

SCIENTOMETRIC MAPPING OF RESEARCH ON LIBRARY CONSORTIA

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Abstract

Using bibliographic records from the Web of Science the present study tries to give a complete view of the evolution of the field of Library Consortia based on its literature published during 1980 to 2015. The study presents the growth and the contribution of research literature output of Library Consortia. The study shows that out of 87 articles in the field of Library Consortia, a total number of 23 articles (26.44%) are written during 1980 to 2015 by the top ten authors. Some of these articles are produced in authors' collaboration and some of them are by single authors. Geographical analysis indicates that the field has evolved considerably in different regions of the world. USA is found to be the highest country that contributed 30 articles. Furthermore, chronological analysis discloses that the scientific production in the field of Library Consortia shows a slow increase from 1991 to 1996. Majority of the documents are published in English. Information Technology and Libraries has the highest number of publication with 13 papers.

Keywords: Scientometric, Library Consortia, Data Analysis, Citation, Scholarly Productivity

1. INTRODUCTION

The scope of Scientometric studies has been increased in recent years. Nalimov's coinage of the Russian equivalent of the term 'Scientometrics' (naukometriya) in 1969, this term has grown in popularity and is used to describe the study of science: growth, structure, interrelationships and productivity (Hood & Wilson, 2001).^{1,2}

Scientometrics can be defined as the "quantitative study of science, communication in science, and science policy" (Hess, 1997, 75).³ Bibliometric techniques using references made to other documents can be applied to establish statistical models of scholarly communication flow. For example, citations can be used to map relationships between documents, between journals or other channels of scholarly communications. It also can be clustered to identify the flow of topics within and among disciplines (Borgman, 1999, p. 118).^{4,5}

Library Consortia or Consortium is now being overheard globally. It is more because of an electronic or digital form of information. Consortia is all about sharing resources and improving access to information between two or more libraries based on a number and

functions over their respected areas. These resources are shared among libraries that have common missions, goals and clients (users) and act on that commonalities.⁶ In this sense, scientometric is relevant for researchers, policy and decision makers related to Library and Information Science field to trace the trend in the specific field in their research work. This study aims to find out the growth pattern, core journals, authorship pattern and productive authors in this field.

2. LITERATURE REVIEW

In the bibliometric assessment Ahila & Nagarajan, analysed a total of 22,065 research articles published in Web of Science and found that only 1.41 % articles were contributed by Indian authors and ranking 11th among 15 countries in which highest USA contributed 41.58% followed by England 10.37 %, Germany 8.21 %, France 6.24 % Japan 5.02 % and Canada 3.97 %.^{7,8}

Khan & AL. (1998) conducted a bibliometric study on library and information science literature in Bangladesh from 1966 to 1997. The result showed that, during 1966–1997 a total of 308 articles were authored by 116 professionals in 32 years, that is on average 9.62 articles per years, and 2.6 articles per author in 32 years.⁹

Ginn (2003) has conducted citation analysis of authored articles in library and information science research, 2001–2002, and found that citations of articles published in scholarly journals would be greater in number than citations of any sources. From 2001 to 2003, journal article citations increased both in quantity and percent. Journals were cited most, followed by books, chapters in books, annuals, and web sites. More than 50 percent of the cited works would be ten years old or less.¹⁰

Koufogiannakis & AL. (2004) conducted a content analysis of library and information studies (LIS) research articles published in 91 journals in 2001. They identified 10 top journals for research published in 2001. For the period studied, descriptive research was published far more frequently than any other type.^{11,12}

The h-index (Hirsch, 2005), provides a simple impact metric for individual authors that can readily be used in online searching, for example, with Google Scholar, but is also incorporated in the major citation databases such as the Web-of-Science and Scopus.¹³

Wen et.al. (2007) in a survey entitled “Scientific production of electronic health record research, 1991–2005” came to the conclusion that the most articles were published in English (98%) and were from the region of America (57%). The top 10 of the 374 journals accounted for 41% of the number of published articles.¹⁴

3. OBJECTIVES OF THE STUDY

The core purpose of the study is to unearth the growth and the contribution of research literature on Library Consortia.

Other objectives are:

1. Prepare a ranked list of articles published on Library Consortia in the Web of Science database from the year 1980-2015.
2. Identify the contribution of prolific authors.
3. Identify the choice of journals of the researchers for the publication of their research findings.
4. Determine domain wise, Language-wise, document type-wise and, subject-wise distribution of articles regarding Library Consortia published in the Web of Science database.
5. Trace geographical distribution of journal articles on Library Consortia.

4. SCOPE AND LIMITATION

- The present study is based on literature of Library Consortia indexed in the Web of Science database during the period 1980-2015 i.e. for 36 years.
- The subject coverage is limited to articles on Library Consortia.

5. METHODOLOGY

The study aims to evaluate the scholarly literature on Library Consortia with the help of Web of Science. The study based on the data retrieved from Web of Science (WoS) database published by Institute for Scientific Information (ISI). It is a fully web-based citation database covering R&D literature across all disciplines published in journals/serials or in other documents. Data was retrieved on 1 January 2016. To find all records published by authors, an advanced search query was submitted by defining the term Library Consortia time span 1980- 2015. This means those records having term Library Consortia published during 1980-2015 the text file were retrieved and analyzed MS Excel.

Finally, the evaluation was based on parameters including authors, countries, journals, growth rate, document types, language, and subject areas.

6. DATA ANALYSIS AND INTERPRETATION

The total number of records from 1980 to December 2015 is 87. To make the data analysis statistically sound, necessary statistical techniques are used.

6.1 Growth Rate of Literature

The result of the growth rate is shown in Table 1 and Figure 1. There are total 87 publications published in Library Consortia during 1980-2015. It is found in Figure 1 that the highest number of articles was published in 1999 and 2003 with 8 published works; conversely, in 1996 this number was zero. It can be seen in Figure 1 that the scientific production in the field of Library Consortia has a slow increase from 1980 to 2009; however, in some years fluctuations can be observed in the trend. There are significant increases in 1999 and 2006.

Table 1: Chronological Distribution of Literature on Library Consortia

Year	No. of Articles	%	Citation	h - index	Year	No. of Articles	%	Citation	h - index
1991	2	2.3	4	1	2004	2	2.3	1	1
1992	1	1.15	0	0	2005	4	4.6	16	2
1993	6	6.89	2	1	2006	6	6.89	13	3
1994	2	2.3	0	0	2007	2	2.3	7	2
1995	1	1.15	8	1	2008	2	2.3	12	2
1996	0	0	0	0	2009	5	5.75	12	2
1997	4	4.6	21	1	2010	3	3.45	4	1
1998	3	3.45	37	3	2011	1	1.15	3	1
1999	8	9.19	13	2	2012	4	4.6	1	1
2000	6	6.89	28	3	2013	4	4.6	2	1
2001	4	4.6	17	2	2014	3	3.45	0	0
2002	2	2.3	6	2	2015	4	4.6	0	0
2003	8	9.19	6	1	Total	87	100	213	33

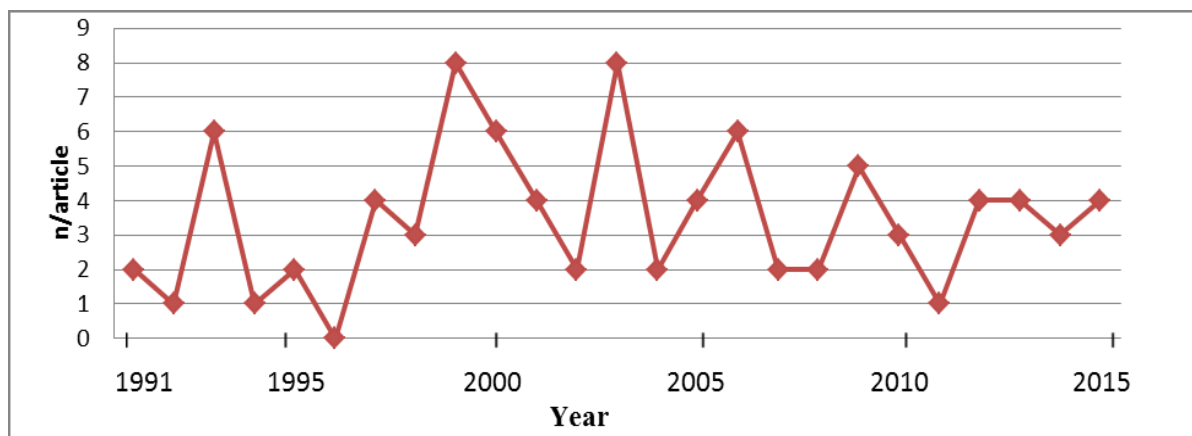


Figure 1: Growth Rate of Literature

6.2 Most Prolific Authors

The top 10 authors are listed below in Table 2. This table ranks authors by the number of publications. Table disclosed that all author has published an equal number of publication in Library Consortia. But among all authors Hirshon, A. with 17 citations was the most citing author.

Table 2: Most Prolific Authors

Name of Authors	No. of Articles	Citation	h -index
Shacaf, P.	2	3	1
Pereia , M. R.	2	0	0
Mercaldi, G.F.	2	0	0
Lemos, E.G.D.	2	0	0
Koster, G.E.	2	0	0

Kingma, B.R.	2	3	1
Huang, K.L.	2	6	1
Hirshon, A.	2	17	2
Ching, S.H.	2	6	1
Ball, D.	2	3	1

6.3 Core Journals

Core journals in a given field can be identified by applying Bradford's law. Bradford's law reveals a pattern of how literature in a subject is distributed in journals. According to Bradford's law of scattering, 'If scientific journals are arranged in order of decreasing productivity of articles on a given subject, they may be divided into a nucleus of periodicals more particularly devoted to the subject and several groups or zones containing the same number of articles as the nucleus'. Bradford's law is useful for the library professionals because it helps in selecting the core sets of journals, which publish the most contents of a given field.¹⁵

Core journals in the field of Library Consortia are listed in descending frequency order in Table 3. It can be analysed that 14.94% of the total literature is in the Information Technology and Libraries and has the highest number of publication with 13 papers which have received the highest citation with 72 records and also has the highest h index with 5 records. It should be noted that among all journals described, top 8 journals listed in Table 3 represent the 55.18% of the total literature.

Table 3: Core Journals with their number, percentage and citation in the Literature of Library Consortia

Source Title	No. of Articles	%	Citation	h -index
Information Technology and Libraries	13	14.94	72	5
Journal of Academic Librarianship	7	8.04	27	3
International Document and Supply	7	8.07	7	2
Library Collections Acquisitions and Technical Services	5	5.75	17	3
Law Library Journal	5	5.75	2	1
Program-Electronic Library and Information Systems	4	4.59	5	1
Electronic Library	4	4.59	8	2
Library Trends	3	3.45	33	2
Total	48	55.18	171	19

6.4 Document Type of Literature

Table 4 represents the document type-wise distribution of literature in the given field. Among these types, 80.64 % publications are covered under articles with the highest citation (212) followed by 7.53% publications in Meeting, 5.37 % publications in Review, 3.23% publications in both News and Abstract. It is inferred from the study that authors are more interested in contributing research articles than any other category.

Table 4: Document Type of Literature on Library Consortia

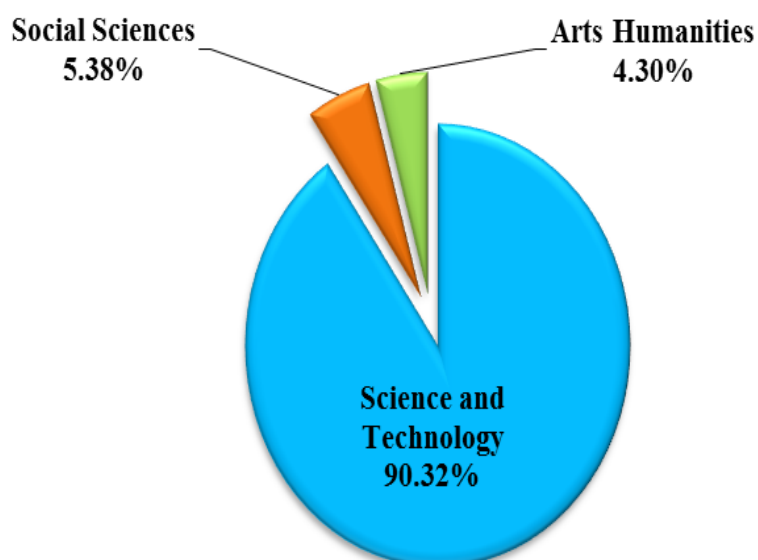
Document Type	No. of Articles	%	Citation	h -index
Article	75	80.64	212	7
Meeting	7	7.53	7	2
Review	5	5.37	0	0
News	3	3.23	0	0
Abstract	3	3.23	0	0
Total	93	100	219	9

6.5 Domain-wise Distribution of Literature

The data in Table 5 and Figure 2 presents the domain-wise distribution of literature on Library Consortia. It is observed that publications on Science and Technology have been published in huge numbers (90.32%) followed by 5.38% publications on Social Sciences and 4.30% publications on Arts Humanities.

Table 5: Domain-wise Distribution of Literature

Research Domain	No. of Articles	%	Citation	h -index
Science and Technology	84	90.32	213	7
Social Sciences	5	5.38	2	1
Arts Humanities	4	4.30	0	0

**Figure 2: Domain-wise Distribution of Literature**

6.6 Language-wise Distribution of Literature

Table 6 presents the language-wise distribution of Library Consortia research output. It is found from the table that, English language has the highest number of publication with 80 articles which has received the highest citation 210 and has highest h-index 7. Authors contributed only 3 papers in Portuguese language found second place. 2 publications are published in Spanish as well as German language.

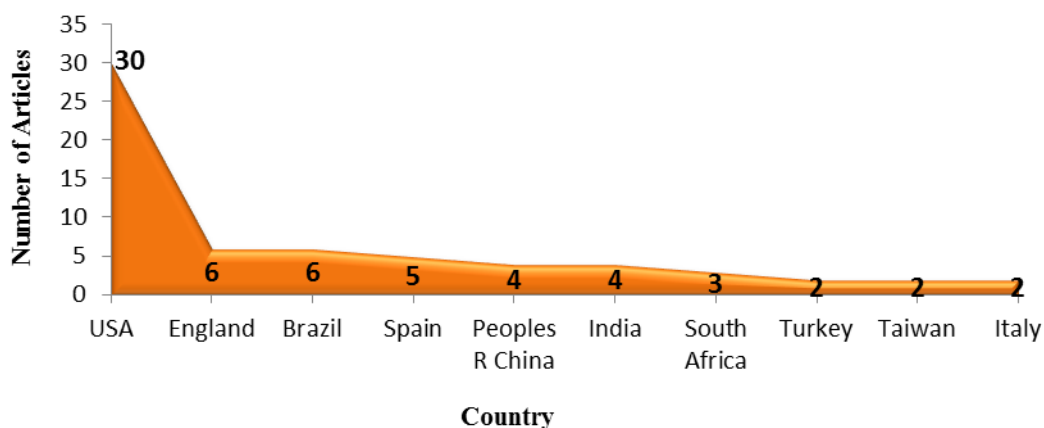
Table 6: Language-wise Distribution of Literature

Name of Language	No. of Articles	%	Citation	h -index
English	80	91.95	210	7
Portuguese	3	3.45	2	1
Spanish	2	2.3	1	1
German	2	2.3	0	0
Total	87	100	213	9

6.7 Geographical Distribution of Literature

Figure 3 interprets the geographical distribution of articles on Library Consortia. From this figure, it is deduced that 30 articles are published from USA while 6 articles are published from England and Brazil both. 5 and 4 articles are published from Spain and Peoples R China respectively. Generally speaking, the study indicates that the field has evolved considerably in different regions of the world.

Figure 3: Geographical Distribution of Literature



6.8 Research Area-wise Distribution of Literature

Table 7 indicates the major contribution of the total output came from two research areas i.e. Library and Information Science and Computer Science. According to Table, out of 87 records 79 articles (90.80%) are published in the area of Library and Information Science. The next popular research area among the authors is Computer Science with 24.14%. It should be noted that some of the scientific productions fall in more than one

subject area. Due to this fact, the total number of articles belonging to subject areas exceeds the population of the study.

Table 7: Research Area-wise Distribution of Literature

Research Area	No. of Articles	%	Citation	h - index
Information Science & Library Science	79	90.80	213	7
Computer Science	21	24.14	77	5
Govt. Law	5	5.75	2	1
Science Technology other Topics	3	3.45	8	1

7. FINDINGS

- There are total 87 publications published in Library Consortia during 1980- 2015.
- It is found that the highest numbers of articles (8) are published in the year 1999 while no articles were brought out in the year 1996.
- It is found that no author is to be the most prolific author in the field of Library Consortia.
- Information Technology and Libraries journal has a greater number of publications with 13 papers and the highest citation with 72 records on Library Consortia. It is identified from the above analyses that Information Technology and Libraries is a leading journal.
- The study is found that among different types of document 80.64% publications fall under the category of research articles.
- Science Technology is at first rank with 84 publications with 213 citation and 7 h-index.
- It is found that English is the most dominating language for publishing articles (91.95%), which has received the highest citations 213 and has the highest h-index 7.
- USA is found to be the highest country that contributed 30 articles.
- It is found that main research area of Library Consortia literature is Information Science & Library Science with 79 articles and 213 citations followed by articles on Computer Science (24.14%).

8. CONCLUSION

The present study attempts to analyse the scholarly research trends of the literature on Library Consortia on the basis of the journals indexed in Web of Science. The results of the study indicate that there are minor publications on this literature as it is found the average research output in Library Consortia is only 3.48 articles per year. The study suggests that research productivity should be increased in the area of Library Consortia. Researchers must inculcate their innovative ideas towards collaborative research in this field to evolve currency. It is expected that more and more subject experts would take a keen interest in this area of study.

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