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A Study of Authorship Patterns and Collaborative Research in *Collaborative Librarianship*, 2009-2014

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Abstract

This paper presents a bibliometric study of *Collaborative Librarianship* (CL) during the period of 2009-2014. A total of 223 research contributions and 343 authors were examined by growth of contributions by year and volume, authorship patterns by year and volume, growth of authors by year, authorship patterns, author productivity, authorship patterns by global, most prolific contributors and degree of collaboration. Average number of authors per paper is 1.538. The highest number of author productivity i.e., 0.650. The average degree of author collaboration in the Collaborative Librarianship is 0.354, which clearly indicates its dominance upon single authored contributions.

Keywords: Bibliometrics; Collaborative librarianship; Publication analysis; Authorship patterns; Degree of collaboration; Research trends

Introduction

Collaborative Librarianship (CL) is a peer-reviewed open access e-journal. CL was launched in 2009 and is published quarterly. The journal is sponsored by Colorado Academic Library Consortium, Colorado Library Consortium, Colorado Alliance of Research Libraries, Regis University, and University of Denver. It is a scholarly journal in English devoted to various fields of library and information science. It focuses on a wide scope of issues related to library collaboration: library-to-library cooperation, sharing resources and expertise, library-to-business partnerships, local, regional, national and international collaboration, professional, and consortium and association partnerships. The journal contains six sections: Editorials, Scholarly Articles, From the Field, Viewpoints, Reviews and News. It publishes research findings, case studies, book reviews, and items related to technology authored by faculty, librarians, researchers, and students. This journal provides immediate open access to its content on the principle that making research freely available to the public supports greater local, regional, national and global exchange of knowledge.

Objectives of the Study

The objectives of the present study are as follows: to study contributions by year and issue; to study growth of authors by year; to examine authorship patterns by year and issue; to study author productivity; to study authorship by country; to identify most prolific contributors; to identify degree of author collaboration.

Research Methodology and Data Collections

The data was collected from the website of the *Collaborative Librarianship* (CL). Twenty-four (24) issues from six (6) volumes from 2009 to 2014 were selected for the study. Research contributions by issue and year, number of authors, authorship patterns by volume, authorship patterns by country, author's productivity, most prolific contributors, and degrees of author collaboration are recorded. These data were organized, calculated, tabulated, analyzed, and presented by using simple arithmetic and statistical methods.

Limitations

Collaboration is studied only as it relates to joint authorship. Other types of collaboration outside of authorship are not considered. A broader view of collaboration could relate to consultations in composing article content, articles that



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deal with joint or cooperative work but written by only one person, or articles that promote collaborative technologies, projects, theory, the scope of peer review that represents scholarly collaboration not usually explored, and so forth. In terms of collaboration, this study does not distinguish the types of articles/items published. It is important to note that items appearing in the Editorial, Viewpoints, and Reviews sections, by nature of this type of writing, rarely have joint authorship. The comparative data are thus skewed against a full picture of authorial collaboration represented in the journal. Moreover, the research core of the journal appears in the "Scholarly Articles" section, being fully peer reviewed and generally of greater depth in re-

gard to length and substance than articles in "From the Field" or in other sections.

The study also does not tabulate any data regarding items published in the "News" section since this segment is not, strictly speaking, part of the publishing platform, OJS, used by *Collaborative Librarianship*. "News" items are "published" via a blog service and linked to the CL site.

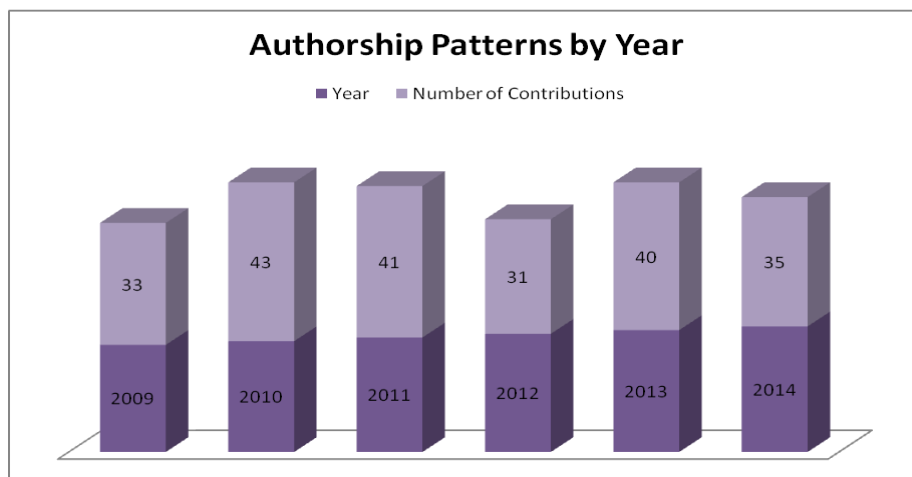
Data Analysis and Findings

A total of 223 contributions and 343 authors were analyzed the journal. The flowing eight tables and brief analyses represent the substance of this research.

Table 1. Contributions by Year and Volume

Sl. No.	Year	Volume	Total No. of Contributions	Percentage (%)
1	2009	1	33	14.798
2	2010	2	43	19.282
3	2011	3	41	18.385
4	2012	4	31	13.901
5	2013	5	40	17.937
6	2014	6	35	15.695
	Total	6	223	100.000

Graph 1. Article Contributions by Year



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Table 1 and Graph 1 show the growth of contributions published in the *Collaborative Librarianship* from 2009 to 2014. In total, there are 223 articles. The highest number of contributions 43 (19.282%) was published in 2010 while the lowest number 31 (13.901%) of research contributions in the year of 2012. The second highest number of research contributions 41 (18.385%) was published in 2011.

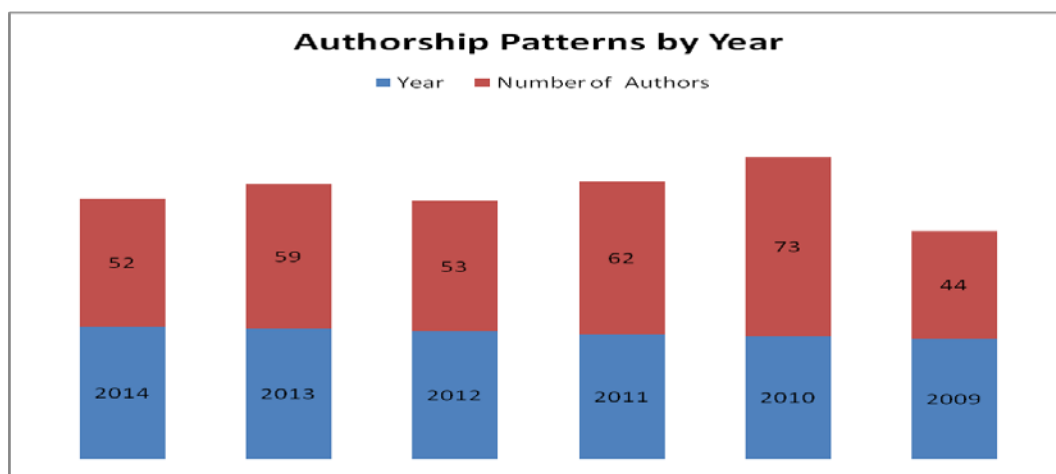
Table 2 and Graph 2 show the growth of authors by year. The highest number of authors contributed 73 (21.282%) was published in 2011, while the lowest number 44 (12.827%) of author contributions in the year of 2009.

Table 3 shows the distribution of contributions by year and volume and the numeric authorship patterns of the *Collaborative Librarianship* from 2009 to 2014. It is clear that the number of articles has been increased over the years. It indicates also that of the 144 contributions of single authors, volume 3 has the highest number 27 (18.75%) while volumes 4 and 6 have the lowest number 21 (14.58%). Of the 51 articles contributed by two authors, volume 6 has the highest number 12 (23.52%) while volume 4 has the lowest number 5 (9.80%). Of the 20 articles contributed by three authors, volume 2 has the highest number 6 (30.00%) while volume 15 has the lowest number 1 (5.00%) in 2009 and 2014.

Table 2. Growth in Numbers of Authors by Year

Sl. No.	Year	No. of Authors	Percentage (%)
1	2014	52	15.160
2	2013	59	17.201
3	2012	53	15.451
4	2011	62	18.075
5	2010	73	21.282
6	2009	44	12.827
	Total	343	100.000

Graph 2. Authors by Year



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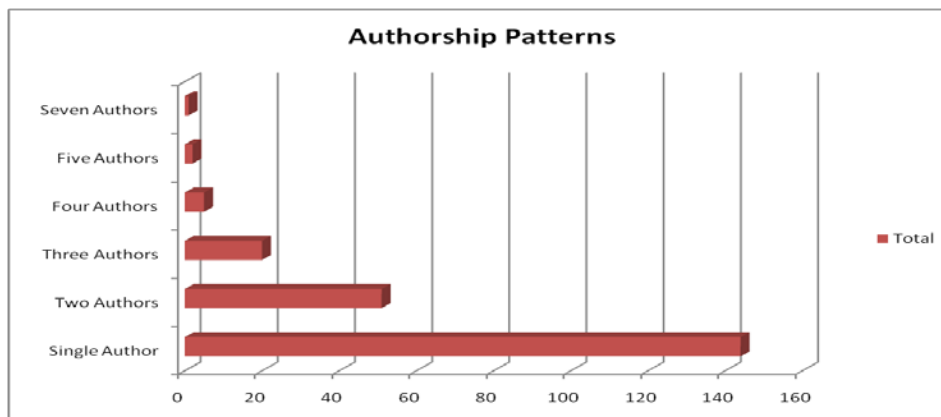
Table 3. Numeric Authorship Patterns by Year/Volume

Sl. No.	Year	Vol- ume	Authors per Article						Total No. of Papers	Total No. of Authors
			One	Two	Three	Four	Five	Seven		
1	2009	1	25	6	1	1	--	--	33	44
2	2010	2	24	11	6	1	1	--	43	73
3	2011	3	27	8	5	1	--	--	41	62
4	2012	4	21	5	2	1	1	1	31	53
5	2013	5	26	9	5	--	--	--	40	59
6	2014	6	21	12	1	1	--	--	35	52
	Total		144	51	20	5	2	1	223	343

Table 4. Authorship Patterns

Sl. No.	Author	Total	Percentage (%)
1	Single Author	144	41.982
2	Two Authors	102	29.737
3	Three Authors	60	17.492
4	Four Authors	20	5.830
5	Five Authors	10	2.915
6	Seven Authors	7	2.040
	Total	343	100.000

Graph 3. Authorship Patterns



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Table 4 and Graph 3 show that the majority of the contributions were written by a single author 144 (64.573%), followed by two authors 51 (22.869%), three authors 20 (8.968%), and four authors 5 (2.242%). The lowest numbers of contributions were made by seven authors (0.448%).

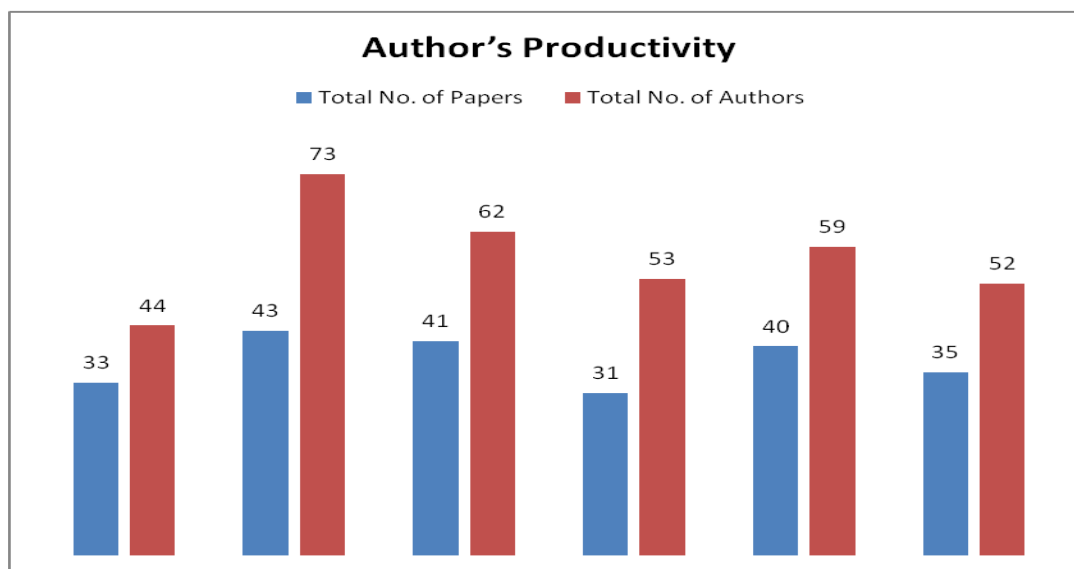
Table 5 and Graph 4 show the data related to author's productivity. The total average number of authors per paper is 1.538 and the average productivity per author is 0.650. The highest number of author's productivity 43 (0.589%) was in 2010. The minimum number of author's productivity 31 (0.584%) was in 2012.

Table 5. Author's Productivity

Sl. No.	Year	Total No. of Papers	Total No. of Authors	AAPP*	Productivity per Author
1	2009	33	44	1.333	0.75
2	2010	43	73	1.697	0.589
3	2011	41	62	1.512	0.661
4	2012	31	53	1.709	0.584
5	2013	40	59	1.475	0.677
6	2014	35	52	1.485	0.673
	Total	223	343	1.538	0.650

Notes: *Average Authors per Paper (AAPP) = Number of authors/Number of papers. Productivity per author = Number of papers/Number of authors.

Graph 4. Author's Productivity



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Table 6 shows that 343 authors contributed 223 articles over a period of six years (2009 – 2014). The most prolific contributor, Ivan Gaetz (United States), stood in the first position; he made the highest number (23) of contributions. This is followed by Lori Bowen Ayre (United States) with the second highest number of contributions

at 11. There are fifteen authors who have contributed 2 research articles each. The remaining 226 research articles have been contributed by single authors. The four authors with the greatest number or contributions, not surprisingly, are editors and columnists.

Table 6. Most Prolific Authors

Sl. No.	Name	No. of Contributions	Country	Rank
1	Ivan Gaetz	23	United States	1
2	Lori Bowen Ayre	11	United States	2
3	Valerie Horton	10	United States	3
4	Nicole C. Engard	9	United States	4
5	Janet Lee	6	United States	5
6	Alison Hicks	6	United States	5
7	Cory Tucker	5	United States	6
8	Mary Somerville	4	United States	7
9	Mitchell Davis	4	United States	7
10	Chris Sugnet	3	United States	8
11	Christine Baker	3	United States	8
12	Michael Perini	3	United States	8
13	Barbara M. Pope	2	United States	9
14	Carol Krismann	2	United States	9
15	Craig Harkema	2	United States	9
16	Gregory Pronevitz	2	United States	9
17	Jeffrey Scott Bullington	2	United States	9
18	Jesus E. Sanabria	2	United States	9
19	Jim LeBlanc	2	United States	9
20	Joseph R. Kraus	2	United States	9

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21	Kate Harcourt	2	United States	9
22	Lettie Y. Conrad	2	United States	9
23	Lisa Priebe	2	United States	9
24	Megan E. Welsh	2	United States	9
25	Richard A. Stoddart	2	United States	9
26	Robert H. Kieft	2	United States	9
27	Ronna C. Nemer	2	United States	9
28	Single Author Contributions	226		10
	Total	343		

Table 7 and Graph 5 show the distribution of authors by country. The 223 articles were contributed by 343 authors from 5 countries. The highest number of authors 167 (48.688%) were

from the United States, followed by Canada 9 (2.623%), Nigeria 3 (0.874%). The lowest numbers of contributions 1 (0.291%) were from India and United Kingdom respectively.

Table 7. Authorship by Country

Sl. No.	Country	No. of Contributions	Percentage (%)
1	United States	167	48.688
2	Canada	9	2.623
3	Nigeria	3	0.874
4	India	1	0.291
5	United Kingdom	1	0.291
6	Place not mentioned	162	47.230
	Total	343	100.000

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Graph 5. Authorship by Country

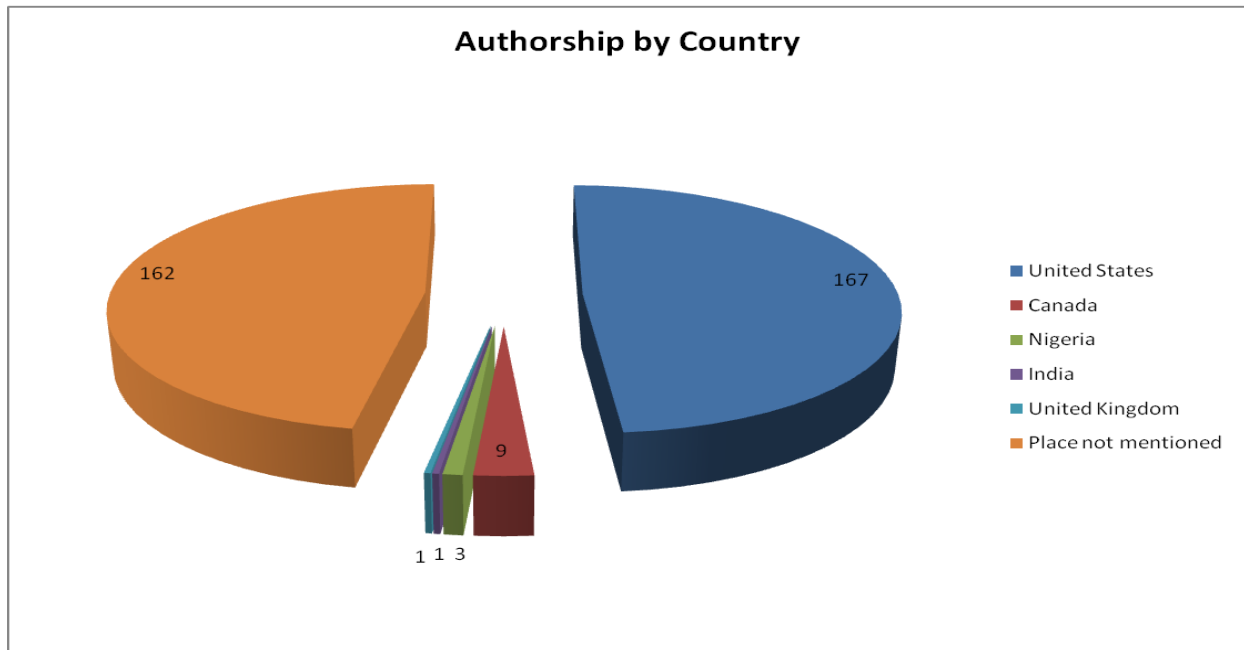


Table 8. Degree of Author Collaboration

Sl. No.	Year	Single Authored Paper (Ns)	Multi Authored Papers (Nm)	Total (Nm+Ns)	Degree of Collaboration
1	2009	25	8	33	0.242
2	2010	24	19	43	0.441
3	2011	27	14	41	0.341
4	2012	21	10	31	0.322
5	2013	26	14	40	0.35
6	2014	21	14	35	0.4
	Total	144	79	223	0.354

Table 8 shows the degree of author collaboration in the *Collaborative Librarianship*. To determine the degree of collaboration in quantitative terms, the formula given by K. Subramanyam was used.¹ The formula is where:



C = Degree of collaboration, NM = Number of Multi authored papers, NS = Number of Single authored papers	C =	$\frac{NM}{NM + NS}$
		79
		223
In the present study the average value of C is	C =	0.354

The result shows the average degree of author collaboration in the *Collaborative Librarianship* is 0.354, which clearly indicates its dominance upon single authored contributions. However, multi-authored articles have been increased in recent years. In 2013, there were 26 single authored contributions and 14 multi-author papers, and in 2014, there were 21 single authored articles and 14 multi-author contributions.

Conclusion

The *Collaborative Librarianship* e-journal has been growing over 6 years publishing research and other articles from 2009. The authorship patterns have changed too, from the predominant single authors in early years to increased multi-author collaborations in recent years. From 2009 to early 2012, *Collaborative Librarianship* published articles mostly from United States authors. Since late 2013, it started accepting more articles from many countries, thus becoming a real international journal. As of today, there are 5 countries contributing research articles to the journal, including 167 (48.688%) were from the United States, followed by Canada 9 (2.623%), Nigeria 3 (0.874%), 1 (0.291%) were from India and United Kingdom.

Endnote

¹ K. Subramantam, "Bibliometric Study of Research Collaboration: A Review," *Journal of Information Science* 6 (1983): 33-38.

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Appendix: Annotated Bibliography of Literature Offering Similar Bibliometric Studies

Thavamani, Kotti. "Authorship and Collaborative Patterns in the *Chinese Librarianship: an International Electronic Journal*, 1996-2013," *Chinese Librarianship: an International Electronic Journal* 37(2014). URL:

<http://www.iclc.us/cliej/cl37thavamani.pdf>. Thavamani analyzed the authorship trends in the "*Chinese Librarianship: an International Electronic Journal (CLIEJ)*" during the period of 1996-2013. A total of 133 articles and 221 authors in the journal were examined. The average number of authors per paper is 1.661% and the average productivity per author is 0.601%. The average degree of collaboration is 0.443 during the period under study.

Ramakrishnan, J. and Thavamani, K. "Growth of Literature in the Field of Hepatitis-C," *Library Philosophy and Practice* (2013). Available at:

<http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=2312&context=libphilprac>. Ramakrishnan and Thavamani conducted a bibliometric analysis of the literature output in the field of Hepatitis C covered in the *Journal Viz., Gastroenterology*.

Thavamani, K. and Velmurugan, C. "Authorship Pattern and Collaborative Research Work in *Annals of Library and Information Studies*. *Proceedings of the National Conference on Next Generation Library Services*, SALIS NGLIS, August 16-17, 2013, Chennai. Thavamani and Velmurugan studied the publication trends of scholarly papers in *Annals of Library and Information Studies* published in New Delhi, India, through a bibliometric analysis of 310 contributions in the journal during the years 2002-2012.

Amsaveni, N. and Vasanthi, R. "Authorship Pattern and Collaborative Research in the Field of Network Security," *Indian Journal of Applied Research* 3/1(2013): 52-54. Amsaveni and Vasanthi examined the trend in authorship pattern and collaborative research in network security with a sample of 8051 articles downloaded from the database, Web of Knowledge, during the period, 2002 to 2011 (one decade), with 5343 LCS and 44721 TGCS measure.

Singh, Har. "A Bibliometric Analysis of the *Chinese Librarianship: an International Electronic Journal*, 2009-2012," *Chinese Librarianship: an International Electronic Journal* 35 (2013): 16-27. URL: <http://www.iclc.us/cliej/cl35singh.pdf>. Singh analyzed the various bibliometric components of the articles published in the *Chinese Librarianship: an International Electronic Journal* between 2009 and 2012.

Tamilselvi, A. and Nithyanandam, K. "*Malaysian Journal of Library & Information Science*, 2007-2012: A Bibliometric Study," *Proceedings of the National Conference on Next Generation Library Services*, SALIS NGLIS August 16-17, (2013), Chennai. Tamilselvi and Nithyanandam demonstrated and elaborated on the various aspects of the *Malaysian Journal of Library and Information Science*, such as its distribution of articles by year, authorship patterns, citation analysis, and geographical distribution of authors.

Hussain, Akhtar and Fatima, Nishat. (2011). "A Bibliometric Analysis of the *Chinese Librarianship: an International Electronic Journal* (2006-2010)," *Chinese Librarianship: an International Electronic Journal* 31 (2011). URL: <http://www.iclc.us/cliej/cl31HF>. Hussain and Fatima studied the *Chinese Librarianship: an International Electronic Journal* for the period 2006-2010 and revealed 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.

Vimala, V. and Pulla Reddy, V. "Authorship Pattern and Collaborative Research in the Field of Zoology," *Malaysian Journal of Library & Information Science* 1/2 (1996): 43-50.

Vimala and Pulla Reddy traced authorship pattern and collaborative research in zoology with a sample of 19,323 journal citations figured in the theses on zoology accepted for the award of the doctoral degree by Sri Venkateswara University, Tirupati, India.



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Zafrunnisha, N. and Pulla Reddy, V. Authorship Pattern and Degree of Collaboration in Psychology," *Annals of Library and Information Studies* 17/1 (2009): 255-261. Zafrunnisha and Pulla Reddy studied the authorship pattern and collaborative research in the field of psychology.

Karisiddappa, C. R., Maheswarappa, B. S. and Shirol, M. V. "Authorship Pattern and Collaborative Research in Psychology. *IASLIC Bulletin*, 35/2 (1990): 73-78. Karisiddappa, Maheswarappa, and Shirol studied the authorship pattern and collaborative research in psychology, based on the data collected from *Psychological Abstracts* for the year 1988.

Bakri, A. and Willett, P. "The *Malaysian Journal of Library and Information Science*, 2001-2006: A Bibliometric Study," *Malaysian Journal of Library & Information Science*, 13/1 (2008): 103-116. Bakri and Willett studied the *Malaysian Journal of Library and Information Science* from 2001 to 2006 and analyzed the range of articles published per volume, average number of references per article, average length per article page; percentage of multi-authored papers, and geographical identifications.

Jena, Kamal Lochan. "A Bibliometric Analysis of the Journal, *Indian Journal of Fibre and Textile Research*, 1996-2004," *Annals of Library and Information Studies* 53/1 (2006): 22-30. Available at: <http://nopr.niscair.res.in/bitstream/123456789/6019/1/ALIS%2053%281%29%2022-30.pdf>

Jena studied the *Indian Journal of Fiber and Textile Research* from 1996 to 2004 and traced trends in publication such as year-wise distribution of articles, bibliographical distribution of citations, authorship pattern, citation pattern, average length of articles, number of tables and figures used, time lag, geographical distribution of authors and subject analysis.

Singh, Neeraj Kumar, Sharma, Jyoti and Kaur, Navneet. "Citation Analysis of *Journal of Documentation*." *Webology* 8/1 (2011), Article 86. Available at:

<http://www.webology.org/2011/v8n1/a86.html>. Singh, Sharma, and Kaur did a citation analysis of 487 articles published in the *Journal of Documentation* from 1996 to 2010.

Oyenyi, J. Oluwakemi and Olaifa, Taye Paul. "Collaborative Strength and Pattern of Authorship among Agricultural Engineers in Nigeria: A Case Study of the 2000-2010 NIAE proceedings," *International Journal of Library and Information Science*, 4/6 (2012): 115-120. Available at: http://www.academicjournals.org/article/article1379687217_Oyenyi%20and%20Olaifa.pdf.

Oyenyi and Olaifa studied the 2000-2010 NIAE proceedings and traced the number of articles published per year, pattern of authorship, and collaborative degree and strength of authors. There are a total number of 589 articles published by 1315 authors in the years under study.

Pradhan, P., Panda, S. and Chandrakar, R. "Authorship Pattern and Degree of Collaboration in Indian Chemistry Literature," *Proceedings of the 8th International CALIBER*, Goa University, Goa, March 02-04, 2011, (2011): 691-699. Available at:

<http://ir.inflibnet.ac.in/bitstream/handle/1944/1656/64.pdf?sequence=1>. Pradhan, Panda, and Chandrakar studied the trends in authorship pattern and authors' collaborative research in Indian chemistry literature with a sample of 53,977 articles downloaded from SCI-Expanded database in Web of Science during the period 2000-2009.

Mahapatra, R. K. and Jena, Padmanav. "Scientific Research Productivity on Orissa: A Bibliometric Analysis," *Annals of Library and Information Studies* 53/1(2006): 18-21. Available at: <http://nopr.niscair.res.in/bitstream/123456789/6018/1/ALIS%2053%281%29%2018-21.pdf>.

Mahapatra and Jena studied the growth of scientific research literature on Orissa published during 1985-2004. It includes 875 research papers from 40 different journals. The authorship pattern, year-wise



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growth, subject-wise breakup of papers, category of journals, place of origin, length of papers, and productivity of journals have been analyzed.

Nosheen, Fatima Warraich and Sajjad, Ahmad. "Pakistan Journal of Library and Information Science: A Bibliometric Analysis," *Pakistan Journal of Library & Information Science*, 12 (2011): 1-7. Available at: <http://pu.edu.pk/images/journal/pjlis/pdf/pjlis-12-warraich1.pdf>. Nosheen and Sajjad studied 111 articles in the *Pakistan Journal of Library and Information Science* published from 1995 to 2010 and traced the author productivity, extent of author collaboration, institutional affiliation of authors, geographic designation, type of publication, language of papers, number of citations used per article, length of papers, and year-wise distribution of papers.

Rattan, Gurjeet Kaur and Gupta, Kamini. "Bibliometric Analysis of Malaysian Journal of Library & Information Science, 2007-2011," *International Journal of Information Dissemination and Technology*, 2/4 (2012): 307-312. Rattan and Gupta studied the *Malaysian Journal of Library & Information Science* from 2007 to 2011 and found that out of 100 articles, single authors contributed 27 (27%) articles while the rest 73 (73%) articles are contributed by joint authors.

