A Bibliometric Analysis of the 'Chinese Librarianship: an International Electronic Journal, (2006-2010)'

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Abstract: *A bibliometric analysis of the Chinese Librarianship: an International Electronic Journal for the period of 2006-2010 has been conducted. The study demonstrates and elaborates on the various aspects of the Journal, such as its distribution of article by year, authorship patterns, distribution of contributions by institution, subject distributions, citation patterns, length of article, rank of cited authors, and geographical distributions of authors.*

I. Introduction

Bibliometrics is a set of methods used to study or measure texts and information (Wikipedia, 2011). A bibliometric analysis is employed by many researchers to study the literature in a given field. Such a study is often carried out by counting the references cited by a large number of researchers in their papers. The term *Bibliometrics* is derived from two distinct words, *biblio* and *metrics*. The word *biblio* is derived from the combination of the Latin and Greek word *biblion*, meaning "book" or "paper" while the word *metrics* indicates the science of meter, i.e., measurement and is also derived either from the Latin word *metrics* or the Greek word *metrikons*, both meaning "measurement". Therefore, bibliometrics connotes the science of measurement pertaining to books or documents. In a sense, information science is an extension of library science or an expansion of reference services. In other words, bibliometrics is a branch of science, which studies the behavior of information. Traditionally, it is associated with the quantitative measurement of documentary materials.

Bibliometrics has emerged as a thrust area of research, incorporating different branches of human knowledge. It is a fast developing area in information science, which is defined as a discipline that investigates the properties and behavior of information. The term "bibliometrics" was coined by Pritchard in 1969. An early example of a bibliometric study was statistical analysis of the literature of comparative anatomy from 1543 to 1860, done by counting book and journal titles, and grouping them by countries of origin and periods. In 1923, a study entitled "Statistical Analysis of the History of Science" was conducted by Hulme. His analysis was based on the entries in the *English International Catalogue of Scientific Literature*. Another study was the work of Gross and Gross in 1927. They counted and analyzed the citations in articles from the *Journal of the American Chemical Society* and produced a list of journals deemed important to chemical education. Another prominent work was Bradford's 1934 article on the distribution of literature in lubrication research. It is an important part of the theoretical foundation of bibliometrics, "Bradford's Law of Scattering."

In 1948, Ranganathan, a great library scientist, coined the term "librametry", which historically appeared first and was intended to streamline the services of librarianship. Bibliometrics is analogous to Ranganathan's librametrics, the Russian concept of scientometrics, infometrics, and subdisciplines like econometrics, psychometrics, sociometrics, biometrics, technometrics, chemometrics, and climetrics, where mathematics and statistics are applied to study and solve problems in their respective fields. Scientometrics is now used for the application of quantitative methods to the history of science and overlaps with bibliometrics to a considerable extent.

II. The Chinese Librarianship: an International Electronic Journal

The Chinese Librarianship: an International Electronic Journal (CLIEJ) is launched with a view to facilitating information exchange among librarians and information professionals worldwide. It strives to serve as a vehicle to channel contributions of librarians of Chinese heritage to the advancement of the world librarianship.

CLIEJ is a peer-reviewed e-journal. It focuses on both the practical and the theoretical aspects of the Chinese librarianship. It publishes research findings, theoretical explorations, and case studies by librarians, information scientists, library school faculty and students of Chinese

heritage, as well as by librarians and information professionals of other nationalities on issues related to serving patrons with Chinese materials. It also reports any major development of the Chinese librarianship around the world. (http://www.iclc.us/cliej/cl28.htm)

III. Literature Review

This article reviews a few studies conducted abroad as well as in India on bibliometric study in chronological order.

According to Thanuskodi (2010), the majority of articles of bibliometric study contain bibliographic references to journals, books, conference proceedings, dissertations, etc.

Verma, Tamrakar and Sharma (2007) revealed that the majority of articles in journals published in India have two authors and that the majority of the contributions are from New Delhi.

The study *Lochan Jena K* (2006) is an attempt to illustrate that the journal is popular among Indian scholars in the area of textile technology.

Patra, Bhattacharya and Verma (2006) analyzed the growth pattern, core journals and authors' distribution in the field of bibliometrics, using data from *Library and Information Science Abstract* (LISA).

Tiew (2000) found that 53% of journal articles contained self-citations and that there was a tendency for authors affiliated to the institution that published the journal to cite the journal.

IV. Objectives of the Study

The objective of the present study is to address the following aspects:

- To study the authorship pattern, distribution of articles by year, institution, and country

- To determine the subject distributions, the types of publications cited in the articles of the Journal; and the classification of papers by categories

V. Research Methodology

The methodology used in the present study is bibliometric analysis, which is used to study, in fact, the bibliographic attributes of the articles published in the *Chinese Librarianship: an International Electronic Journal* (CLIEJ) in the five-year period of 2006-2010. Sixty-two articles in 10 issues of the journal have been taken up for the study. The authors have extracted the information from the CLIEJ website and then used MS Excel to organize, tabulate and analyze the data for the study.

VI. Data Analysis and the Findings

Data such as author, title, year of publication, and institutional affiliation of all articles published from in issues from 2006 to 2010 were recorded and analized.

1. Distribution of Articles by Year

Table 1: Distribution of Articles by Year

Years	Issue No. (Jun/Dec)	No. of Articles	Percentage
2006	21-22	12	19.35
2007	23-24	14	22.58
2008	25-26	12	19.35
2009	27-28	11	17.74
2010	29-30	13	20.97
Total	**5 Years**	**62**	**100.00**

Table 1 shows the distribution of articles in the journal by year. Of the total 62 articles, the maximum number of articles are in the year 2007, contributing 14(22.58%) to the total number of articles, while 13(20.97%) in 2010 and 12(19.35%) in 2006 as well as 2008. The minimum number of articles is in the year 2009 with 11 articles, which are 17.74% of the total number of articles published in the period.

2. Authorship Patterns

Table 2: Authorship Patterns

Authors	Years					No. of Articles	Percentage
	2006	2007	2008	2009	2010		
Single Authors	9	7	7	5	5	33	53.23
Two Authors	3	4	2	4	6	19	30.65
Three Authors	0	3	2	2	1	8	12.90
Multiple Authors	0	0	1	0	1	2	3.23
Total	**12**	**14**	**12**	**11**	**13**	**62**	**100.00**

Table 2 shows the authorship patterns of the articles published during the period of study. The largest number of articles had been published by single authors 33(53.23%). This is followed by two authors 19(30.65%), and three authors 8(12.90%). There were small percentage of articles published by multiple authors with 1(3.23%) of the total articles.

2.1. Degree of Collaboration in the Chinese Librarianship

To determine the degree of collaboration in quantitative terms, the following formula by K. Subramanyam was used.

The formula is $$C= \frac{NM}{NM+NS}$$

Where **C**= Degree of collaboration

NM= Number of multi authored papers

NS= Number of single authored papers

In the present study, the value of **C** is

$$C = \frac{33}{62}$$

$$C = 0.532$$

As a result, the degree of collaboration in the *Chinese Librarianship: an International Electronic Journal* is 0.532, which clearly indicates the dominance of single authors in its contributions.

3. Subject Distribution

Table 3: Subject Distribution

Subjects	Years					No. of Articles	Percentage
	2006	2007	2008	2009	2010		
Electronic Resources	1	2	2	4	3	12	19.35
Library Automation	1	1	0	0	0	2	3.23
Library and Internet	1	4	2	1	1	9	14.52
Library Professions	2	3	1	3	1	10	16.13
Digital Libraries	1	0	0	0	0	1	1.61
Academic Libraries	1	2	1	0	2	6	9.68
Public Libraries	0	0	2	0	0	2	3.23
Special Libraries	0	0	1	1	2	4	6.45
OPACs	0	1	0	0	0	1	1.61
RFID Applications	0	0	0	0	0	0	0.00
Information Services	2	1	2	1	3	9	14.52
Others	3	0	1	1	1	6	9.68
Total	**12**	**14**	**12**	**11**	**13**	**62**	**100.00**

Table 3 shows the distribution of subject areas of the articles. 12 articles (19.35%) are related to Electronic Resources, 10(16.13%) to Library Professions, 9(14.52%) to Library and Internet as well as Information Services, and 6(9.68%) to Academic Libraries and Others.

4. Institution Type with Which the Authors of Articles Were Affiliated

Table 4: Institution Type with which the authors of articles were affiliated

Authors Affiliated with	Years					No. of Article	Percentage
	2006	2007	2008	2009	2010		
Academic/Research Institutes	9	10	8	8	9	44	70.97
Special Library	2	0	1	2	2	7	11.29
Government Departments	0	1	0	0	1	2	3.23
Information/Document Centers	0	2	2	0	1	5	8.06
Others	1	1	1	1	0	4	6.45
Total	**12**	**14**	**12**	**11**	**13**	**62**	**100.00**

Table 4 shows the type of institutions with which the authors of the articles were affiliated. 44 articles (70.97%) were from authors affiliated with Academic/Research Institutes. This is followed by Special Library with 7(11.29%), Information/Documentation Centers 5 (8.06%) and others 4(6.45%). Only 2 articles (3.23%) were contributed from authors affiliated with Government Departments.

5. Length of Articles

Table 5: Length of Articles

No. of Pages	Year					No. of Article	Percentage
	2006	2007	2008	2009	2010		
01--05	1	1	0	0	0	2	3.23
06--10	6	4	2	4	7	23	37.10
11--15	3	6	5	3	5	22	35.48
16--20	2	1	3	4	1	11	17.74
21--25	0	2	1	0	0	3	4.84
26--30	0	0	1	0	0	1	1.61
Total	**12**	**14**	**12**	**11**	**13**	**62**	**100.00**

The table 5 shows the details about the page length of the articles. 23 articles (37.10%) are 6-10 pages in length, 22(35.48%) 11-15 pages, 11(17.74%) 16-20 pages, 3(4.84%) 21-25pages. There is one article (1.61%) in the range of 26-30 pages.

6. Citation Analysis

Table 6: Citation Analysis

No. of Pages	Year					No. of Articles	Percentage
	2006	2007	2008	2009	2010		
1--9	3	2	5	3	2	15	24.19
10--19	1	6	3	4	7	21	33.87
20--29	5	5	2	3	2	17	27.42
30--39	0	1	2	1	2	6	9.68
40--49	0	0	0	0	0	0	0.00
NIL	3	0	0	0	0	3	4.84
Total	**12**	**14**	**12**	**11**	**13**	**62**	**100.00**

Table 6 shows the details of the number of citations appearing at the end of articles. Of the 62 articles published in the period, 21(33.87%) have citations between 10-19 in number, 17(27.42%) between 20-29, 15(24.19) between 1-9, 6(9.68%) between 30-39, and 3(4.84%) have no citations.

7. Distribution of Citations

Table 7: Distribution of Citations

Years	Issue No. (Jun/Dec)	No. of Citations	Percentage
2006	21-22	162	16.10
2007	23-24	267	26.54
2008	25-26	181	17.99
2009	27-28	178	17.69
2010	29-30	218	21.67

Total	5 Years	1,006	100.00

Table 7 shows that issue nos. 21-30 of the journal have 62 articles with 1,006 citations altogether. Of these citations, issue nos. 23-24 have the highest number, 267(26.54%) and issues 21-22 has the lowest number, 162(16.10%).

8. Sources of Citations

Table 8: Sources of Citations

Sources of Citations	Year					No. of Articles	Percentage
	2006	2007	2008	2009	2010		
Journal articles	55	95	69	101	130	450	44.73
Books	56	47	39	46	42	230	22.86
Online search/websites	33	83	52	3	29	200	19.88
Conference/seminar/workshops etc.	6	11	5	8	4	34	3.38
Report(Govt./Projects/Commission/ Committee)	8	9	10	9	2	38	3.78
Reference sources	0	3	2	3	8	16	1.59
Thesis/Dissertations	0	0	2	1	2	5	0.50
Newspapers/Magazines	2	10	2	6	0	20	1.99
Others	2	9	0	1	1	13	1.29
Total	**162**	**267**	**181**	**178**	**218**	**1006**	**100.00**

Table 8 shows that the majority of the authors preferred to use Journal articles as the source of reference or citation, which accounts for a 450(44.73%) out of the total 1,006 citations. The second highest used source is Books with 230(22.86%) citations. It is followed by Online search/websites with 200(19.88%).

9. Ranking of Contributors/Authors

Table 9: The most prolific contributors in 2006-2010

Ranks	Authors	No. of Articles	Percentage
1	Gang Wan	3	4.84

1	Jian Anna Xiong	3	4.84
1	Zhixian Yi	3	4.84
2	Bibhu Prasad Panda	2	3.23
2	Chang Su	2	3.23
2	Dillip K. Swain	2	3.23
2	Haipeng Li	2	3.23
2	Junlin Pan	2	3.23
2	Lian Ruan	2	3.23
2	Nancy Deyoe	2	3.23
2	Sumeer Gul	2	3.23
2	Xuemao Wang	2	3.23
2	Zahid Ashraf Wani	2	3.23
3	Other authors that contributed 1 article	74	119.35
	Total	**103**	**166.17**

Table 9 shows the ranking of authors/contributors of articles. There are a total of 103 contributors or authors for 62 articles. Gang Wan, Jian Anna Xiong, and Zhixian Yi have each contributed 3 articles whereas Bibhu Prasad Panda and others have contributed 2 articles each. 74 other authors have contributed 1 article each during the period of study. The total number of the article and the percentage as well that for Other authors that contributed 1 article in Table 9 are higher than the actual numbers because some articles have co-authors.

10. Contributions by Country

Table 10: Contributions by Country

Ranks	Name of Country	No. of Contributions	Percentage
1	USA	45	72.58
2	India	20	32.26
3	Nigeria	14	22.58
4	China	12	19.35
5	Pakistan	5	8.06
6	Canada	2	3.23
6	Turkey	2	3.23
7	Botswana	1	1.61

| 7 | Iran | 1 | 1.61 |
| 7 | UK | 1 | 1.61 |

Table 10 shows the contributions in issue nos. 21-30 of the journal by country. Out of 103 contributions, authors from USA have been contributed 45(72.58%), India 20(32.26%), Nigeria 14(22.58%), China 12(19.35%), and Pakistan 5(8.06%). Authors from Canada, Turkey, Botswana, Iran, and UK have contributed one or two articles each.

11. Ranked list of Cited Journals

Table 11: Ranked List of Cited Journals

Ranks	Name of Journals	No. of Citation	Percentage	Cumulative
1	*Interlending & Document Supply*	15	3.33	15
2	*D-lib Magazine*	14	3.11	29
2	*The Journal of Academic Librarianship*	14	3.11	43
3	*Library Trends*	12	2.67	55
4	*Information Research*	10	2.22	65
5	*Library Philosophy and Practice*	9	2.00	74
5	*Library Review*	9	2.00	83
6	*African Journal of Library Archive and Information Science*	8	1.78	91
6	*Communications of the ACM*	8	1.78	99
6	*Library Journal*	8	1.78	107
7	*College and Research Libraries*	7	1.56	114
7	*Serials Review*	7	1.56	121
8	*American Libraries*	6	1.33	127
8	*College & Research Libraries*	6	1.33	133
8	*Library Administration & Management*	6	1.33	139
8	*Library Management*	6	1.33	145
9	*Journal of Library and Information Science (USA/Taiwan)*	5	1.11	150
9	*New Library World*	5	1.11	155
9	*Reference Services Review*	5	1.11	160
10	*Annual Review of Information Science and Technology*	4	0.89	164
10	*College & Research Libraries News*	4	0.89	168
10	*Information Technology & Libraries*	4	0.89	172

10	*Journal of Academic Librarianship*	4	0.89	176
10	*Knowledge of Library and Information Science (in Chinese)*	4	0.89	180
10	*Scientometrics*	4	0.89	184
10	*The Reference Librarian*	4	0.89	188
11	*Against the Grain*	3	0.67	191
11	*Annals of Library and Information Studies*	3	0.67	194
11	*Ariadne*	3	0.67	197
11	*Chinese America: History & Perspectives*	3	0.67	200
11	*Collection Building*	3	0.67	203
11	*Electronic Journal of Academic and Special Librarianship*	3	0.67	206
11	*Journal of Arts and Social Science,*	3	0.67	209
11	*Journal of Educational Media & Library Science*	3	0.67	212
11	*Journal of the American Society for Information Science and Technology*	3	0.67	215
11	*Lagos Journal of Library and Information Science*	3	0.67	218
11	*Library Technology Reports*	3	0.67	221
11	*Marketing Library Services*	3	0.67	224
11	*Nigerian Libraries*	3	0.67	227
11	*Nigerian Library and Information Science Review*	3	0.67	230
11	*Pakistan Journal of Library and Information Science*	3	0.67	233
11	*System.Education Statistics Quarterly*	3	0.67	236
11	*The Serials Librarian*	3	0.67	239
11	*Webology*	3	0.67	242
12	40 Titles with 2 Citations	80	17.78	322
13	128 Titles with 1 Citations	128	28.44	450
	Total	**450**	**100.00**	

Table 11 shows the frequency of journals cited in issue nos. 21-30 of CLIEJ. *Interlending & Document Supply* ranks first with 15 citations (3.33%). *D-lib Magazine* and *The Journal of Academic Librarianship* rank second with 14 citations (3.11%) each. The third most often cited journals are *Library Trends,* with 10 citations (2.22%).

VII. Conclusion

The publishing trend totally depends on the output of contributors, patterns of contributions and the quality of research. The year 2007 exhibited the maximum number of contributions to CLIEJ. This study reveals that the categories of article distributions are remarkable in this research journal. The majority of the articles were contributed by single authors. And most authors were librarians, faculty members or researchers affiliated with academic or research institutions. It is registered that Gang Wan, Jian Anna Xiong, and Zhixian Yi were most proliferate authors. The United States has contributed more articles than any other countries, such as India, Nigeria, China, and Pakistan. CLIEJ is notably a scholarly journal that stipulates or induces fruitful research for the library and information profession.

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