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Directory of Open Access Journals: A Bibliometric Study of Library and Information Science

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Abstract

This paper presents a bibliometric study of library-focused journals represented in the Directory of Open Access Journals (DOAJ). A total of 151 library and information science journals were examined related to a number of issues: subject-specific distribution of library journals, interdisciplinary aspects, country of origin, language-used and other language characteristics, numbers of titles first appearing in given years, publication fees, the existence of license agreements, and the types of organizations having journals in the Directory that focus on libraries or librarianship.

Keywords: Bibliometrics; DOAJ; Open access; Publication analysis; Online journals; E-Journals; Library and Information Science

Introduction

Bibliometric studies have been conducted on journals related mainly to scientific fields and are based principally on various metadata elements such as author, title, subject, citations and so forth. This type of analysis provides useful indicators of trends, scientific productivity, emphasis of research in various fields, and researcher preferences for publication. Typically, bibliometrics consider organization, classification, and quantitative evaluation of publication patterns as well as provide an analysis of macro-communication. The study discussed in this article provides some of these analyses related to open access journals published in the field of library and information science. One of the most extensive lists of such journals appears in the Directory of Open Access Journals, and will be the source of bibliometric data. Following a profile of the Directory itself, a study of library-focused journals gathers and presents data on:

- Subject-specific distribution of library journals
- Interdisciplinary aspects of these journals
- Country of origin
- Language used
- Other language characteristics
- Numbers of titles first appearing in given years
- Publication fees

- Existence of license agreements
- Types of organizations having journals in the Directory that focus on libraries or librarianship.

History and Profile of Directory of Open Access Journals

The first Nordic Conference on Scholarly Communication in 2002 at [Lund University](#) led to the founding of the Directory of Open Access Journals in 2003 under the direction of Lars Bjornshauge, Director of Libraries at Lund University. Bjornshauge led the development of the Directory over the ensuing ten years, and in January 2013, he was appointed managing director. Supported by the Infrastructure Services for Open Access (ISOA), the Directory of Open Access Journals (DOAJ) maintains a website, (<http://www.doaj.org>) [that provides information about the Directory and offers access to the Directory itself.](#)

DOAJ defines open access journals on their website as [scientific](#) and [scholarly journals](#) that meet high quality standards by exercising [peer review](#) or editorial quality control, and that "use a funding model that does not charge readers or their institutions for access." The [Budapest Open Access Initiative's](#) definition of [open access](#) also outlines the rights given to users for a journal to be included in the Directory, specifi-



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cally, to “read, download, copy, distribute, print, search, or link to the full texts of these articles.”¹ As of January 2013, the database contained 8,536 journals, with an average of four journals being added each day in 2012. By January 2014, the total number of journals listed was 9,804.

Aims and Scope of DOAJ

The aims of DOAJ are to increase the visibility and ease of use of open access scientific and scholarly journals thereby to promote increased usage and impact. The Directory seeks to be comprehensive, covering all open access scientific and scholarly journals that use a quality control system to guarantee the content. In short, the DOAJ aims to be the “one-stop shop” for users of open access journals. A journal included in the Directory must exercise peer-review or editorial quality control. Journals may report primary results of research or overviews of research results to a scholarly community. A serial must publish at regular intervals, generally more than once a year with each issue numbered or dated consecutively. A journal in DOAJ normally contains articles, stories, or other writings.

The scope of coverage offered by the Directory includes:

- All scientific and scholarly subjects
- Scientific and scholarly periodicals that publish research or review papers in full text
- Publications from academic, government, commercial and non-profit private organizations
- Publications that target primarily researchers and scholars
- Journals whose content is substantively research papers and available in full text
- All languages.

Subject Scope

The journals listed in DOAJ cover these subjects:

1. **Agriculture and Food Sciences**
General Agriculture (202 journals), Animal Sciences (127 journals), Aquaculture and Fisheries (22 journals), Forestry

(48 journals), Nutrition and Food Sciences (47 journals), Plant Sciences (57 journals)

2. **Arts and Architecture**

Architecture (64 journals), Arts in general (74 journals), History of arts (14 journals), Music (49 journals), Performing Arts (36 journals), Visual Arts (23 journals)

3. **Biology and Life Sciences,**

Biology (320 journals), Life Sciences (100 journals)

4. **Business and Economics**

Business and Management (355 journals), Economics (230 journals)

5. **Chemistry**

Analytical Chemistry (18 journals), Chemical Engineering (22 journals), Chemistry – General (132 journals), Inorganic Chemistry (6 journals), Organic Chemistry (14 journals)

6. **Earth and Environmental Sciences**

Earth Sciences (110 journals), Ecology (64 journals), Environmental Sciences (155 journals), Geography (133 journals), Geology (114 journals), Geophysics and Geomagnetism (15 journals), Meteorology and Climatology (31 journals), Oceanography (35 journals)

7. **General Works**

Multidisciplinary (405 journals)

8. **Health Sciences**

Dentistry (106 journals), General Medicine (606 journals), Nursing (52 journals), Public Health (240 journals)

9. **History and Archaeology**

Archaeology (52 journals), Archives (2 journals), History (262 journals)

10. **Languages and Literatures**

Languages and Literatures (378 journals), Linguistics (215 journals)

11. **Law and Political Science**



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Law (193 journals), Political Science (206 journals)

12. Mathematics and Statistics

Mathematics (269 journals), Statistics (54 journals)

13. Naval Science

Marine Engineering and Technologies (6 journals)

14. Philosophy and Religion

Philosophy (217 journals), Religion (97 journals)

15. Physics and Astronomy

Astronomy – General (26 journals), Physics – General (91 journals)

16. Science General

Information theory (1 journal), Science – General (160 journals)

17. Social Sciences

Anthropology (103 journals), Education (649 journals), Ethnology (36 journals), Gender Studies (41 journals), Library and Information Science (151 journals), Media and Communication (127 journals), Psychology (210 journals), Social Sciences (374 journals), Sociology (167 journals), Sports Science (79 journals)

18. Technology and Engineering

Chemical Technology (43 journals), Computer Science (421 journals), Construction (19 journals), Electrical and Nuclear Engineering (80 journals), Environmental Engineering (14 journals), Environmental Technology (15 journals), General and Civil Engineering (202 journals), Hydraulic Engineering (5 journals), Industrial Engineering (26 journals), Manufactures (12 journals), Materials (51 journals), Mechanical Engineering (58 journals), Military Science (12 journals), Mining and Metallurgy (18 journals), Technology – General (123 journals), Transportation (36 journals)

Access

All journals registered in the Directory must be freely available to all users. A journal may require an online registration for access, but the registration must be at no cost. Moreover, there must be immediate access to published material, that is, having no embargo period before access becomes open to all.

For a journal to be included it should exercise quality control on submitted papers through an editor, an editorial board, and/or a peer-review system. The journal should also have an ISSN (International Standard Serial Number) and journals publishing solely online should have an eISSN (the electronic version of an ISSN).

Metadata Information

Resources will be cataloged at the title level. To make article level content searchable in the system, journal owners are encouraged to supply DOAJ with article metadata.

Context for Research

Other studies have been carried out that may be useful supplementary analysis for the study presented here. One study by P. Kumar offers a helpful overview, but it is limited by a rather detailed registration process in order to gain access to the full text of the article.² Another article by M. L. Jamdade and P. M. Jamdade reports on a study of open access journals appearing the DOAJ. While thin on detailed analysis, its strength may be found in the over ten pages that list in chart form 137 library-related open access journals.³ This chart provides information on title, URL, ISSN/eISSN, publisher, place of publication, language, and subject headings identified for the publication.

Methodology and Data Collection

The data was collected from Directory Open Access Journals (DOAJ) website (<http://www.doaj.org>) covering the period from 2003 to 2013. One hundred fifty-one Library and Information Science titles and related information have been selected for the current study. These data are organized, calculated, tab-



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ulated, analyzed, and presented by using simple arithmetic and statistical methods in order to provide analysis.

Limitation of the Study

DOAJ provides accurate information about open access journals published from various countries. There may exist open access journals published in this field that have not have registered with DOAJ or are not included in the Directory due to lack of compliance with DOAJ standards (such as having an eISSN), but still may be scholarly and open access. No attempt was made to discover and include such journals in this study.

While there are 18 different major subject areas represented in the Directory, only those related to the library field that were represented in 10 subject areas were identified for study: Anthropology (103 journals), Education (649 journals), Ethnology (36 journals), Gender Studies (41 journals), Library and Information Science (151 journals), Media and communication (127 journals), Psychology (210 journals), Social Sciences (374 journals), Sociology (167 journals), and Sports Science (79 journals). There may be some journal titles listed in other disciplines covered in the Directory that do not explicitly describe a focus on library science but which may be actually library-related. These titles would be absent from this study. For purposes of this study only those titles identified under the subject heading "Library and Information Science" were considered.

Analysis and Findings

The following 10 tables and brief analyses represent the substance of this research.

Table 1 shows the subject-related distribution of journals. There have been 151 titles identified in 15 subject areas. Within these 15 areas, not surprisingly most journals were published in "Library and Information Science," specifically, 119 (78.808%). The lowest percentage, 0.662% representing one journal, occurs in seven different subject areas: Business and Management-Library and Information Science, Business and Management-Library and Information Science,

Technology (General), History, Computer Science-Library and Information Science, Library and Information Science and Law, Library and Information Science, Religion, Science (General), Technology (General), Library and Information Science and Visual Arts, Library and Information Science, and Arts in General.

Table 2 shows the interdisciplinary nature of library related journals. Thirty-four titles have been identified as being interdisciplinary. Among these 13 interdisciplinary areas, the greatest numbers of journals were published in the two different areas: four (11.765%) in Computer Science-Library and Information Science and four in Medicine (General)-Library and Information Science.

Table 3 shows the distribution of journals according to country of origin. There are 40 countries represented in DOAJ publishing journals related to library and information science. The highest number, 37 (24.503%), originated or are based in the United States. Brazil had the second highest number, 16 (10.596%). Seven countries had only one library and information science journal.

Table 4 shows the language of publication of the journals. There are 24 languages represented with 108, the highest number claiming English as its language of publication. Spanish language has the second highest number. Nine languages (Arabic, Bulgarian, Czech, Farsi, Indonesian, Norwegian, Persian, Slovak, and Slovene) have one library and information science journal title. Some journals report publications in more than one language; hence the total number of journals in various languages is 218.

Table 5 shows the numbers of languages in which individual journals are published. Most journals, 88, are published in only one language, while 10 journals report they publish in five languages.

Table 6 shows the year in which publication commenced for the library and information science journals. The greatest number of journals began publication in 2005 and 2006, each with 15 titles (9.934%). The years 1911, 1975, 1987, 1992, 1993 and 1994 saw the start of only one journal.



Table 1: Subject Distribution of Library-Related Journals

No.	Subjects	Total	Percentage (%)
1	Business and Management-Library and Information Science	1	0.662
2	Business and Management-Library and Information Science, Technology (General)	1	0.662
3	Computer Science-Library and Information Science	5	3.311
4	Education, Business and Management-Library and Information Science	2	1.325
5	History, Computer Science-Library and Information Science	1	0.662
6	Library and Information Science	119	78.808
7	Library and Information Science-Computer Science	5	3.311
8	Library and Information Science, Law	1	0.662
9	Library and Information Science, Medicine (General)	5	3.311
10	Library and Information Science, Religion	1	0.662
11	Media and Communication-Library and Information Science	3	1.987
12	Medicine (General)-Library and Information Science	3	1.987
13	Science (general), Technology (general)-Library and Information Science	1	0.662
14	Social Sciences-Library and Information Science	2	1.325
15	Visual Arts-Library and Information Science	1	0.662
	Total	151	100.00

Table 2: Interdisciplinary Identification of Journals

No.	Interdisciplinary Subjects	No. of Subjects Covering	Percentage (%)
1	Business and Management-Library and Information Science	2	5.882
2	Business and Management-Library and Information Science, Technology (General)	3	8.824
3	Computer Science-Library and Information Science	4	11.765
4	Education, Business and Management-Library and Information Science	3	8.824
5	History, Computer Science-Library and Information Science	3	8.824
6	Library and Information Science	1	2.941
7	Library and Information Science, Law	2	5.882
8	Library and Information Science, Religion	2	5.882
9	Media and Communication-Library and Information Science	2	5.882
10	Medicine (General)-Library and Information Science	4	11.765
11	Science (General), Technology (General)-Library and Information Science	3	8.824
12	Social Sciences-Library and Information Science	2	5.882
13	Visual Arts, Library and Information Science	3	8.824
	Total	34	100.00

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Table 3: Country of Origin

No.	Countries	Total	Percentage (%)
1	Argentina	1	0.662
2	Australia	2	1.325
3	Brazil	16	10.596
4	Bulgaria	1	0.662
5	Canada	7	4.636
6	Chile	1	0.662
7	Colombia	1	0.662
8	Costa Rica	1	0.662
9	Croatia	3	1.987
10	Cuba	2	1.325
11	Czech Republic	1	0.662
12	Denmark	2	1.325
13	Egypt	1	0.662
14	France	3	1.987
15	Germany	7	4.636
16	India	6	3.974
17	Indonesia	1	0.662
18	Iran	3	1.987
19	Italy	3	1.987
20	Lithuania	2	1.325
21	Mexico	1	0.662
22	Netherlands	3	1.987
23	New Zealand	1	0.662
24	Pakistan	1	0.662
25	Peru	1	0.662
26	Poland	3	1.987
27	Puerto Rico	1	0.662
28	Romania	2	1.325
29	Singapore	1	0.662
30	Slovenia	1	0.662
31	South Africa	2	1.325
32	South Korea	1	0.662
33	Spain	11	7.285
34	Sweden	2	1.325
35	Switzerland	3	1.987
36	Taiwan	6	3.974
37	Turkey	2	1.325
38	United Kingdom	7	4.636
39	United States	37	24.503



40	Venezuela	1	0.662
	Total	151	100.00

Table 4: Language of Publication

No.	Language	Total	Rank
1	English	108	1
2	Spanish	28	2
3	Portuguese	21	3
4	French	12	4
5	German	10	5
6	Chinese	6	6
7	Italian	5	7
8	Catalan	3	8
9	Danish	3	8
10	Polish	3	8
11	Croatian	2	9
12	Lithuanian	2	9
13	Romanian	2	9
14	Swedish	2	9
15	Turkish	2	9
16	Arabic	1	10
17	Bulgarian	1	10
18	Czech	1	10
19	Farsi	1	10
20	Indonesian	1	10
21	Norwegian	1	10
22	Persian	1	10
23	Slovak	1	10
24	Slovene	1	10
	Total	218	

Table 5: Language Patten

No.	Language Pattern	Total
1	One language	88
2	Two languages	27
3	Three languages	30
4	Four languages	8
5	Five languages	10

Table 6: Year Commenced Publication

No.	Year	Total	Percentage (%)
1	1911	1	0.662
2	1975	1	0.662
3	1985	2	1.325
4	1987	1	0.662
5	1991	2	1.325
6	1992	1	0.662
7	1993	1	0.662
8	1994	1	0.662
9	1995	5	3.311
10	1996	8	5.298
11	1997	5	3.311
12	1998	8	5.298
13	1999	11	7.285
14	2000	6	3.974
15	2001	2	1.325
16	2002	3	1.987
17	2003	6	3.974
18	2004	10	6.623
19	2005	15	9.934
20	2006	15	9.934
21	2007	9	5.960
22	2008	6	3.974
23	2009	6	3.974
24	2010	6	3.974
25	2011	13	8.609
26	2012	5	3.311
27	2013	2	1.325
	Total	151	100.00

Every year since 1991 at least one journal began publication. The *Bulletin of the Medical Library Association* has published continuously since 1911, and the *Journal of Library and Information Science* since 1975.

Table 7 indicates whether or not fees are associated with the publication. These fees may be assessed to authors or institutions, but given the open access standards of DOAJ, no fees are required for access to any of the Directory journals. The vast majority of the journals, 139

(92.053%), have no publication fees while seven journals (4.636%) do assess a fee.

Table 8 shows the number of journals that have or do not have license requirements. While it is not stated by each journal, the nature of the licenses in question that DOAJ promotes pertains to "Creative Commons" licenses, of which there are varying types. (<http://creativecommons.org/licenses/>) While licenses may exist, they do not impede user access to journal content in any way.



Table 7: Publication Fees

No.	Publication Fee	Total	Percentage (%)
1	Conditional	1	0.662
2	Information Missing	4	2.649
3	No	139	92.053
4	Yes	7	4.636
	Total	151	100.00

Table 8: Licenses for Published Items

No.	License	Total	Percentage (%)
1	No	103	68.212
2	Yes	48	31.788
	Total	151	100.00

Table 9: Institutions Publishing Journals

No.	Type of Institutions	Total	% of Records
1	Universities	65	43.046
2	Associations	18	11.921
3	Government Institutions	2	1.325
4	Other organizations	57	37.748
5	Club	1	0.662
6	Research Institutions	8	5.298
	Total	151	100.00

Table 9 indicates what types of organizations or institutions publish open access library and information science journals. Universities have the greatest number, 65 (43.046%), while government institutions, two (1.325%) and clubs, one (0.662%), have the least number. Interestingly, the "club" represented is a Chinese Internet club.

Findings and Conclusion

This bibliometric study examines library and information science journals appearing in the Directory of Open Access Journals. Nine topics are considered: subject distribution; interdisciplinary aspects; country of origin; language of publication; language patterns; commencement year of publication; fees; licenses; and types of supporting institutions. Some findings are not surprising – that most of the journals publish in English, and most originate in the United States. More interestingly, the start dates show a prolif-

eration of journals appearing in a three year period from 2004 to 2006 – 40 in all. While 2011 saw 13 new starts, the numbers have tapered off significantly in the past two years. One surprising and encouraging set of data pertains to the large number of non-English publications, or 23 in all, but there seem to be some noticeable absences of some languages. Perhaps some British Commonwealth countries of Asia and Africa have a preference for the English language, but as indigenous libraries expand and take hold, and as internet access becomes more widespread and assured, perhaps a new wave of library journal start-ups in other languages could be expected. It is interesting that no Russian language or languages used in the eastern regions of the former Soviet countries are represented in DOAJ.

Certain questions remain. While an impressive number of open access journals exist, what are the levels of readership, and what might these

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data show? What number of library and information science journals in the Directory are new start-ups and what number are digital publications of previous print-only publications? Are there certain subject areas in library and information science not yet represented in the open access environment, and how might gaps in coverage be improved?

While this study is limited to library and information science journals appearing in DOAJ, and there are many, undoubtedly, that exist which are not ostensibly open access, still the body of literature appearing in this field of research and scholarship is impressive. So it should be as libraries continue to advocate for open access, and continue to create such quality publications from around the world and in more and more languages.

Endnotes

¹ Budapest Open Access Initiative,
<http://www.budapestopenaccessinitiative.org/>

² Parveen Kumar, "A Bibliometric Study on Open Access Journals in Library Science Discipline in DOAJ," *International Journal of Information Library and Society* 2, no. 1 (2013): 21-29.

³ Mohan L. Jamdade and Pramila M. Jamdade, "A Bibliometric Study of Directory of Open Access Journals: Special Reference to Library & Information Science," *Asian Journal of Multidisciplinary Studies* 1, no. 1 (2013): 48 - 62.

⁴ DOAJ Director of Open Access Journals,
<http://www.doaj.org> (Access date 02/08/13)

