JASIST 2001-2010

by Judit Bar-Ilan

EDITOR'S SUMMARY

The *Journal of the American Society for Information Science and Technology* (*JASIST*) started in 2001 after being published since 1950 under two other titles. Prior bibliometric analyses of *JASIS* focused on author and article characteristics and trends and on geographic and keyword distributions. The current study examines article citations from 2001 through 2010, drawing on three major citation databases and readership counts. Of 1,459 articles, 14 were cited at the top of at least one database, and seven were among both the top-cited papers and those with the highest readership counts. The top-cited papers focused on the web, informetrics, link analysis, theory and knowledge management. The most often read were on the web as a topic, theory, link analysis, informetrics and databases. Though not used in this research, alternative metrics such as mention counts in social media, Slideshare, Wikipedia and ReaderMeter can complement traditional citation analysis.

KEYWORDS

citation analysis
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altmetrics

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JASIS, the *Journal of the American Society for Information Science*, changed its name to *JASIST*, the *Journal of the American Society for Information Science and Technology*, beginning in 2001 with volume 52. This was the second time the journal changed its name. It started out as *American Documentation* in 1950 and changed its name to the *Journal of the American Society for Information Science* in 1970, starting with volume 21.

In this article we will provide a short bibliometric characterization of the first 10 *JASIST* volumes – volumes 52 to 61 for the years 2001 to 2010. This characterization includes the list of most highly cited articles published in *JASIST* as well as citation counts that will be compared to "readership counts" retrieved from Mendeley, an online reference manager (www.mendeley.com).

Bibliometric analyses of *JASIS* have been conducted before, where the main emphasis was on analyzing different characteristics of authors. In an article published in 1999 Lipetz [1] studied *JASIS* authorship during the first five decades of *JASIS* (and *American Documentation*) by selecting one volume from each decade. His paper appeared in a special issue of *JASIS* for the 50th anniversary of the journal. Another paper studying the characteristics of *JASIS* authors between 1970 and 1996 was published by Al-Ghamdi et al. in 1998 [2]. Different trends in the first 50 volumes of *JASIS* were analyzed by Koehler et al. [3] in a study published in 2000 that included article characteristics such as number and type of references, length of paper and title in addition to author characteristics. More recently, Chua and Yang [4] studied author, co-authorship and keyword distributions for two 10-year periods of JASIST publications.

He and Spink [5] analyzed the geographic distribution of *JASIST* and

Journal of Documentation authors during a 50-year period, between 1950 and 1999, while Wormell [6] studied geographical distribution of both authors and readers (based on subscriptions) in the mid-1990s, and *JASIS* was among the analyzed journals.

Only a few studies emphasized citations: Nisonger [7] analyzed the position of *JASIS* in various LIS journal rankings in 1999 and found that one of the most frequently employed criteria for ranking journals in the field was citation data. Earlier Harter and Hooten [8] carried out a study of nine volumes of *JASIS* that included citation data as well. In a study published in 1999 Cronin and Shaw [9] analyzed citation rates and uncitedness of four LIS journals, including *JASIST*, while in a recent work, Sin [10] studied the effects of international co-authorship in six LIS journals on citation counts.

The aim of the current study is to analyze the citations received by *JASIST* articles published between 2001 and 2010. It is well known that citation counts are dependent on the citation database used for data collection, even if all the data were collected at the same time [11, 12]; thus in this study we collected data from three major citation databases: Thomson-Reuters' *Web of Science* (*WoS*), Elsevier's *Scopus* and from *Google Scholar* (*GS*).

Citations reflect only one aspect of the use of scholarly articles. Not all the articles we read appear in the reference lists of the works we publish, even though they might be influential. This of course is especially true of readers who are not writers, such as students, librarians, information professionals and other people interested in information science. Thus it is of interest to explore the readership of scientific articles. In the past, this data was gathered through library usage studies, for example [13, 14]), but today this exploration can be done by analyzing download statistics [15] or by consulting reference managers [16, 17, 18]. In this study we collected readership counts from the reference manager Mendeley and compared the readership counts with citation counts retrieved from *WoS*, *Scopus* and *GS*.

Mendeley readership counts are just one example of a set of alternative metrics that can be derived from the web and from Web 2.0 applications [19]. Other examples include citations or mentions of peer-reviewed journal articles on Twitter [20] or in blogs [21, 22]. In addition, mentions in CiteULike, Facebook, Delicious and Wikipedia and views and downloads on Slideshare can also be tracked through the total-impact website (http://total-impact.org). Other tools that allow easy production of altmetric measures include ReaderMeter (http://readermeter.org). Publishers are also interested in alternative measures, for example PLoS reports readership counts for Mendeley and CiteULike for all articles it publishes, besides the download and view counts that are sometimes reported by other publishers as well. One of the reasons for the growing interest in alternative metrics is that they can be calculated almost immediately after publication, thus providing almost immediate feedback on interest in the specific article, whereas citation in a peer-reviewed publication takes much longer. Eysenbach [20] has shown that the number of early tweets might be able to predict whether an article will be highly cited later on. Correlation with citations is interesting, but the value of alternative metrics is that they provide information on "impact" in different senses that compliment citations. As noted above, reading an article and thinking highly of it does not necessarily mean that the reader will actually cite it in a journal paper.

Data Collection and Analysis

Data were collected from the three citation databases, *WoS*, *Scopus* and *GS*, in April 2012. In *WoS*, articles, reviews and proceedings papers were selected (editorials, book reviews, letters, biographical items and bibliographies were excluded); similarly in *Scopus*, articles, reviews and conference papers were selected. An extensive search and data cleansing were conducted in *GS*, using Publish or Perish in order to identify relevant *JASIST* articles and record their citation counts. This process resulted in the identification of 1459 items: 12 were not indexed by *Scopus*, and one was not indexed by *Google Scholar*. For each item the basic bibliographic information and citation counts were recorded.

As noted above, we used the online reference manager Mendeley to collect readership information. For an article, the retrieved information includes the number of readers, that is, the number of system users who bookmarked the specific item and included it in their virtual library.

FIGURE 1. A screenshot from Mendeley (www.mendeley.com).

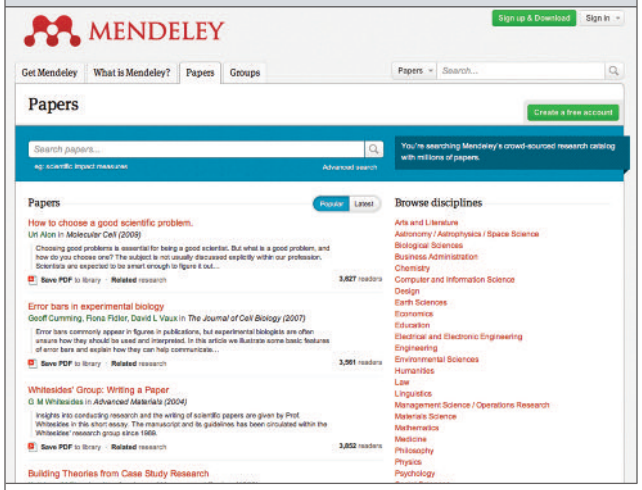

Figure 1 is a screenshot from Mendeley showing that multiple Mendeley records can be associated with a single item, in which case readership counts are combined. Out of the 1459 items, 1422 (97.5%) were bookmarked on Mendeley. This finding is very meaningful because it is a result of an effort by the crowd or the community and not a centralized process like in the citation databases.

Results

Table 1 displays the top cited papers according to *WoS*, *Scopus* and *GS*. For each citation database we tabulated the top 10 items. Because of the differences in the citation counts among the databases, this process resulted in a total of 14 papers that were top-cited in at least one of the three citation databases. The rankings based on *WoS* and *Scopus* are highly similar, while the *GS*-based ranking differs somewhat. The number of *GS* citations is consistently higher than the number of citations reported by *WoS* or *Scopus*. An interesting outlier is the paper "twitter power" that accrued 233 citations in *GS*, but only 18 in *WoS*. These top-cited papers can be categorized as web-related (5 papers), informetrics (5), link analysis (2), theory (1) and knowledge management (1).

TABLE 1. Top-cited *JASIST* articles

Authors	Title	Pub year	WOS cits	Rank WOS	Scopus cits	Rank Scopus	GS cits	Rank GS
Spink, A; Wolfram, D; Jansen, MBJ; Saracevic, T	*Searching the Web: The public and their queries*	2001	289	1	398	1	798	1
Jansen, BJ; Pooch, U	*A review of web searching studies and a framework for future research*	2001	177	2	210	2	338	4
Meho, LI; Yang, K	*Impact of data sources on citation counts and rankings of LIS faculty:* Web of Science *versus* Scopus *and* Google Scholar	2007	145	3	162	4	230	9
Ahlgren, P; Jarneving, B; Rousseau, R	*Requirements for a co-citation similarity measure, with special reference to Pearson's correlation coefficient*	2003	119	4	129	7	215	11
Chen, CM	*CiteSpace II: Detecting and visualizing emerging trends and transient patterns in scientific literature*	2006	117	5	144	5	343	3
Cronin, B; Meho, L	*Using the h-index to rank influential information scientists*	2006	114	6	118	9	179	20
Rieh, SY	*Judgment of information quality and cognitive authority in the web*	2002	110	7	144	6	327	5
Bornmann, L; Daniel, HD	*What do we know about the h index?*	2007	107	8	123	8	192	13
Borlund, P	*The concept of relevance in IR*	2003	98	9	114	11	235	10
Thelwall, M	*Extracting macroscopic information from web links*	2001	93	10	99	12	186	15
Liben-Nowell, D; Kleinberg, J	*The link-prediction problem for social networks*	2007	73	18	162	3	783	2
Wathen, CN; Burkell, J	*Believe it or not: Factors influencing credibility on the web*	2002	86	12	116	10	238	7
Alavi, M; Tiwana, A	*Knowledge integration in virtual teams: The potential role of KMS*	2002	68	22	84	19	263	6
Jansen, BJ; Zhang, MM; Sobel, K; Chowdury, A	*Twitter power: Tweets as electronic word of mouth*	2009	18	243	88	17	233	8

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TABLE 2. Top-read *JASIST* articles

Authors	Title	Pub. year	Mendeley reader counts	Mendeley rank	WOS cits	Scopus cits	GS cits
Jansen, BJ; Zhang, MM; Sobel, K; Chowdury, A	*Twitter power: Tweets as electronic word of mouth*	2009	280	1	18	88	233
Liben-Nowell, D; Kleinberg, J	*The link-prediction problem for social networks*	2007	186	2	73	162	783
Bates, MJ	*Fundamental forms of information*	2006	81	3	27	26	71
Stvilia, B; Twidale, MB; Smith, LC; Gasser, L	*Information quality work organization in Wikipedia*	2008	73	4	33	57	122
Chen, CM	*CiteSpace II: Detecting and visualizing emerging trends and transient patterns in scientific literature*	2006	71	5	117	144	343
Zins, C	*Conceptual approaches for defining data, information and knowledge*	2007	70	6	18	22	85
Rieh, SY	*Judgment of information quality and cognitive authority in the web*	2002	69	7	110	144	327
Borlund, P	*The concept of relevance in IR*	2003	64	8	98	114	235
Saracevic, T	*Relevance: A review of the literature and a framework for thinking on the notion in information science. Part II: Nature and manifestations of relevance*	2007	61	9	39	58	
Metzger, MJ	*Making sense of credibility on the web: Models for evaluating online information and recommendations for future research*	2007	60	10	31	56	128
Wathen, CN; Burkell, J	*Believe it or not: Factors influencing credibility on the web*	2002	57	11	86	116	238
Thelwall, M	*Social networks, gender, and friending: An analysis of MySpace member profiles*	2008	57	12	34	42	127
O'Brien, HL; Toms, EG	*What is user engagement? A conceptual framework for defining user engagement with technology*	2008	56	13	11	31	58
Spink, A; Wolfram, D; Jansen, MBJ; Saracevic, T	*Searching the web: The public and their queries*	2001	55	14	289	398	798
Marcial, LH; Hemminger, BM	*Scientific data repositories on the web: An initial survey*	2010	55	14	2	5	1

Table 2 displays the 15 *JASIST* articles with the highest readership counts. Only seven articles appear in both tables. A striking difference between the two lists is in the topics covered. Whereas informetric topics had considerable representation in the citation-based list, except for the paper *CiteSpace II*, there are no other papers in this category on the readership-counts-based list. On the other hand, theory is represented much more strongly in the readership-based list than in the citation-count-based list. The topics of the top-read papers can be categorized as: web-related (7 papers), theory (5), link analysis (1), informetrics (1) and databases (1).

Conclusion

In this paper we studied the first decade of articles published in *JASIST* – after the journal changed its name from *JASIS* to *JASIST*. Articles were ranked in terms of both the number of citations they received and the number of readers who bookmarked the articles using the online reference manager, Mendeley. Remarkably, almost all of the *JASIST* articles were bookmarked by at least one reader. Although there are significant correlations between the Mendeley readership counts and the citation counts, the correlations are only around 0.5, indicating that reading and citing are two different scientific activities. An additional point is that we do not actually know why users bookmark articles and whether they actually read them. These issues, as well as the reliability of information retrieval from reference managers, should be further explored. ■

Resources on next page

Resources Mentioned in the Article

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