DESIDOC Journal of Library & Information Technology: A Bibliometric Analysis

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ABSTRACT

DESIDOC Journal of Library & Information Technology (*DJLIT*), formerly known as *DESIDOC Bulletin of Information Technology,* is a peer-reviewed, open access, bimonthly journal. This paper presents a bibliometric analysis of the journal to assess the pattern of growth of the research output published in the journal, pattern of authorship and geographic distribution of output, subjects covered and citation analysis of the references attached to the papers and change in them over two different periods (2001-2006) and (2007-2012). It is found that 391 papers were published during the period of study (2001-2012). The maximum number of articles (65) was published in 2012. The maximum number of contributions is joint collaborations with 61.4 %. Most of the contributions (88 %) are from India and 12 % are foreign contributions. The study revealed that majority of the authors preferred journals as the source of information providing the highest number of citations. Dr BM Gupta has published maximum number of articles (26) in the Journal during the period under study. The maximum number of articles (65 %) has the length of 6-10 pages. Maximum number of special issues (5) was published in 2012.

Keywords: Bibliometric study, *DESIDOC Journal of Library & Information Technology*, *DJLIT*, citations

1. INTRODUCTION

Journals are an important medium of communication for researchers. They bring the latest knowledge to the notice of researchers. Several journals are being published in India in science and technology as well as social sciences. *DESIDOC Journal of Library & Information Technology* (*DJLIT*) formerly (*DESIDOC Bulletin of Library and Information Technology Journal*) is an important journal in the field of library and information science (LIS) and is being published since 1981. It is a peer-reviewed, bimonthly, open access journal that brings to the notice of readers the recent developments in information technology (IT), as applicable to library and information science. It is meant for librarians, documentation and information professionals, researchers, students and others interested in the field. The Journal covers original research and review articles related to IT which is applied to library activities, services and products. The Journal is indexed by Scopus, LISA, LISTA, EBSCO Abstracts/Full-text, Library Literature and Information Science Index/Full-text, The Informed Librarian Online, DOAJ, Open J-Gate, Indian Science Abstracts, Indian Citation Index, Full text Sources Online, World Cat, Proquest, and OCLC. The user can access the journal at publications.drdo.gov.in/ojs/index.php/djlit. Users can also login and submit their articles and view the status of their articles from time to time. The journal uses online reviewing process and the full-text of all the issues starting from the first issue in 1981 is available on the site mentioned[1]. The present bibliometric study is an extension of the earlier studies on *DESIDOC Journal of Library and Information Technology* (*DJLIT*) undertaken by Bansal[2], *et al.*, Tigga[3], *et al.*; Kumar & Moorthy[4], and Thavamani[5]. The study has been undertaken with a view to understand the changing pattern in authorship, references and other bibliographic parameters during 2001-2012.

2. OBJECTIVES

Following are the objectives of the study:

- To identify the number of contributions and the pattern of growth of articles published in the journal during 2001-2012;
- To examine the pattern of authorship and to examine how the pattern of authorship has changed in two blocks i.e. 2001-2006 and 2007-2012 by applying Co-authorship Index;
- To examine the geographical distribution of articles (Indian/Foreign) and change if any in contributions by foreign authors during 2001-2006 and 2007-2012;
- To identify the most prolific authors;
- To examine the length of articles published and

to study if any change has been made in page lengths over the two periods;

- To identify the type of cited documents and their number;

- To determine average number of references per article and change if any over the two periods.

3. METHODOLOGY

3.1 Data and Methodology

The source journal is an open access journal and is available on the DRDO website publications. drdo.gov.in/ojs/index.php/djlit. The data for the study was downloaded from the said website for 12 years from volume 21 (2001) to volume 32 (2012). The data consists of year of publication with its volume number, name of the author with their affiliations and its geographical location, total count of authors, length of the articles in terms of the number of pages, number of references cited by the article. Editorial published in the journal has not been included in the analysis. The data was downloaded on MS Excel sheets. Data was analysed to meet the objectives mentioned above. For studying several parameters mentioned under the objectives the data has been divided into two periods i.e. 2001-2006 and 2007-2012. Complete count method has been followed for the analysis of the data.

4. ANALYSIS

4.1 Article Distribution Pattern According to Years

Table 1 presents the data on the number of papers published during 2001-2012. It indicates that 391 articles were published in 69 issues during 2001-2012. Thus, on average 32.6 articles were published per year. In first six years (2001-2006) the number of articles published was less than the average and in the second block (2007-2012) the number of articles published were more than average. Highest number (65) articles were published in volume 32 (2012). Further analysis of data indicates that only 89 articles were published during 2001-2006, while in the last six years (2007-2012) the journal has published 302 articles. The number of articles published during 2001-2006 is less because during that period, the journal had the policy to cover several other sections like IT events, IT scan and literature survey, etc. Later in 2007 a policy decision was taken that only scholarly articles were to be published and thus, the number of articles increased significantly. Thus the number of articles has increased more than three times in the second block as compared to the first block. This indicates the increasing importance of the journal among the LIS professional community.

Table 1. Year-wise distribution of articles

Year	Vol. No.	Issues published	Total articles
2001	21	5	10
2002	22	5	15
2003	23	6	19
2004	24	6	14
2005	25	5	13
2006	26	6	18
2007	27	6	35
2008	28	6	50
2009	29	6	50
2010	30	6	47
2011	31	6	55
2012	32	6	65
Total	**69**		**391**

Figure 1 shows the pattern of growth of articles over the period of study. It indicates that with a small number of articles in 2001, the number of articles grew continuously and reached a peak in 2012 with 65 articles with a slight decline in 2010. It is worth mentioning here that a strict peer review system is followed to maintain the quality of the journal which leads to high rejection rate and hence all the articles submitted to a journal can't be accepted for the publication.
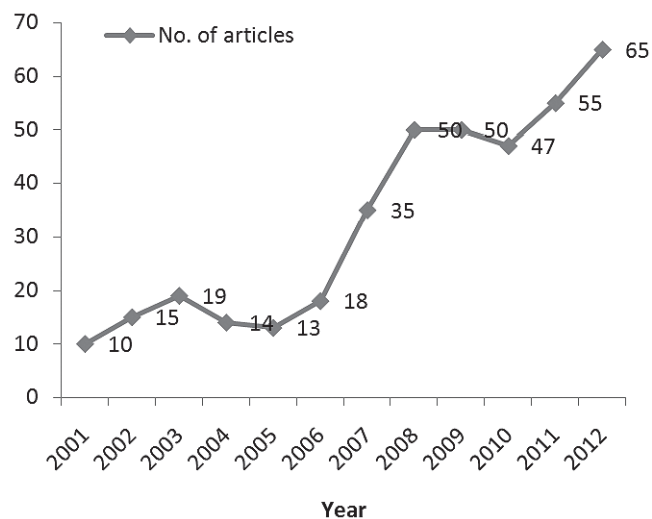

Figure 1. Year-wise number of articles.

4.2 Pattern of Authorship

Table 2 presents the data on the pattern of authorship in *DJLIT* during 2001-2012. Data indicates that the proportion of single authored and two authored papers is almost the same. Author examined how the pattern of authorship has changed over a period of time. For this the data has been divided into two blocks, i.e., 2001-2006 and 2007 -2012 and application of Co-Authorship Index (CAI) suggested by Garg & Padhi[6] has been made. CAI indicates the

type of co-authorship that dominates the authorship pattern and is obtained by calculating proportional output of single, two and multi-authored papers for different blocks.

Here   CAI = $\{(N_{ij}/N_{io})/(N_{oj}/N_{oo})\}$x100 where

N_{ij} = Number of papers having j-authors in block i,

N_{io} = Total output of block i,

N_{oj} = Number of papers having j-authors for all blocks,

N_{oo} = Total output for all blocks included in the study, and

j = 1, 2, and >3

CAI = 100 implies that in a block co-authorship effort for a particular type of authorship corresponds to the average of all blocks, CAI > 100 reflects higher than average co-authorship effort, and CAI < 100 lower than average co-authorship effort in that block for a given type of authorship pattern. From the values of CAI for single authored papers for two blocks, it can be inferred that the proportion of single authored papers has increased in the later block (2007-2012) as compared to the first block. However, the proportion of two-authored and multi-authored papers has decreased during the later block.

Table 2. Pattern of authorship in *DJLIT* during 2001-2012

No. of authors	No. of articles 2001-2006 (CAI)	No. of articles 2007-2012 (CAI)	Total (%)
Single authored papers	27 (80)	121 (106)	148 (38 %)
Two authored papers	38 (107)	118 (97)	156 (40 %)
Multi-authored papers (3 or more authors)	24 (121)	63 (94)	87 (22 %)
Total	**89**	**302**	**391**

4.3 Geographical Distribution of Contributions

Articles published in the journal are originated from India and abroad. However, major portion (88 %) of the articles originated from India and about 10 % from abroad. About 2 % articles have been written in international collaboration. These papers were written in collaboration with Singapore (4), and China and Thailand one paper each. Articles published from abroad were from 21 different countries. Among these highest numbers of articles was from USA, UK and Singapore with eight contributions from each. Other countries that have contributed to the journal are Taiwan–3 articles, Greece, Nigeria and Kenya–2 each. Argentina, Australia, Bangladesh, Belgium, Canada, China, Egypt, Germany, Japan, South Africa, Spain, Sri Lanka, Thailand and UAE –1 article each. Further analysis of data on Indian

and contributions abroad indicate that in second block the number of papers have increased three times of the papers published in first block, but as proportion of total papers, the share is less than the number of papers published in first block.

Table 3. Geographical distribution of contributions

Country	Papers during 2001-2006 (%)	Papers during 2007-2012 (%)	Total
India	78 (87.6 %)	267 (88.4 %)	345
Foreign	10 (11.2 %)	30 (9.9 %)	40
Collaborative papers	1 (1.2 %)	5 (1.7 %)	6
Total	**89 (100 %)**	**302 (100 %)**	**391**

4.4 Prolific Authors

All the authors are important who contribute to the journal. The total number of authors who published papers in the journal was 761 (total papers 391). Based on the complete counting method 31 authors contributed 4 or more papers and their contribution to the total output is ~ 27 % of the total output. Table 4 lists authors who contributed four or more papers. Most of these authors (13 authors) were affiliated from institutions situated in Delhi. It was followed by institutions of Maharahstra (8 authors). 2 authors belonged to institutions situated in Tamil Nadu and Andhra Pradesh each. 1 author each was affiliated to one institution situated in Haryana, Punjab, Chandigarh, Karnataka, Puducherrry, and Gujarat. It can be noted that out of these 31 prolific authors, 16 authors are affiliated to R&D organisations, whereas 15 authors are affiliated to academic institutions.

4.5 Subject Coverage of Articles

The journal publishes articles related to all aspects of information technology being developed and used in libraries. The journal publishes general issues as well as special issues. The topics covered in general articles ranged from theoretical concepts to the IT applications and their design and development for libraries. Special issues cover articles related to the theme of the special issue.

During the first block (2001-2006) subjects covered were library automation, library management, library networks, resource sharing, information sources, information services, future publishing technologies, scientometrics, etc. During the second block (2007-2012) many papers covered the advancement in the subjects covered in the first block. Other topics that were covered in the second block were Digital libraries, metadata, consortia, intellectual property rights, technical standards, information discovery tools, online library services, cloud computing, open access sources and services, emerging technologies, social networking, digital preservation, semantic web, mobile applications, scientometrics, Web 2.0, etc.

Table 4. Major contributors, their affiliations and contributions during 2001-2012

S. No.	Rank	Name of author and affiliation	Total contributions during 2001-2012
1.	1	B.M. Gupta, NISTADS, New Delhi	26
2.	2	S.M. Dhawan, National Physical Laboratory, New Delhi	13
3.	3	Mohinder Singh, DESIDOC, DRDO, Delhi	10
4.	4	Ashok Kumar, DESIDOC, DRDO, Delhi	9
5.	5	Alka Bansal, DESIDOC, DRDO, Delhi	8
6.	5	B.S. Kademani, BARC, Mumbai, Maharashtra	8
7.	5	Chennupati K. Ramaiah, Dept of LIS, Pondicherry Univ., Puducherry	8
8.	5	Sumit Goswami, DESIDOC, DRDO, Delhi	8
9.	6	Adarsh Bala, Govt Medical College and Hospital, Chandigarh	7
10.	6	K.P. Singh, Dept of LIS, Univ. of Delhi, Delhi	7
11.	6	M. Natarajan, NISCAIR, New Delhi	7
12.	7	B. Ramesh Babu, Department of Information Science, University of Madras, Chennai, Tamilnadu	6
13.	7	K. Nageswara Rao, DRDL, DRDO, Hyderabad, AP	6
14.	7	V.G. Talwar, DLIS, University of Mysore, Karnataka	6
15.	7	Vijai Kumar, Scientific Information Resource Division, BARC, Mumbai, Maharashtra	6
16.	7	Vinod Kumari Sharma, DESIDOC, DRDO, Delhi	6
17.	8	Jagdish Arora, INFLIBNET, Gujarat	5
18.	8	Ganesh Surwase, Scientific Information Resource Division, BARC, Mumbai, Maharashtra	5
19.	8	M.P. Satija, DLIS, Guru Nank Dev University, Amritsar, Punjab	5
20.	8	Pratibha A. Gokhale, DLIS, University of Mumbai, Maharashtra	5
21.	8	R.S.R. Varalakshmi, Univ of Vishakhapatnam, Andhra Pradesh	5
22.	8	Rajendra Kumbhar, DLIS, University of Pune, Maharashtra	5
23.	9	Anil Sagar, Scientific Information Resource Division, BARC, Mumbai, Maharashtra	4
24.	9	Ashwani Kush, Kurukshetra University, Haryana	4
25.	9	Avinash Kshitij, NISTADS, New Delhi	4
26.	9	Madan Mohan Kashyap, Dept of LIS, Univ. of Delhi, Delhi	4
27.	9	Paramjeet K. Walia, Dept of LIS, Univ. of Delhi, Delhi	4
28.	9	S. Thanuskodi, LIS Wing, Dtte of Distance Education, Annamalai Univ., Tamilnadu	4
29.	9	S.M. Pujar, Indira Gandhi Institute of Development Research, Goregaon (E), Maharashtra	4
30.	9	Shalini R. Lihitkar, Dept of LIS, RTM Nagpur Univ., Nagpur, Maharashtra	4
31.	9	Sujit Bhattacharya, NISTADS, New Delhi	4
	Total		**207**

4.5.1 Special Issues

The journal has kept pace with time and published special issues quite frequently. The special issue also covers 3-4 general papers also. Table 6 gives the details of the subjects on which special issues were published along with their volume and issue numbers.

Further analysis of data indicates that during 2001-2006 only three special issues were published and no special issues have been published during 2004 to 2006. Emphasis was given on general papers as well as other sections were included in the journal. During second block 20 special issues were brought out. It can be seen from Table 5 that from 2007 special emphasis has been given on publishing special issues to give the readers an in

depth as well as comprehensive knowledge about a special and current topic. The journal published maximum number (5) special issues in 2012. During 2007 and 2008 four special issues each were published. It can be noticed that current topics of readers' interest such as semantic web, ontology, e-books, library consortia, and many such special issues have been brought out. Also three special issues were published on Intellectual Property Rights which shows their usefulness in library and documentation scenario.

4.6 Length of Articles

An analysis of data on page length published in the journal reveals that during the period under study, majority of articles 252 (65 %) have the page

Table 5. Special issues published during 2001-2012

S. No.	Title	Issue details
1.	Open Source Software for Libraries	September 2012, 32(5)
2.	Digital Preservation	July 2012, 32(4)
3.	Intellectual Property Rights	May 2012, 32(3)
4.	E-books	March 2012, 32(2)
5.	Agricultural Information Systems and Services in India	January 2012, 32(1)
6.	Scientometrics	September 2011, 31(5)
7.	Semantic Web	July 2011, 31(4)
8.	Ontology	March 2011, 31(2)
9.	100 years of LIS Education in India	September 2010, 30(5)
10.	Library Consortia	September 2009, 29(5)
11.	Social Science Gateways	March 2009, 29(2)
12.	E-learning	January 2009, 29(1)
13.	Knowledge Sharing	September 2008, 28(5)
14.	Online Exhibitions	July 2008, 28(4)
15.	Information Literacy	March 2008, 28(2)
16.	Open Access	January 2008, 28(1)
17.	Intellectual Property Right Part II	November 2007, 27(6)
18.	Intellectual Property Right Part I	July 2007, 27(4)
19.	Library and Information Science Education in India	March 2007, 27(2)
20.	Measurement of Indian S&T	January 2007, 27(1)
21.	Future Publishing Technologies	January 2003, 23(1)
22.	Marketing of Information Products and Services	May 2002, 22(3)
23.	Web Page Design and Development	March 2001, 21(2)

length of 6-10 pages which is normal for research articles. Table 6 present the data on page lengths. Of the 391 articles, 16 articles have the length of 16 and more pages. Three articles with more than 25 pages covered mainly bibliographies on

Table 6. Page range (length) of articles

Page range	Papers during 2001-2006 (%)	Papers during 2007-2012 (%)	Total (%)
1-5	11 (12 %)	56 (18 %)	67 (17 %)
6-10	50 (56 %)	202 (67 %)	252 (65 %)
11-15	23 (26 %)	33 (11 %)	56 (14 %)
>15	5 (6 %)	11 (4 %)	16 (4 %)
Total	**89 (100 %)**	**302 (100 %)**	**391 (100 %)**

specific subjects. During the second block papers with page lengths 1-5 and 6-12 have increased significantly, while those of 11-15 and more than 15 have decreased considerably.

4.7 Type of Documents Cited and Their Referencing Pattern

An analysis of data was made to identify the type of documents that were cited by the scholars. The data for the same is presented in Table 7. It indicates that journals are the most preferred source of cited documents followed by web-resources and books. Conference proceedings ranked fourth in choice of cited documents. Further analysis of data indicates that citation of journals has increased from 38% in first block to 46% in second block. The citation for books has declined in second block as compared to first block. However, the citation for web-resources remained almost constant.

Year-wise references were analysed to understand how the number of references has changed during the period of study. Table 8 shows data on the number of references per paper. It indicates that the number of references per paper is inconsistent and varied between 10 and 18. It was highest (18) in 2011. The average number of references per paper was 13.8. Out of 12 years, for 6 years the number of references per paper was greater than average i.e., 13.8 and for rest of the years was less than average. A review paper by Dr Nageswara Rao in Vol. 28 had 119 references which was highest among all the papers published in *DJLIT*. Also out of 391 articles, 159 articles had a reference range as 1-10 and 137 articles containing 11-20 references.

Table 7. Type of documents referenced in articles published during 2001-2012

Document type	No. of references during 2001-2006	No. of references during 2007-2012	Total (2001-2012) (%)
Journals	434 (38 %)	1978 (46 %)	2412 (45 %)
Books	261 (23 %)	656 (15 %)	917 (17 %)
Internet	268 (23 %)	879 (21 %)	1147 (21 %)
Conference proceedings	111 (10 %)	542 (13 %)	653 (12 %)
Reports	55 (5 %)	177 (4 %)	232 (4 %)
Dissertations/Theses	10 (1 %)	20 (1 %)	30 (1 %)
Standards	3 (0 %)	15 (0 %)	18 (0 %)
Other	1 (0 %)	6 (0 %)	7
Total			**5416**

Table 8. Range of references in articles published in DJLIT during 2001-2012

Year	No. of papers covering references						Year-wise total references	No. of reference per paper
	nil	1-10	11-20	21-30	>30	Total		
2001	1	4	1	3	1	10	152	15.2
2002	2	8	3	1	1	15	154	10.2
2003	2	8	8	1	-	19	194	10.2
2004	-	7	5	2	-	14	168	12.0
2005	-	7	3	2	1	13	180	13.8
2006	1	8	5	1	3	18	295	16.3
2007	2	17	13	3	-	35	360	10.2
2008	6	18	16	7	3	50	711	14.2
2009	3	28	16	2	1	50	505	10.1
2010	2	18	15	7	5	47	690	14.6
2011	1	15	23	6	10	55	1011	18.3
2012	1	21	29	8	6	65	996	15.2
Total	**21**	**159**	**137**	**43**	**31**	**391**	**5416**	**13.8**

5. CONCLUSIONS

The popularity in the adaptation of bibliometric techniques in various disciplines stimulated stupendous growth of literature on bibliometrics and its related areas. *DJLIT* has published 391 articles during 2001-2012. The maximum number of articles (65) was published in 2012. There has been significant growth in the number of articles published from 2001 to 2012. The study reveals that the maximum number of contributors 243 (61 %) are joint authored (two or more authors). As the journal is published from India and as is expected highest (88 %) contributions are from India and only 12 % contributions are from abroad. Dr BM Gupta has published maximum no. of articles (26) in the journal and has been the Guest Editor (along with Dr Gangan Prathap) of a special issue on Scientometrics and has proposed to bring out another special issue on Scientometric Research. The maximum number of contributions (64 %) has the length of 6-10 pages which is standard practice for the journal for research articles. Referencing pattern of the journal reveals that majority of the authors preferred journals as the source of citation.

REFERENCES

1. *DESIDOC Journal of Library and Information Technology*. publications.drdo.gov.in/ojs/index. php/djlit/ (accessed on 10 March 2013).
2. Bansal, Alka; *et al.* DESIDOC Bulletin of Information Technology: Success story with content coverage during 2000-2004. *DESIDOC Bull. Inf. Technol.*, 2005, **25**(4), 19-30.
3. Tigga, Usha P.; Lihitkar, Shalani R. & Rajyalakshmi, D. Content analysis of *DESIDOC Bulletin of Information Technology* (1997-2002). *DESIDOC Bull. Inf. Technol.*, 2005, **25**(4), 5-18.
4. Kumar, Manoj & Moorthy, A.L. Bibliometric analysis of *DESIDOC Journal of Library and Information Technology* during 2001-2010. *DESIDOC J. Lib. Inf. Technol.*, 2011, **31**(3), 203-08.
5. Thavamani, K. Bibliometric analysis of the *DESIDOC Journal of Library & Information Technology* for the year 2007-2011. *Inter. J. Inf. Dissem. Technol.*, 2013, **3**(1), 38-41.
6. Garg, K.C. & Padhi, P. A study of collaborations in laser science and technology. *Scientometrics*, 2001, **51**, 415-27.

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