

Web Citation Behaviour in the Annals of Library and Information Science: A Critical Analysis

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Abstract

The present study is an attempt to carry out the citation analysis of all the journal articles published in the Annals of Library and Information Science from 2010-2019. A total of 7,124 citations appended to 328 papers were published in the journal during the ten-year study period. Average number of citations per article is maximum in 2018. Out of 7,124 citations appended, 1,039 (14.58%) citations appeared in 2010, followed by 873 (12.28%) citations in 2018, and 831 (11.66%) citations in 2013. The findings reveal that a majority of the papers have 16-20 citations (25%), followed by 11-15 (14.93%) citations, and 6-10 (14.02%) citations. The study also depicts that out of the total, 5,081 (71.29%) Web references were used in the article references. The Annals of Library and Information Science is the most preferred journal used by authors during the study period, being cited 476 times. The authorship pattern reveals that two-author citations are in the majority (46.45%). Out of the total authors who contributed a total of 328 papers, 254 (77.43%) were affiliated to the institutions located in India.

Keywords: Citation Analysis, Annals of Library and Information Science, Journals, Bibliometrics, E-Citations

Introduction

Internet is one of most vital and multifaceted novelties in human history; it is the biggest ever tool for information interchange accessible by the universal population. Since the emergence of the World Wide Web in the 1990s, the quantity of scholarly content in the electronic format has increased tremendously (Maharana & Nayak, 2006). This has helped authors in various fields to increase their research productivity, including in the field of library and

information science. Therefore, citing Web resources has become essential. Not only is the style of Web citations an issue, but quality, legitimacy, and sustainability are other common issues with the document. To overcome such issues, citation analysis plays a role. Citation analysis examines the citations found in publications and is comprehensively used to decide the most important journals in the field (Hoffmann & Doucette, 2012). Citation analysis examines the prototype of citation in the documents, as a technique for data gathering on information needs (Kumar & Reddy, 2012). Meho (2007) observed that citation analysis is basically an area of information science in which researchers studied the way articles in an academic field are accessed and referenced by others. Library professionals face such challenges while making effective decisions related to journal subscription. Citation analysis helps library professionals in making such decisions (Weerasinghe, 2017). As far as open access journals are concerned, one of the false impressions about them is that it is basically about economies. However, the journal pricing/affordability issue definitely draws thought towards open access. Institutions do not have sufficient funds to subscribe to each and every journal that is published. As per *Ulrich's Directory*, there are about 24,000 journals; most of the institutions subscribe to a small proportion of them for their researchers (Brody, 2004). The Web has transformed the concept of information dissemination. A majority of the researchers still do not know the Web's power in maximising visibility, improving ease of access and usage, and improving the impact of their work; however, a few already know. If the author goes for self-archiving, their work will be free for all those whose institutes cannot afford the journal in which it appears (Brody, 2004). Harnad and Brody (2004)

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confirmed that self-archiving increases access, and hence generates more impact.

Literature Review

Since the last few years, the number of citations to online sources is increasing in research papers. This is proof that academic and scientific bodies are increasingly using e-resources for their research works. A significant amount of literature already exists in the area of study. Koley (2003) studied 26 research papers published in four different issues of the Indian Journal of Physiology and Allied Sciences. Of the citations, 76.81% relates to journal articles, 18.59% to monographs, and the rest to conference papers, thesis, and so on. In a recent bibliometric study, Panda (2021) indicated that the use of online material in citations or for reference purposes was in second position (18.741%), just after journal articles (55.41%), but more than book chapters and conference papers (13.46% and 6.52%, respectively). In another study, a total of 70 Masters Dissertations in education, consisting of 4,012 citations, were studied by Okiy (2003). The author found that most of the students used textbooks than other forms of library materials. Bhat and Sampath Kumar (2008) conducted a study on citation analysis of research articles from scholarly electronic journals published in 2000-2006. The authors' focus was on to what level scholars use e-based sources in academic e-journals. The results revealed that 81.49% of the articles among the selected journals during 2000-2006 have Web-based references. Falk (2004) found 1,200 open access journals in 2004, compared to only five in 1992. Rufai, Gul and Shah (2014) investigated the considerable growth of open access journals in library and information journals. Similarly, a research by Sivakumaren et al. (2012) studied the growth of LIS journals in DOAJ and concluded that more open access journals were published between 1996 and 2005. Vaughan and Shaw (2003) said that there is a strong correlation between the use of bibliographic and Web citations by studying 46 journals in LIS and revealed that web citations were normally more than bibliographic citations. Maharana, Nayak and Sahu (2006), in their paper, cited Davis and Cohen, who in 2001 did a citation analysis of undergraduate term articles in macroeconomics and found that book citations

decreased, whereas Web citations increased from 1966 to 1999. Vinay Kumar and Sampath Kumar (2017) intended to know the prevalence of URLs as citations in library and information science scholarly publications. A total of 8,203 research articles published in 12 LIS journals during the years 2006-2015 were studied. Of the 288,452 citations, 42,098 were URLs.

Rationale of the Study

In the present scholarly environment, citation analysis is the activity of analysing the citations and references; it is one of the types of bibliometrics that reveals the relationship between the citations given by any author to an already published scholarly literature available. The increased growth of scholarly literature and publication prices are the two big challenges librarians face to meet the growing demands of the users. So library professionals should adopt ways and techniques to seek knowledge about the information needs of the users. Citation analysis helps in studying the interactions between an author and their co-authors. It also shows us the top ranking list of journals, use of different forms of documents, citation rate of the journals, impact factor of a journal, and immediacy index.

Objectives

- To identify year-wise distribution of citations.
- To examine distribution of citations by volume.
- To know year-wise citations of the publications.
- To analyse the composition of citations.
- To find the productive source titles cited by authors.
- To check the authorship pattern of citations.
- To study distribution of authors by geographical location.

Methodology

To fulfil the above objectives of the study, the data for the present study was collected from the Annals of Library and Information Science (ALIS) website. It is a quarterly journal (four issues in a year) from which a

total of 328 articles were collected from ten volumes of journal during 2010-2019. Out of these, 310 are articles, 17 short communications, and one falls under the others category, which includes letters to editorials. Each article published during the study period was examined and all research articles that include citations were selected. The data related to total number of articles, total number of references, and total number of articles with electronic and print references were recorded, along with composition of citation, sources title, authorship pattern, and geographical distribution of contributors to the journal. The references list from each paper was examined; duplicated references from the list were removed. The references appended to each article were carefully analysed, tabulated, and presented in the form of tables under the different headings, as per the objectives of the study.

Data Analysis and Interpretation

Year Wise Appearance of Citations

During the study period (2010-2019), 7,124 citations were found appended to 328 research papers. Table 1 presents the year-wise appearance of citations. It is evident from the table that the highest number of citations appeared in 2010, i.e., 1,039 citations (14.58%) of the total number of citations contributed, closely followed by 873 citations (12.28%) in 2018. The least number of citations (465 citations; 6.52%) was recorded in 2012.

Table 1: Year-Wise Appearance of Citations

<i>Year</i>	<i>No. of Citations</i>	<i>%</i>
2010	1039	14.58
2011	818	11.48
2012	465	6.52
2013	831	11.66
2014	802	11.25
2015	654	9.18
2016	572	8.02
2017	610	8.56
2018	873	12.28
2019	460	6.45
Total	7124	100.00

Source: Authors' own findings.

Quantitative Distribution of Documents by Volume

Table 2 shows that the journal's frequency is quarterly, as every volume has published four issues per year. The total number of documents published during the study period 2010-2019 were 328. Out of these, 310 were articles, 17 were short communications, and one was under the others category. The distribution of documents by volume shows that the number of documents is higher in 2010, with 43 documents, and the number of documents were minimum (20) in 2019. The range of documents published during 2010-2019 is 20-44. It is noted that more than 40 documents were published only in 2010.

Table 2: Quantitative Distribution of Documents by Volume

<i>Year</i>	<i>Volume</i>	<i>Articles</i>	<i>Short Communication</i>	<i>Others</i>	<i>Total Documents (Articles + Short Communications + Others)</i>
2010	57	39	4	0	43
2011	58	36	0	0	36
2012	59	27	0	0	27
2013	60	35	2	0	37
2014	61	34	1	0	35
2015	62	37	0	1	38
2016	63	31	1	0	32
2017	64	28	4	0	32
2018	65	25	3	0	28
2019	66	18	2	0	20
Total		310	17	1	328

Source: Authors' own findings.

Distribution of Citations

The data presented in Table 3 shows the details of the number of references that appeared at the end of papers during the years 2010-2019. From Table 3, it is clear that all the 328 papers have their references. The maximum

number of references per article is 16-20 (25 per cent), followed by 11-15 (14.93 per cent), and 6-10 (14.02 per cent); the minimum number of references per article is 26-30 (7.62 per cent) of the total number of contributions. There are 37 (11.28 per cent) papers with more than 36 citations.

Table 3: Distribution of Citations

<i>No. of Citations</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>	<i>2015</i>	<i>2016</i>	<i>2017</i>	<i>2018</i>	<i>2019</i>	<i>Total</i>	<i>%</i>
0-5	2	1	1	1	3	3	3	4	3	1	22	6.70
6-10	7	3	7	3	5	5	7	4	4	1	46	14.02
11-15	4	6	6	5	4	9	2	6	3	4	49	14.93
16-20	12	13	5	8	7	8	11	9	4	5	82	25.00
21-25	4	5	3	6	4	6	3	1	4	5	41	12.50
26-30	5	1	2	2	4	5	1	1	3	1	25	7.62
31-35	1	1	2	7	5	1	2	4	2	1	26	7.92
>=36	8	6	1	5	3	1	3	3	5	2	37	11.28

Source: Authors' own findings.

Distribution of Citations by Volume

Table 4 reveals that the total number of articles published during 2010-2019 was 310 and the total number of citations was 6,914. The year-wise analysis of citations

shows that the average number of citations per article is highest (34.60) in 2018, followed by 24.10 in 2019; the minimum citations per article (17.20) was in 2015. The study reveals that the average number of citations per articles is fluctuating.

Table 4: Distribution of Citations by Volume

<i>Year</i>	<i>Vol. No.</i>	<i>No. of Articles</i>	<i>Total No. of Citations</i>	<i>Average No. of Citations/Article</i>
2010	57	39	902	23.12
2011	58	36	818	22.70
2012	59	27	465	17.20
2013	60	35	821	22.21
2014	61	34	802	23.60
2015	62	37	650	17.60
2016	63	31	569	18.40
2017	64	28	588	21.00
2018	65	25	866	34.60
2019	66	18	433	24.10
Total	Years -10	310	6914	

Source: Authors' own findings.

Composition of Citations

Table 5 shows that out of the total number of citations (7,124) in all the documents, article citations were more in number, i.e. 5,081 (71.32 per cent), than other types of

cited documents, like 1,097 (15.39 per cent) citations from books and 610 (8.56 per cent) citations from conference proceedings. There were 336 (4.71 per cent) citations from other sources, like reviews, communications editorials, letters, notes, thesis, and short surveys.

Table 5: Composition of Citations

Year	Total Number of Citations in Total Documents	Articles	Conference Proceedings	Books	Other Sources (Reviews, Communications Editorials, Letters, Notes, Thesis, and Short Surveys)
2010	1039	712	110	153	64
2011	818	519	49	204	46
2012	465	312	54	73	26
2013	831	518	63	161	89
2014	802	589	70	109	34
2015	654	461	24	145	24
2016	572	455	57	44	16
2017	610	486	42	72	10
2018	873	685	99	74	15
2019	460	344	42	62	12
Total	7124	5081	610	1097	336

Source: Authors' own findings.

Source Articles

Table 6 depicts the leading cited journals of library and information science fields during the study period of 2010-2019. The table shows the ranking of journals based on the journals that are cited the most frequently. Out of 7,124 citations, the Annals of Library and Information Science is at the top of the list; it has been cited 476 times, followed by Scientometrics at the second spot, being cited 272 times. The Electronic Library was cited 159 times; the least number of cited journal is the Journal of American Society for Information Science, which was cited only 69 times and thus occupied the tenth place. The present study reveals that the Annals of Library and Information Science is the most preferred journal cited during the ten-year study period.

Table 6: Top Most Ranked Journals Cited in the Annals of Library and Information Science Articles

Source Title	No. of Times Cited	Rank
Annals of Library and Information Science	476	1
Scientometrics	272	2
Electronic Library	159	3

Source Title	No. of Times Cited	Rank
DESIDOC Journal of Library and Information Technology	149	4
Journal of Documentation	113	5
Journal of American Society for Information Science and Technology	109	6
Library Philosophy and Practice	106	7
SRELS Journal of Information Management	103	8
Malaysian Journal of Library and Information Science	100	9
Journal of American Society for Information Science	69	10

Source: Authors' own findings.

Authorship Pattern

It is evident from Table 7 that out of the 310 articles, the number of two-authored papers is the highest, accounting for 46.45 per cent of the total. The number of single-authored papers is 108 (34.83 per cent), followed by three-authored papers (47; 15.16 per cent). The least number of papers (11; 3.54 per cent) had more than three authors.

Table 7: Authorship Pattern

No. of Authors	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total	%
Single	12	17	11	11	12	17	8	8	5	7	108	34.83
Two	17	14	12	18	17	14	18	14	14	6	144	46.45
Three	8	3	4	4	5	5	4	6	4	4	47	15.16
More than Three	2	2	0	2	0	1	1	0	2	1	11	3.54

Source: Authors' own findings.

Geographical Location of Authors

Table 8 gives the list of countries from where articles have been published in the journal during the period 2010-2019. It is evident that a majority of the contributions are from India (254; 77.43 per cent). There are 18 international contributions in the journal and the maximum is from Nigeria (25; 7.62 per cent), followed by Sri Lanka (14; 4.26 per cent). Nine countries contributed single documents each. This study depicts that the Annals of Library and Information Science journal has a broad scope outside the Indian continent.

Table 8: Distribution of Authors by Geographical Locations

Country	No. of Documents	Percentage
India	254	77.43
Nigeria	25	7.62
Sri Lanka	14	4.26
Iran	7	2.13
Bangladesh	6	1.82
USA	4	1.21
Belgium	3	0.91
Netherlands	2	0.60
Tanzania	2	0.60
South Africa	2	0.60
Hungary	1	0.30
Brazil	1	0.30
Honolulu	1	0.30
United Arab Emirates	1	0.30
Kazakhstan	1	0.30
Uganda	1	0.30
Malaysia	1	0.30
Fiji	1	0.30
Sudan	1	0.30
Total	328	100.00

Source: Authors' own findings.

Conclusion

Citation analysis techniques help librarians and information scientists in making important decisions in building a sound and balanced collection. It also helps in selecting the information resources and weeding out unused resources to make space for new resources. The study is an attempt to know the citation analysis of the Annals of Library and Information Science during a period of ten years. The year-wise analysis reveals that 2010 received the highest number of citations, i.e. 1,039. A majority of the documents (310) are in the form of journal articles. In terms of distribution of citations, a maximum number of articles have 16-20 citations. The Annals of Library and Information Science is ranked as the top most journal cited during the period 2010-2019. According to the authorship pattern, double authorship is in a majority of the documents. A total of 18 international collaborations are in the journal, and a majority are from Nigeria, followed by Sri Lanka and Iran, respectively.

Future Research

The present study of citation analysis helps research scholars, students, and librarians in their pursuit of materials needed for their research work. In addition, authors can make use of the variety of literature forms. Therefore, future studies need to include other areas of citation analysis, like application of the Bradford law, age-wise distribution of citations, and degree of collaboration, to achieve more precise findings.

Conflict of Interests

The authors declare that they have no conflict of interests.

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