

## **Google Scholar Research Impact on DESIDOC Journal of Library & Information Technology: Citation Analysis**

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### **ABSTRACT**

*Citation analysis is one of the well-known bibliometric approaches to measure the visibility of scientists, journals, projects and nations. Based on Google scholar this study has traced the citation and authorship patterns of DESIDOC Journal of Library & Information Technology. Although, GS covers wide spectrum of scholarly literature worldwide, this study found that DJLIT among LIS journals have high visibility in GS. Study found that within a twenty four year period (between 1988-2015) 432 articles are 4199 time cited in the GS. Only single article of "Eisenberg, MB" cited 254 times. DJLIT and few library science journals are indexing in GS, it is better to index other journals also.*

**Keywords:** DESIDOC Journal of Library and Information Technology, Google Scholar, Indexing services, Citation Analysis, Google Metrics, Bibliometrics, Scientometrics.

### **Introduction:**

Library and information science (LIS) journals have long history in India. Dr. S. R. Ranganathan, 'the Father of Library Science in India' established IASLIC Bulletin, Library Herald and Annals of Library and Information Studies. In 1950's. Some of the LIS journals are indexing in printed quarterly journal of Guide to Indian Periodical Literature (GIPL). Because of technological innovation GIPL index has less value in market. Despite its long history, the coverage of the Indian LIS journals in secondary and tertiary databases is limited.

In recent years there are many indexing databases came up like Library Science Abstracts, Scopus, net of Sciences, and Indian Citation Index, of these databases business outside India except ISI. Solely three or four Indian journals square measure assortment in these databases. However, an enormous volume of LIS literature is printed in a very sizable amount of Indian LIS journals. So, a colossal quantity of LIS literature is missing in assortment and abstracting databases. within the recent years, Google Scholar (GS) has emerged as a 3rd different to the 2 well-known citation databases, the online of data and Scopus. The free accessibility of Google Scholar and its in depth coverage is being checked out by researchers for critical studies despite its several limitations. Sanni (2010) the 2 well-established citation databases hardly index Indian LIS journals, GS is that the solely presently accessible choice to map the citation pattern of Indian LIS journals.

Eugene Garfield first outlined the idea of a unified citation index to the literature of science in 1955. "Citation indexes resolve semantic problems associated with traditional subject indexes by using citation symbology rather than words to describe the content of a document" (Weinstock 1971). Eugene Garfield's main purpose in proposing the construction of a citation index for science, in which the references in scientific articles are used as index terms, was for the citation index to function as an information retrieval tool for scientific information (Garfield 1955). The rationale behind this kind of indexing is to exploit what Garfield calls the "association-of-ideas" or "Citations are the formal, explicit linkages between papers that have particular points in common" (Garfield 1979, 1).

Citations link articles on a specific topic, and Google Scholar is built on the basis of this internal structure of subject literatures. However, as noted at the start of this article, the citation index is not a recent idea. In fact, "the first practical application of a citation index was Shepard's Citations, a legal reference tool that has been in use since 1873" (Weinstock 1971). Moreover, citation analysis is not a new idea. For instance, since the appearance of Islam in a branch of Islamic theology called the Science of Hadith, researchers have identified the accuracy and legitimacy of documents (sources) based on citations alone (Horri 1983). For more information about the history and role of citation indexing, see the works published by Dr. Eugene Garfield who has opened many doors for research and applications in infometrics, scientometrics and bibliometrics.

### **Introduction to Google Scholar**

Google Scholar is that the scholarly search tool of the world's largest and most powerful programme, Google. Google Scholar was developed by Anurag Acharya, AN Indian-born computer user. it's an implausible tool permitting researchers to find a good array of scholarly literature on the online, together with scholarly journals, abstracts, peer reviewed articles, theses, dissertations, books, preprints, PowerPoint shows and technical reports from universities, educational establishments, skilled societies, analysis teams, and preprint repositories round the world. As such, it's become a entry to accessing scholarly data on the online. a day a lot of scholarly data is out there on-line and that we still discover new reasons to want access to the current data.

If Google Scholar makes more open access scholarly material accessible, the price of academic journals and databases may decrease or stabilize as they strive to compete. Thus the greater the accessibility of scholarly material, the greater is the value for researchers. What makes Google Scholar most useful is its citation index feature. Google Scholar consists of articles, with a sub-list under each article of the subsequently published resources that cite the article;

In the future, Google Scholar could also be used for citation analysis, through bibliometric techniques, which live the impact issue of a personal publication as a perform of the amount of citations it receives from future authors. additionally, any author could licitly want to work out whether or not his/her own work has been criticized or utilized by others on the net. Authors have an interest in knowing whether or not anyone has cited their works and/or whether or not alternative researchers in their fields have commented on them. Google Scholar facilitates this sort of feedback within the pedantic communication cycle the net. no matter the year that the article was printed, Google Scholar permits researchers to spot wherever that article was cited. Researchers will find recent articles that have cited the actual article. an additional use of Google Scholar is to spot scientists presently operating in specific

branches of science so as to recommend collaboration, to enter into correspondence, etc. Moreover, Google Scholar provides remote access to the indexed resources.

DESIDOC Journal of Library & Information Technology (DJLIT) is a peer-reviewed, open access, bi-monthly journal that publishes original research and review papers related to IT applied to library activities, services, and products. The papers included focus on aspects of exploring, applying, and evaluating new theories and technologies to create better automated libraries and enhanced library services using IT. Topics covered include automation, digitisation, user interfaces, networks, hardware and software development, and technology. It is meant for librarians, documentation and information professionals, researchers, students and others interested in the field. The readers get user experience on the application of IT in libraries and information centres, and the analysis of underlying trends and their potential effects.

### **Literature Review:**

Noruzi (2005) in his study provided a new method of locating potentially relevant articles on a given subject by identifying subsequent articles that cite a previously published article. An important feature of Google Scholar is that researchers can use it to trace interconnections among authors citing articles on the same topic and to determine the frequency with which others cite a specific article, as it has a "cited by" feature. This study also compares the citation counts provided by Web of Science and Google Scholar for articles in the field of "Webometrics." It makes several suggestions for improving Google Scholar. Finally, it concludes that Google Scholar provides a free alternative or complement to other citation indexes.

Swapan Kumar (2014) In his study Indian library and information science (LIS) journals are not indexed in Web of Science (WoS) database and lately Scopus® database of Elsevier B.V. has indexed three Indian LIS journals. Hence, Google Scholar (GS) is the only available global database for the citation analysis of Indian LIS journals. Based on GS, this study has traced the citation and authorship patterns of selected LIS journals. Although, GS covers wide spectrum of scholarly literature worldwide, this study found that Indian LIS journals have low visibility even in GS database. In terms of citations, multiple-authored articles generally got more citations than the single-authored articles. This study suggests LIS researchers to increase collaborations for better visibility of their research.

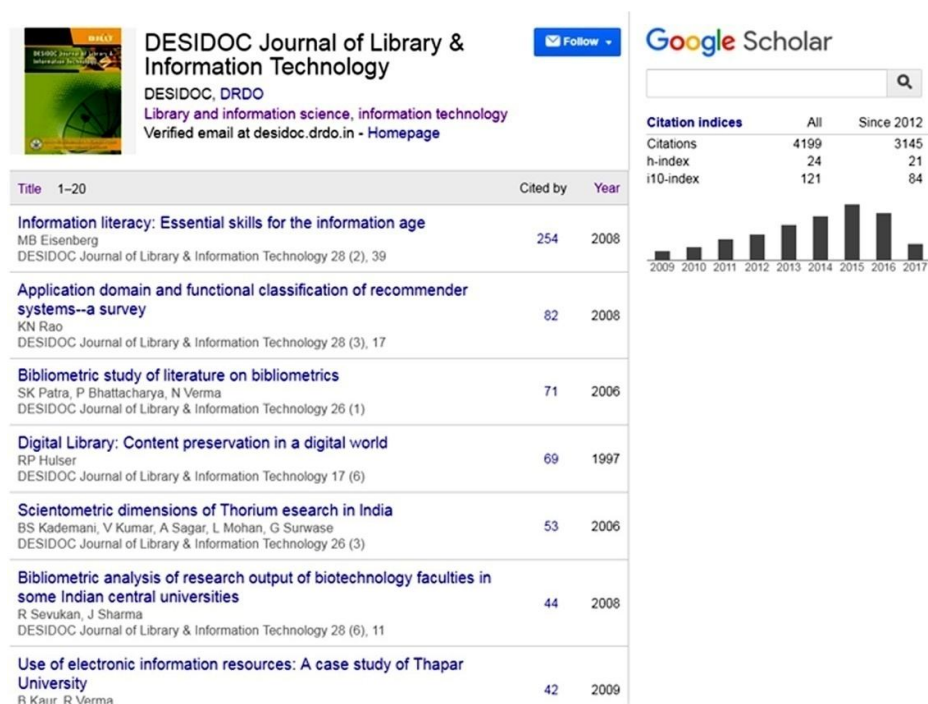
Anup Kumar and Sanjaya (2015) examined the scholarly contribution of S R Ranganathan as reflected in Google Scholar Citations, Web of Science, and Scopus. This paper also identifies popularity of his published works of books and journal articles. His top three highly cited books are namely Prolegomena to Library Classification, The Five Laws of Library Science, and Colon Classification. His top three highly referred journal articles are titled "Hidden Roots of Classification", "Subject Heading and Facet Analysis", and "Colon Classification Edition 7 (1971): A Preview". This paper identifies the articles that cited his works extensively and got considerable citations from the other researchers. Top citing journal articles are namely "The Need for a Faceted Classification as the Basis of All Methods of Information Retrieval", "Ranganathan and the Net: Using Facet Analysis to Search and Organise the World Wide Web" and "Grounded Classification: Grounded Theory and Faceted Classification". These citing articles also indicate that Ranganathan is very relevant to today's researchers.

## Objectives of the study

- To find out chronological order of cited papers of DESIDOC Journal of Library & Information Technology by Google Scholar.
- To find out highly cited papers of DESIDOC Journal of Library & Information Technology.
- To find out highly cited authorship patterns of DESIDOC Journal of Library & Information Technology

## Methodology

In recent years many research scholars, authors and journals are indexing in Google Scholar (GS) because of free indexing service. Besides this, the search can be performed at a modest speed. It has own limitations, although, there are severe criticisms of Google Scholar, it is increasingly becoming popular among LIS and other professionals as a highly efficient information source and services. The owners of the DJLIT journal manually indexing in GSe journal at <https://scholar.google.co.in/citations?user=RFLVDYcAAAAJ&hl=en>



## Data Analysis

### Year-wise number of Cited Articles

Table-1 shows the Year-wise number of Cited Articles, the majority 58 (13.43%) of the articles cited in the year 2012; 51 (11.81%) cited article published in 2014 followed by 40(9.26%) in the year 2013; 33 (7.64.68%) were published in 2010 and 2011; 30 (6.94%) article in 2009; 27(6.25%) article in 2008; 20(4.63%) article in 2007 and remaining below 20

article published in 2015 and between 1988-2006 there is no articles in 1993 year. On average of 18 (4.17) articles are cited every year.

**Table-1: Year-wise Number of Cited Articles**

| S.No.        | Year | No. of Article | Percentage |
|--------------|------|----------------|------------|
| 1            | 1988 | 1              | 0.23       |
| 2            | 1992 | 1              | 0.23       |
| 3            | 1994 | 2              | 0.46       |
| 4            | 1995 | 8              | 1.85       |
| 5            | 1996 | 16             | 3.70       |
| 6            | 1997 | 18             | 4.17       |
| 7            | 1998 | 13             | 3.01       |
| 8            | 1999 | 13             | 3.01       |
| 9            | 2000 | 6              | 1.39       |
| 10           | 2001 | 4              | 0.93       |
| 11           | 2002 | 8              | 1.85       |
| 12           | 2003 | 12             | 2.78       |
| 13           | 2004 | 9              | 2.08       |
| 14           | 2005 | 8              | 1.85       |
| 15           | 2006 | 9              | 2.08       |
| 16           | 2007 | 20             | 4.63       |
| 17           | 2008 | 27             | 6.25       |
| 18           | 2009 | 30             | 6.94       |
| 19           | 2010 | 33             | 7.64       |
| 20           | 2011 | 33             | 7.64       |
| 21           | 2012 | 58             | 13.43      |
| 22           | 2013 | 40             | 9.26       |
| 23           | 2014 | 51             | 11.81      |
| 24           | 2015 | 12             | 2.78       |
| <b>Total</b> |      | <b>432</b>     | <b>100</b> |

### Year-wise Cited papers

Table-2 shows the year-wise cited papers, significantly 432 articles were cited 4199 times on average each article cited 175 times. There is good response of citation 27 article cited 744(17.72%) times in 2008; 33 articles were 475 (11.31%) times cited in 2011; 30 articles 387 (9.22%) times cited in 2009; again 33 articles were 383(9.12%) times cited in 2010; 58 articles 336(8%) times cited. Remaining number of articles were cited year against column shown in the table, but least single article cited 3 to 2 times in the 1998 and 1992 and there is not article cited in the year 1993.

**Table-2: Year-wise Cited Papers**

| S.No. | Year | No. of Article | No. of Times Cited | Percentage |
|-------|------|----------------|--------------------|------------|
| 1     | 1988 | 1              | 3                  | 0.07       |
| 2     | 1992 | 1              | 2                  | 0.05       |
| 3     | 1994 | 2              | 6                  | 0.14       |
| 4     | 1995 | 8              | 28                 | 0.67       |
| 5     | 1996 | 16             | 63                 | 1.5        |
| 6     | 1997 | 18             | 173                | 4.12       |
| 7     | 1998 | 13             | 84                 | 2          |

|              |      |            |             |            |
|--------------|------|------------|-------------|------------|
| 8            | 1999 | 13         | 34          | 0.81       |
| 9            | 2000 | 6          | 44          | 1.05       |
| 10           | 2001 | 4          | 62          | 1.48       |
| 11           | 2002 | 8          | 84          | 2          |
| 12           | 2003 | 12         | 105         | 2.5        |
| 13           | 2004 | 9          | 105         | 2.5        |
| 14           | 2005 | 8          | 126         | 3          |
| 15           | 2006 | 9          | 212         | 5.05       |
| 16           | 2007 | 20         | 242         | 5.76       |
| 17           | 2008 | 27         | 744         | 17.72      |
| 18           | 2009 | 30         | 387         | 9.22       |
| 19           | 2010 | 33         | 383         | 9.12       |
| 20           | 2011 | 33         | 475         | 11.31      |
| 21           | 2012 | 58         | 336         | 8          |
| 22           | 2013 | 40         | 221         | 5.26       |
| 23           | 2014 | 51         | 213         | 5.07       |
| 24           | 2015 | 12         | 67          | 1.6        |
| <b>Total</b> |      | <b>432</b> | <b>4199</b> | <b>100</b> |

### Authorship pattern

Table-3 shows the Single authorship is most common in all journals. However, DESIDOC Journal of Library & Information Technology metrics has average number of authors are 1.8% per paper. The journal having single authors produced 121(49.39%) articles following two authors were 77(31.43%) articles; three authors were 30(12.24%) article; four authors were 12 (4.90%) articles; five authors were 3(1.22%) articles and six authorship were 2(0.82) article were produced in DJLIT Journal.

**Table-3: Authorship pattern**

| S.No. | Pattern       | No. of Articles | Percentage |
|-------|---------------|-----------------|------------|
| 1     | Single Author | 121             | 49.39      |
| 2     | Two Authors   | 77              | 31.43      |
| 3     | Three Authors | 30              | 12.24      |
| 4     | Four Authors  | 12              | 4.90       |
| 5     | Five Authors  | 3               | 1.22       |
| 6     | Six Authors   | 2               | 0.82       |
| 7     | Total         | 245             | 100        |

### Highly Cited Papers with Single author articles

Table-4 clearly indicated that scholars in different disciplines have different citation practices. The majority of single author “ Eisenberg, MB” article produced 254(21.58%) citations in the year 2008 from Google Scholar. “Rao, KN” article produced 82(6.97%) citations in 2008; “Hulser, RP” article produced 69(5.86%) citations in 1997 and “Sumitha, E” article produced 66(5.61%) citations in 2011. Remaining author citations shown in the table-4, number of citations produced author against column and the year. Hence, the average number of citations received by a paper varies from subject to subject. Analysis of highly cited papers reveals that a large majority of such papers dealt with the sub-discipline of metrics.

**Table-4: Highly Cited Papers with Single author articles**

| S.No. | Author            | Volume | Year | No. Times Cited | Percentage |
|-------|-------------------|--------|------|-----------------|------------|
| 1     | Eisenberg, MB     | 28     | 2008 | 254             | 21.58      |
| 2     | Rao, KN           | 28     | 2008 | 82              | 6.97       |
| 3     | Hulser, RP        | 17     | 1997 | 69              | 5.86       |
| 4     | Sumitha, E        | 31     | 2011 | 66              | 5.61       |
| 5     | Ghani, SR         | 29     | 2009 | 41              | 3.48       |
| 6     | Connaway, LS      | 23     | 2003 | 37              | 3.14       |
| 7     | Arunachalam, S    | 28     | 2008 | 37              | 3.14       |
| 8     | KG Sudhier,       | 30     | 2010 | 31              | 2.63       |
| 9     | I Koneru,         | 30     | 2010 | 28              | 2.38       |
| 10    | S Thanuskodi,     | 31     | 2011 | 24              | 2.04       |
| 11    | S Foo,            | 28     | 2008 | 23              | 1.95       |
| 12    | R Kumbhar,        | 29     | 2009 | 23              | 1.95       |
| 13    | K Giri,           | 31     | 2011 | 23              | 1.95       |
| 14    | J Arora,          | 21     | 2001 | 21              | 1.78       |
| 15    | MM Letha,         | 26     | 2006 | 21              | 1.78       |
| 16    | J Singh,          | 28     | 2008 | 20              | 1.70       |
| 17    | JK Bhatia,        | 31     | 2011 | 19              | 1.61       |
| 18    | R Husain,         | 26     | 2006 | 17              | 1.44       |
| 19    | KP Singh,         | 28     | 2008 | 17              | 1.44       |
| 20    | I Koneru,         | 25     | 2005 | 16              | 1.36       |
| 21    | P Suber,          | 28     | 2008 | 16              | 1.36       |
| 22    | S Tyagi,          | 32     | 2012 | 16              | 1.36       |
| 23    | M Natarajan,      | 22     | 2002 | 15              | 1.27       |
| 24    | TY Mallaiah,      | 28     | 2008 | 15              | 1.27       |
| 25    | C Baskaran,       | 33     | 2013 | 15              | 1.27       |
| 26    | BU Kannappanavar, | 21     | 2001 | 14              | 1.19       |
| 27    | M Natarajan,      | 27     | 2007 | 14              | 1.19       |
| 28    | A Amudhavalli,    | 17     | 1997 | 13              | 1.10       |
| 29    | APJA Kalam,       | 20     | 2000 | 13              | 1.10       |
| 30    | HR Sujatha,       | 31     | 2011 | 13              | 1.10       |
| 31    | A Bansal, A       | 20     | 2000 | 12              | 1.02       |
| 32    | N Singh, N        | 21     | 2001 | 12              | 1.02       |
| 33    | A Swan, A         | 28     | 2008 | 12              | 1.02       |
| 34    | GL Kumari, GL     | 28     | 2008 | 12              | 1.02       |
| 35    | I Koneru, I       | 26     | 2006 | 11              | 0.93       |
| 36    | P Suber, P        | 28     | 2008 | 11              | 0.93       |
| 37    | MA Kamba, MA      | 31     | 2011 | 11              | 0.93       |
| 38    | S Vasishta, S     | 31     | 2011 | 11              | 0.93       |
| 39    | Francis, TA       | 32     | 2012 | 11              | 0.93       |
| 40    | Bansal, A         | 33     | 2013 | 11              | 0.93       |
| 41    | Aruna, A          | 18     | 1998 | 10              | 0.85       |
| 42    | Raina, R          | 18     | 1998 | 10              | 0.85       |
| 43    | Sikos, LF         | 31     | 2011 | 10              | 0.85       |
| 44    | Chauhan, K        | 32     | 2012 | 10              | 0.85       |
| 45    | Prathap, G        | 34     | 2014 | 10              | 0.85       |
|       | <b>Total</b>      |        |      | <b>1177</b>     | 100.00     |

## **Conclusion:**

Based on the analyses of 432 papers were cited within the Google Scholar over twenty four years amount (1988-2015) it had been found that the pattern of output and annual rate of growth is very inconsistent and has fluctuated throughout the amount of study. Thus Google Scholar (GS) is that the solely viable possibility for citation analysis of DJLIT journal. Although, there are criticism of GS in terms of currency, accuracy and coverage, still it's the sole viable possibility for citation analysis. From is ascertained that, several new medical journals have recently categorization in GS, several of the journals are out there each in print and in on-line version and indexed in internet of Science and Scopus databases, however the Google Scholar is unengaged to search and analyze the information for future researchers

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