How likely are you (on a scale of 1 to 10) to read an article with these characteristics?

P3. Written by an author I don't recognize, in a top-tier peer-reviewed journal, and available online at no cost.

Absolutely would not read-→1…2…3…4…5…6…7…8…9…10←-Absolutely would read

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Profile 4

How likely are you (on a scale of 1 to 10) to read an article with these characteristics?

P4. Written by an author I recognize as a weaker scholar, in a peer-reviewed journal outside the top tier, and available online at no cost.

Absolutely would not read-→1…2…3…4…5…6…7…8…9…10←-Absolutely would read

Profile 5

How likely are you (on a scale of 1 to 10) to read an article with these characteristics?

P5. Written by an author I recognize as a weaker scholar, in a top-tier peer-reviewed journal, and available only in print.

Absolutely would not read-→1…2…3…4…5…6…7…8…9…10←-Absolutely would read

Profile 6

How likely are you (on a scale of 1 to 10) to read an article with these characteristics?

P6. Written by an author I recognize as a top scholar, in a journal that is not peer-reviewed, and available online at no cost.

Absolutely would not read-→1…2…3…4…5…6…7…8…9…10←-Absolutely would read

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Profile 7

How likely are you (on a scale of 1 to 10) to read an article with these characteristics?

P7. Written by an author I recognize as a top scholar, in a top-tier peer-reviewed journal, and available online at no cost.

Absolutely would not read-→1…2…3…4…5…6…7…8…9…10←-Absolutely would read

Profile 8

How likely are you (on a scale of 1 to 10) to read an article with these characteristics?

P8. Written by an author I recognize as a top scholar, from a source other than a journal, and available online at some cost.

Absolutely would not read-→1…2…3…4…5…6…7…8…9…10←-Absolutely would read

Profile 9

How likely are you (on a scale of 1 to 10) to read an article with these characteristics?

P9. Written by an author I recognize as a weaker scholar, from a source other than a journal, and available online at no cost.

Absolutely would not read-→1…2…3…4…5…6…7…8…9…10←-Absolutely would read

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Profile 10

How likely are you (on a scale of 1 to 10) to read an article with these characteristics?

P10. Written by an author I recognize as a top scholar, in a peer-reviewed journal outside the top-tier, and available only in print.

Absolutely would not read-→1…2…3…4…5…6…7…8…9…10←-Absolutely would read

Profile 11

How likely are you (on a scale of 1 to 10) to read an article with these characteristics?

P11. Written by an author I don't recognize, in a peer-reviewed journal outside the top-tier, and available online at some cost.

Absolutely would not read-→1…2…3…4…5…6…7…8…9…10←-Absolutely would read

Profile 12

How likely are you (on a scale of 1 to 10) to read an article with these characteristics?

P12. Written by an author I don't recognize, from a source other than a journal, and available only in print.

Absolutely would not read-→1…2…3…4…5…6…7…8…9…10←-Absolutely would read

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Profile 13

How likely are you (on a scale of 1 to 10) to read an article with these characteristics?

P13. Written by an author I recognize as a good (but not top) scholar, from a source other than a journal, and available online at no cost.

Absolutely would not read-→1…2…3…4…5…6…7…8…9…10←-Absolutely would read

Profile 14

How likely are you (on a scale of 1 to 10) to read an article with these characteristics?

P14. Written by an author I recognize as a weaker scholar, in a journal that is not peer-reviewed, and available online at some cost.

Absolutely would not read-→1…2…3…4…5…6…7…8…9…10←-Absolutely would read

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Profile 15

How likely are you (on a scale of 1 to 10) to read an article with these characteristics?

P15. Written by an author I don't recognize, in a journal that is not peer-reviewed, and available online at no cost.

Absolutely would not read-→1…2…3…4…5…6…7…8…9…10←-Absolutely would read

Profile 16

How likely are you (on a scale of 1 to 10) to read an article with these characteristics?

P16. Written by an author I recognize as a good (but not top) scholar, in a journal that is not peer-reviewed, and available only in print.

Absolutely would not read-→1…2…3…4…5…6…7…8…9…10←-Absolutely would read

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Just a few more questions….

Are there any other journal characteristics that are important to you?

Q8a. 1. [ ]

Q8b. 2. [ ]

Q8c. 3. [ ]

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Now please tell us a bit about you.

Q9. Indicate the category that includes your department or professional field (select one):

- Humanities
- Biological Sciences
- Computer Sciences
- Engineering
- Environmental Sciences
- Mathematical Sciences
- Medical Sciences
- Physical Sciences
- Psychology
- Social Sciences
- Professional Fields (including business, law, and education)
- Other

Q9other. If other, please describe:

[ ]

Q10. Which best describes your workplace:

- Academic
- Non-academic

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[CONTINGENT UPON PREVIOUS QUESTION]

Academic:

Q10a. Your status (select one):

- Undergraduate Student
- Graduate Student / Post Graduate Student
- Research Staff
- Faculty Member
- Other

Q10aOther. If other, please describe.

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[CONTINGENT UPON PREVIOUS QUESTION]

Non-Academic:

Q10b. Workplace (select one):

- Business/ Industry
- Government/ Government Lab
- Other

Q10bOther. If other, please describe.

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Q11. In what country is your primary place of work?

[DROPDOWN BOX]

- United States
- Australia
- Austria
- Belgium
- Brazil
- Bulgaria
- Canada
- China
- Cyprus
- Czech Republic
- Denmark
- Estonia
- Finland
- France
- Germany
- Greece
- Hong Kong
- Hungary
- India
- Indonesia
- Iran
- Ireland
- Israel
- Italy
- Japan
- Kazakhstan
- Kuwait
- Latvia
- Lithuania
- Luxembourg
- Malaysia
- Malta
- Netherlands
- New Zealand
- Norway
- Pakistan

- Philippines
- Poland
- Portugal
- Qatar
- Romania
- Russia
- Saudi Arabia
- Singapore
- Slovenia
- South Korea
- Spain
- Sweden
- Switzerland
- Taiwan
- Thailand
- Turkey
- UK
- United Arab Emirates
- Other

Q11other. If other, please specify: [ ]

Q11US. If your primary place of work is the United States, please enter the state.

[ ] [DROPDOWN BOX]

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Q12. Highest Degree Earned:

- Bachelor's
- Master's
- PhD/ MD/ JD
- Other:

Q13. Your age:

Q14. Your gender (select one):

- Male
- Female

Q15. If there are any other comments that you would like to make, please enter them below:

Note: This will be your last opportunity to return to a previous page.
Clicking on the "Next" button will finalize all of your survey answers.

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End of interview. Thank you for your participation.

APPENDIX 2

CONJOINT ANALYSIS

Model Description

	N of Levels	Relation to Ranks or Scores
Author	4	Discrete
Journal	4	Discrete
Access	3	Discrete

All factors are orthogonal.

Utilities

Utility estimates are representations of the combined rankings of the different attributes under investigation.

		Utility Estimate	Std. Error
Author	Top Tier	1.412	.277
	Good	.386	.277
	Weak	-1.193	.277
	Unknown	-.605	.277
Journal	Top Peer	1.113	.277
	Other Peer	.376	.277
	Not Peer	-.971	.277
	Not Journal	-.519	.277
Access	Online Free	1.604	.213
	Online Cost	-1.107	.250
	Print Only	-.497	.250
(Constant)		4.763	.169

Importance Values

Importance Values	
Author	35.198
Journal	28.171
Access	36.631
Averaged Importance Score	

Correlations[a]

	Value	Sig.
Pearson's R	.972	.000
Kendall's tau	.900	.000

a. Correlations between observed and estimated preferences

Conjoint Profiles Ranked by Score

	N	Regression	Std. Deviation
Profile 7	405	8.9852	1.74054
Profile1	417	7.6835	1.86711
Profile 3	418	7.5981	2.00268
Profile 6	410	6.7463	2.37222
Profile 13	404	6.2475	2.10001
Profile 10	403	5.9231	2.28809
Profile 4	409	5.1687	2.16442
Profile 8	404	4.6807	2.51832
Profile 2	418	4.5072	2.62915
Profile 9	406	4.4828	2.24619
Profile 5	409	4.0782	2.15883
Profile 15	400	4.0475	2.26342
Profile 16	400	3.8125	2.11389
Profile 11	403	3.3722	2.12201
Profile 12	404	3.2970	2.03344
Profile 14	403	2.2903	1.77253
Valid N (listwise)	391		

48 Profiles

		Author				Journal				Access			TOTAL
rank	constant	top tier	good	weak	unknown	top peer	other peer	not peer	not jour	Free	low cost	print	BETA SCORE
	4.763	1.412	0.386	-1.193	-0.605	1.113	0.376	-0.971	-0.519	1.604	-1.107	-0.497	
1	4.763	1.412				1.113				1.604			8.892
2	4.763	1.412					0.376			1.604			8.155
3	4.763		0.386			1.113				1.604			7.866
4	4.763	1.412							-0.519	1.604			7.26
5	4.763		0.386				0.376			1.604			7.129
6	4.763				-0.605	1.113				1.604			6.875
7	4.763	1.412						-0.971		1.604			6.808
8	4.763	1.412				1.113						-0.497	6.791
9	4.763			-1.193		1.113				1.604			6.287
10	4.763		0.386						-0.519	1.604			6.234
11	4.763	1.412				1.113					-1.107		6.181
12	4.763				-0.605		0.376			1.604			6.138
13	4.763	1.412					0.376					-0.497	6.054
14	4.763		0.386					-0.971		1.604			5.782
15	4.763		0.386			1.113						-0.497	5.765
16	4.763			-1.193			0.376			1.604			5.55
17	4.763	1.412					0.376				-1.107		5.444
18	4.763				-0.605				-0.519	1.604			5.243
19	4.763	1.412							-0.519			-0.497	5.159
20	4.763		0.386			1.113					-1.107		5.155
21	4.763		0.386				0.376					-0.497	5.028
22	4.763				-0.605			-0.971		1.604			4.791
23	4.763				-0.605	1.113						-0.497	4.774
24	4.763	1.412						-0.971				-0.497	4.707
25	4.763			-1.193					-0.519	1.604			4.655
26	4.763	1.412							-0.519		-1.107		4.549

27	4.763		0.386				0.376				-1.107		4.418
28	4.763			-1.193				-0.971		1.604			4.203
29	4.763			-1.193		1.113						-0.497	4.186
30	4.763				-0.605	1.113					-1.107		4.164
31	4.763		0.386						-0.519			-0.497	4.133
32	4.763	1.412						-0.971			-1.107		4.097
33	4.763				-0.605		0.376					-0.497	4.037
34	4.763		0.386					-0.971				-0.497	3.681
35	4.763			-1.193		1.113					-1.107		3.576
36	4.763		0.386						-0.519		-1.107		3.523
37	4.763			-1.193			0.376					-0.497	3.449
38	4.763				-0.605		0.376				-1.107		3.427
39	4.763				-0.605				-0.519			-0.497	3.142
40	4.763		0.386					-0.971			-1.107		3.071
41	4.763			-1.193			0.376				-1.107		2.839
42	4.763				-0.605			-0.971				-0.497	2.69
43	4.763			-1.193					-0.519			-0.497	2.554
44	4.763				-0.605				-0.519		-1.107		2.532
45	4.763			-1.193				-0.971				-0.497	2.102
46	4.763				-0.605			-0.971			-1.107		2.08
47	4.763			-1.193					-0.519		-1.107		1.944
48	4.763			-1.193				-0.971			-1.107		1.492