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Bibliometrics Analysis of Open Access Electronic Journals in Library and Information Science

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Abstract:

26403 total articles in 142 open access Electronic journals in library and information science have been published. Maximum numbers of articles have been published on the subject of information communication and Technology. University Faculty has contributed maximum number of articles in DOAJ in LIs. Maximum no of articles are published under Research category. The study shows that the personal authors are not interested to work jointly and contribute articles. The numbers of articles contributed by joint author indicate that the least number of individual is interested to work in in groups of more than two persons and published articles.

Keyword: Free e-journals, E-journal indexing, Open Access E-Journals, LIS e-journals.

Introduction:

In the information and technology era there is lot of material published in various form such as books, journals eBooks', e-journals etc. in the information explosion era information creation rate is increased. But student of library science, library science professionals, and professor of library science nor aware of what has been published. The bibliometrics is a quantitative study of patens of written communication of various books, journals & various printed and non material. Bibliometrics are use for different scientific product & communication, it is called scientometrics. It was coin by Derek de solla price in 16th century, Eugene Garfield and Maurice Goldsmith also use the bibliometrics term in various scientific production. The main source of factual data for this analysis is the science citation index & social science citation index. To application of this intellectual structure for science, scientometric methods was developed & applied. Further information of open access scholarly publication on the World Wide Web will be useful for citation and data mining. Kousha, K. (2008).

Bibliometrics is a branch of scientometric that focuses. Principally on the quantitative study of written products of research. In 1969 Alien Prichard First coined the term biliometrics stating that the definition and purpose of bibliometrics is to shed light on the process of written communication and of the nature and course of discipline in so far as this is displayed through written communication counting and analyzing the various facts of written communications.

Bibliometries is also simply defined as the quantitative analysis of the bibliographic features of a body of literature. A bibliometric study allows identification of pattern in the literature

Today, bibliometrics is one of the rare truly interdisciplinary research fields to extend to almost all scientific fields. Bibliometric methodology comprises components from mathematics, social sciences, natural sciences, engineering and even life sciences. The following pages will provide a systematic description of the research structure of the field and a detailed overview of the state-of-the-art in bibliometric methodology

Bibliometrics means literally "book measurement" but the term is used about all kinds of documents (with journal articles as the dominant kind of document). What are measured are not the physical properties of documents but statistical patterns in variables such as authorship, sources, subjects, geographical origins, and citations. "The definition and purpose of bibliometrics is to shed light on the process of written communications and of the nature and course of a discipline (in so far as this is displayed through written communication) by means of counting and analyzing the various facets of written communication. (Pritchard, 1969.)" (Here quoted from Nicholas & Ritchie, 1978). Egghe & Rousseau (1990) write: "historically, bibliometrics developed mainly in the West, and arose from statistical studies of bibliographies. Earlier to the term "bibliometrics" proposed by Pritchard (1969), the term "statistical bibliography" was in use. According to Prichard (1969), it was Hulme (1923) who initiated the term "statistical bibliography". Hulme used the term to describe the process of illuminating the history of science and technology by counting documents. Pritchard's timely proposal caught on immediately, but the content of the term remained somewhat of a problem (Broadus, 1987). According to Prichard, "bibliometrics means the application of mathematics and statistical methods to books and other communication media".

Bibliometrics is particularly related to research in scientific communication. Schmidmaier (1984) discusses the history of Bibliometrics and demonstrates its relation to the concept "the science of science", which is traced to lectures given by Carl Christian Friedrich Krause in 1829. In the former USSR it was G. M. Dobrov's investigation of the science of science from 1966 a pioneer work. Cole and Eales, who analyzed books published between 1550 and 1860 with regards to developments in subject matter, published the first genuine Bibliometric investigation in 1917.

Objective of the Present Study:

- To Study year-wise distribution of Papers,
- To Study subject-wise distribution of papers,
- To study Institute- wise Distribution of Papers.
- To study Category-wise Classification of Papers;

Methodology:

The Methodology will be applicable in this study is bibliometric and webometric scrutiny. It is used to analyze in detail the bibliographic attributes of the article published in open access electronic journal of library & information science. The researcher will be extracted the information from the open access journals websites.

Scope and Limitation of the Study:

- This study gives an integrated picture of research trends in the field of library and information science by providing bibliometrics study.
- The present research is limited only for open access electronic journals published in english language in the field of library and information science.

Hypothesis:

These objectives set clear goals to present study. There are still chances that the study may deviate from the objectives as it progresses. Hence, it is necessary to have a hypothesis which runs through the objectives. The present study is based on following hypotheses.

1. The library & information science researcher use more and more electronic journals.
2. A research trends in library & information science is changing tremendously.
3. The domain name structures of websites of open access electronics journals.
4. Number of web pages, number of link pages, the visibility , website rank

Literature Review:

Bibliometric research methodologies of library and information science have always been used to provide tools for understanding the dynamics of disciplines, developing policy, and justifying research funding. Cronin & McKim (1996) have pointed out that the Web is becoming a significant communication medium for science and scholarship, and bibliometric studies of scholarly publishing are being extended to the Web. A growing literature has emerged that applies bibliometric measures to cyberspace. Terms applied to this new area of study include "webometrics" (Almind & Ingwersen, 1997), and "cybermetrics" (the title of a journal). Webometrics is defined as: "the study of the quantitative aspects of the construction and use of information resources, structures and technologies on the Web, drawing on bibliometric and informetric approaches" and cybermetrics is proposed as a generic term for: "the study of the quantitative aspects of the construction and use of information resources, structures and technologies on the whole Internet, drawing on bibliometric and info metric approaches" (Bjourneborn, 2004).

A key to webometric studies has been the use of large-scale search engines, such as AltaVista and All the Web that allow measurements to be made of the total number of pages in a web site and the total number of back links to the web site. These search engines provide similar possibilities for the investigation of links between web sites/pages to those provided by the academic journals citation databases by the Institute of Scientific Information (ISI). But the content of the Web is not of the same nature and quality as the databases maintained by the ISI (Noruzi, 2006).

The Web provides a fertile ground for the extension of the bibliometric techniques developed for the conventional print environment. A number of studies have been published, establishing the concept of webometrics (Larson, 1996 ; Almind & Ingwersen, 1997 ; Rousseau, 1997 ; Smith & Thelwall, 2002 ; Björneborn, 2004 ; Bjorn born & Ingwersen, 2004).

Rip and Courtial (1984) have analysed developments of scientific fields, scientometrics provides useful tools, provided one is prepared to take the content of scientific articles into account. Such cognitive scientometrics is illustrated by using as data a ten-year period of articles from a biotechnology core journal. After coding with key-words, the relations between articles are brought out by co-word analysis. Maps of the field are given, showing connections between areas and their change over time, and with respect to the institutions in which research is performed. In addition, other approaches are explored, including an indicator of 'theoretical level' of bodies of articles. 59 Review of literature describes in brief an account of what has been published in relation to the topic of the research, in chronological order, by different research scholars and scientists in several institutions and organizations. In this Chapter an attempt has been made to convey the reader the information documented, enlightening the merits and shortcomings, in relation to the topic of present investigation.

Subbiah Arunachalam and Garg (1986) have analyzed of papers published over a two-year period from the five ASEAN Countries, viz. Indonesia (182), Malaysia (452), the Philippines (241), Singapore (258) and Thailand (447), and covered in Science Citation Index 1979 and 1980. In the Philippines, medicine comes a close second to agriculture, which leads, largely thanks to the contributions of the International Rice Research Institute (IRRI). Prolific authors, and institutions and journals often used by ASEAN scientists, and the better-cited papers are identified. Most papers are published in low-impact journals and are rarely cited

Cunningham (1997) has presented the results of an examination of a selection of published European evaluations. The incidence of quantitative and scientometric approaches has been reviewed and an assessment made of their contributory role in each evaluation. The various approaches have been broadly categorized according to the type of data they draw upon, and by the issues they attempt to address. The author analyses such approaches with regard to the degree of 55 success in meeting the objectives of the evaluation. In the light of this some likely future trends are suggested.

Garg and Padhi (2000) have analyzed of 766 publications by prolific authors in scientific journals indicate that prolific authors produce about 25% of the total scientific output in periodical literature in laser science and technology. The average productivity per author is about 2. Prolific authors from most of the countries belonged either to academic or research institutions except in USA and Japan. Prolific authors on average made more impact than non-prolific authors. However the situation varied from country to country.

Sinha and Dhiman (2000) noted that the Science Citation Index (SCI) had utterly failed in covering the Indian journals, though a large number of papers in science, technology and allied fields were published in Indian origin science journals. As the authors opined that there was no reason to conclude that Indian papers were facing more rejection in SCI. Biradar and Sujatha (2000) reported the citation analysis of Annual Review of Ecology and Systematics for the year 1995 to 96. The study showed that maximum number of citations was from the USA (63.97%), single author papers were 34.69 per cent of the citations and that more than 80 per cent of the citations fell in the age group of 0 to 15 years. Periodical articles formed the major source of information on research in Ecology. Among the 23 most cited journals the Evolution occupied the first rank

Aditya Kumari and Shivaram Rao (2000) reported bibliometric evaluation of the Nucleus, an international journal of Cytology and allied topics, in order to find out the most frequently cited periodicals by the biological scientists in India. The citations revealed that collaborative research was preferred to solo research. The contributions of the scientists were found scattered in 299 journals

Data Analysis:
During the Year 1990 to 2012.25869 Article were published in Open Access Electronic Journals in Library and Information Science. Table-1 reveals that numbers different from year to year and there is also steady increased in number of articles from the year 1990 to 2012. Out of total 25869 articles. The maximum no of articles are in the year 2011 contributing 2069 articles, which are 7.99% to the total publication. Minimum no of articles are in the year 1990 with 398 articles, which are 1.53 % to the total publications.

Table 1. Year-wise Distribution of Articles

Sr. No.	Year	No. of Articles	%
1	1990	398	1.53
2	1991	358	1.38
3	1992	412	1.59
4	1993	466	1.80
5	1994	401	1.55
6	1995	501	1.93
7	1996	557	2.15
8	1997	586	2.26
9	1998	732	2.82
10	1999	826	3.19
11	2000	988	3.81
12	2001	982	3.79
13	2002	1036	4.00
14	2003	1187	4.58
15	2004	1384	5.35
16	2005	1513	5.84
17	2006	1755	6.78
18	2007	1809	6.99
19	2008	1906	7.36
20	2009	1981	7.65
21	2010	1989	7.68
22	2011	2069	7.99
23	2012	2033	7.85
Total		**25869**	**100**

Category-wise Classification of paper:

Table-2 Focuses that the category wise classification of the papers published during 1990 to 2012.the study reveals that the maximum number of articles published as under the category of Research paper.i.e.11562.which are 44.69 % to the total publication. Whereas 4857(18.77 %) published under the Technical Paper. There were a small number of article published as under the General Review 1172(4.53 %).

Subject-wise Distributions:

The particulars of subject-wise analysis of articles are shown in the table-3.Table shows that a majority of contribution appeared under Information Communication and Technology 2998(11.58 %).The next position is taken by User Study 624(2.41).this is followed by

Information seeking behavior 583 (2.25%).and metadata 578 (2.23 %).further followed by Information science 574 (2.21%) and Electronic resources 573(2.21 %) . Contributed by various author in the open access electronic journals in LIS. There are small number of contribution shown in the subject like Library profession, Special Library, Electronic Journals.etc..
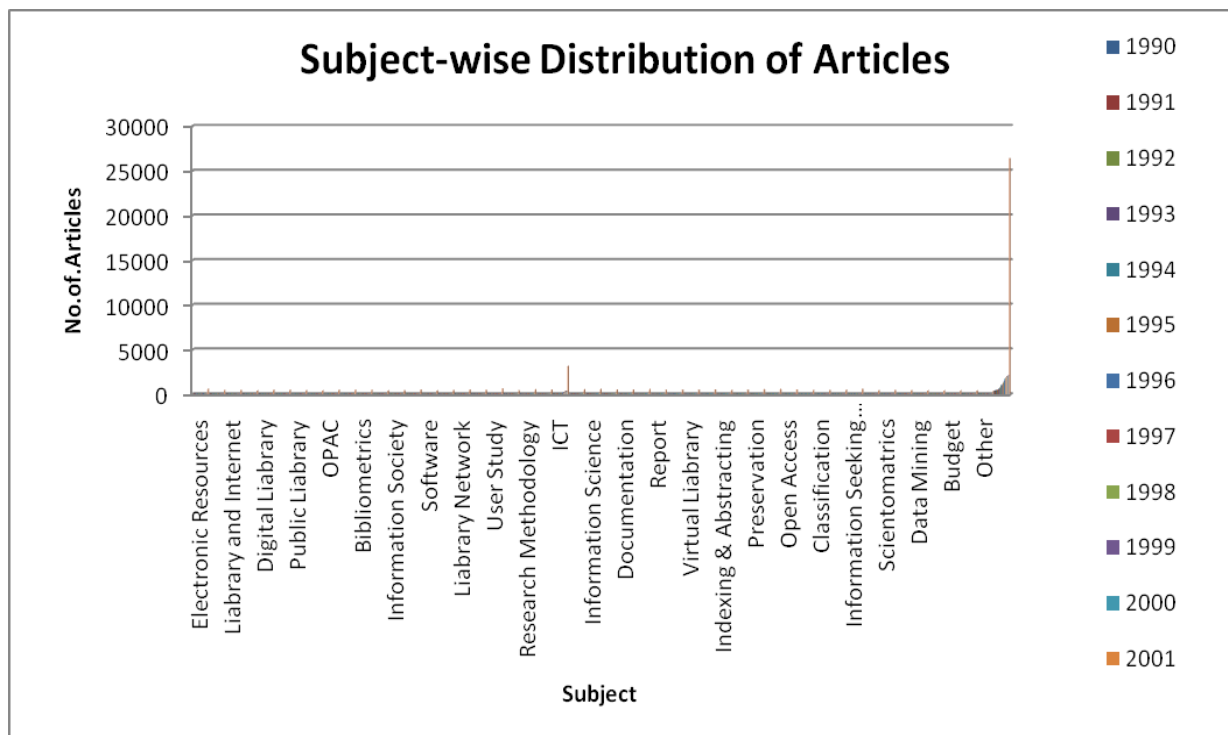

Figure 1. Subject-wise Distribution of Article

Authorship Patten:

Table-4 reveals that during 1990-2012 the highest proportion of articles were by single author 15401 (59.53 %) followed by articles with 2 authors 6050 (23.38 %) 3 author 2857(11.04 %), 4 authors 1218 (4.70 %), more than 4 author 343 (1.32 %).the data point out that the large number of article by single author means that there are no well established research groups in the area and the subject is a new and emerging one.
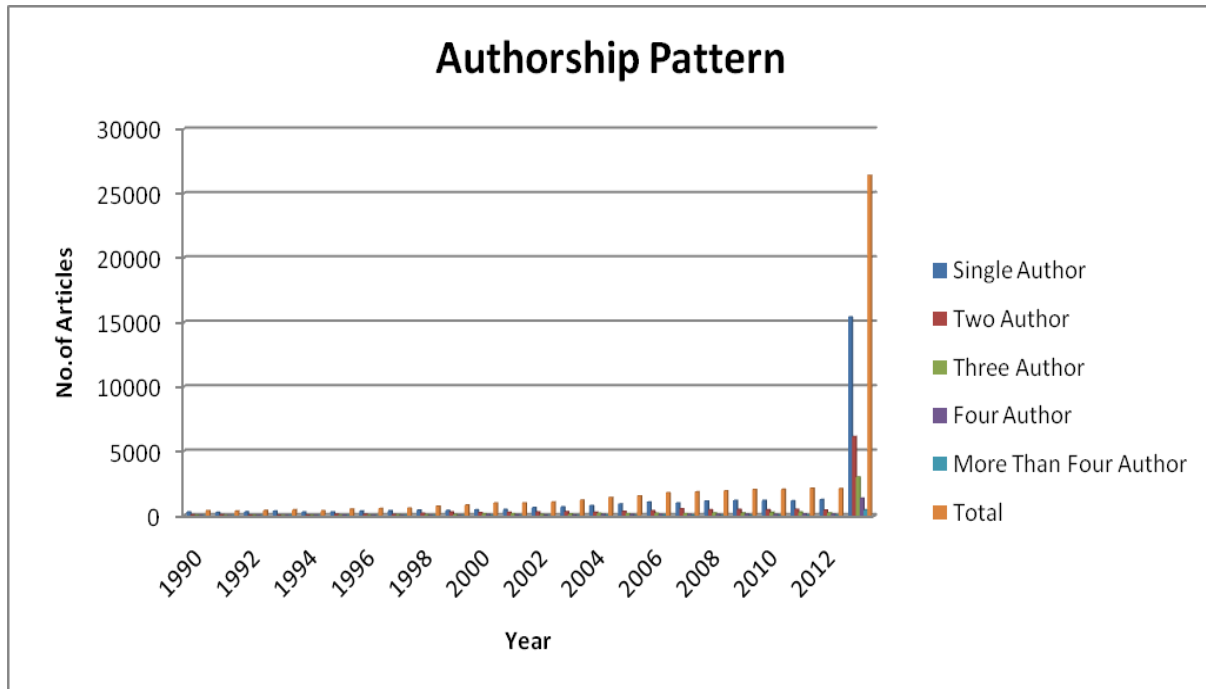
Figure 2. Authorship Pattern

Institutions-wise distribution of contributions:

Table-5 shows institution-wise distribution of papers published in open access electronic journals in LIS during the period under study. Authors from Universities contributed 18445 (71.30 %) , followed by Research Institute 3024 (11.68 %) Author from colleges 2343 (09.05 %),Authors from other i.e. private institution 2057 (07.95%).
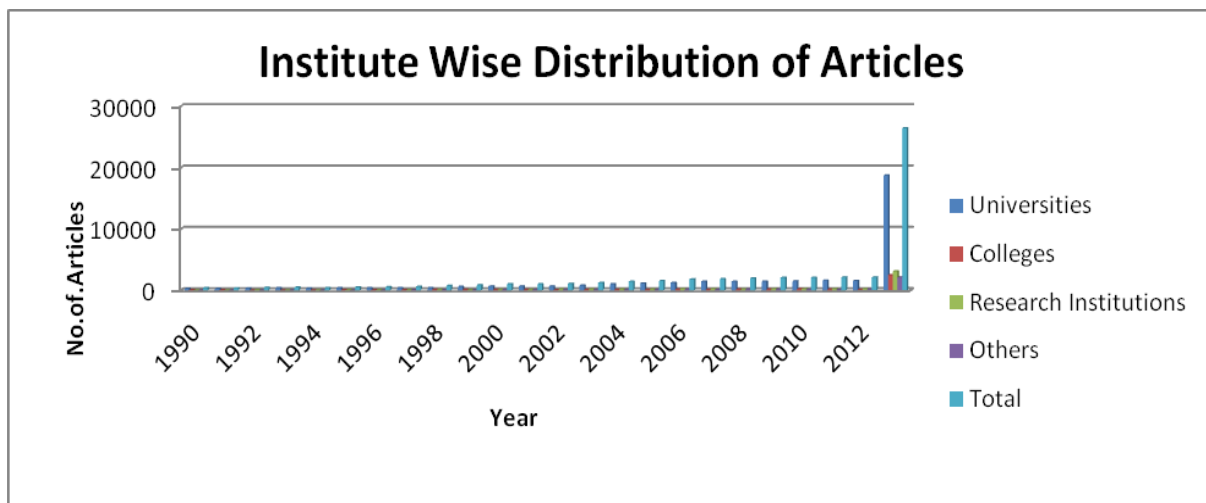

Figure 3. Institutions-wise distribution of contributions

Multiple –vs-Single-Authored Articles:

Table-6 Shows that number of single and multiple authored articles per year has been increasing and the number of single-authored articles closely track the number of multiple authored articles. Single authors were contributed 151 (58.40 %) to the total publication. Multiple Authors were contributed 10761 (41.59 %) to the total publications.
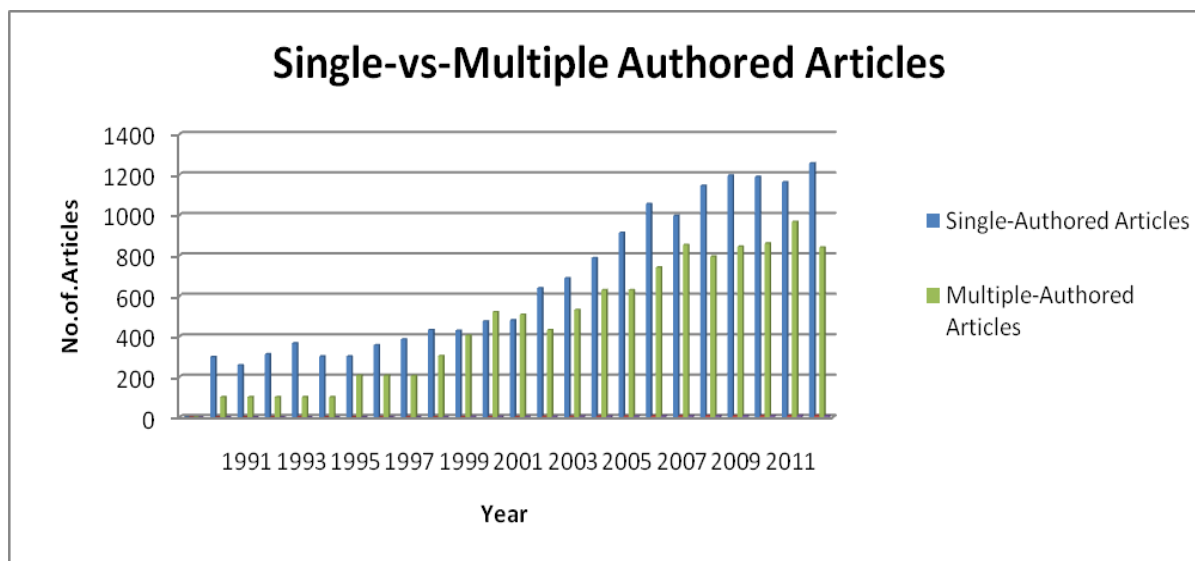

Figure 4. Multiple –vs-Single-Authored Articles

Findings:

- 70 % OAEJ website are well maintain and up to date
- 30 % OAEJ website is generally weakly connected, there is a very few out link
- Maximum No. of Article are contributed after the year of 2003
- Maximum No. of Article Published as under the Category of Research Paper
- Majority of Article Contributed Under Information Communication Technology
- The highest proportion of articles were by single authors
- In the year of 2011 Published Maximum no of article that is 1623

Suggestions:
1. Providing a site map for the E-Journals website could help search engines index all the OAEJ. A site map is a useful tool to make web pages easily accessible to both users and search engines which leads to increase the visibility of the website.
2. OAEJ should provide some space for the Library Professionals to design their own web pages and introduce their professional and scientific products and activities on the OAEJ website.
3. Increased availability of computer systems may increase the use of Electronic journals

4. As lack of training is major hindrance in using e-journals, some training is required by the users for better assessment of e-journals.

5. An adequate number of students suggested that necessary arrangements should be made to access the full text of more electronic journals.

Conclusion:

The quantitative growth of articles in the range of 26403 total articles in 142 open access Electronic journals in library and information science has been published. Maximum number of articles published on the subject of information communication and Technology. University Faculty has contributed maximum number of articles in DOAJ in LIs. Maximum no of articles published under Research category. The study shows that the personal authors are not interested to work jointly and contribute articles. The number of articles contributed by joint author indicates that the least number of individual is interested to work in in groups of more than two persons and published articles

Bibliometrics study are very useful for LIS professional for Evaluating library services , collection development, policy making and refinement, decision making, resource allocation, analysis of curriculum and quality assessment of research output. These studies have the potential to determine the causes of problems faced by the LIS Profession

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