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Research Article

Journal of Documentation: A Bibliometric Study of Papers Published from 2000 to 2023

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ABSTRACT

The study aims to present a bibliometric overview of 1,278 papers published in the Journal of Documentation in a period of 24 years from 2000-2023 for chronological distribution of output, variation in impact factor and SCImago ranking of the journal. Using the method of complete count, the study examined the citation impact of the prolific countries, institutions and authors using Citation Per Paper (CPP), i-10 index and Papers not Cited (PnC%). The study also examined the pattern of citation besides identifying the highly cited papers. The results of the study reveal that an average of 53 articles per volumes were published during the study period. The impact factor and SJR of the journal fluctuated during the study period of 2000-2023. The UK contributed the highest number of articles and citation impact was highest for Switzerland. University of Sheffield (UK) topped the list of most prolific institutions with the highest number of papers. The study found the contributions from developing countries and their affiliated institutions to the journal were almost negligible.

Keywords: Bibliometrics, Scientometrics, Citation analysis, Journal evaluation, Journal of Documentation.

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INTRODUCTION

Academic journals are the most important source for providing the latest and updated information in any discipline. Thousands of academic journals are being published in different fields of science and technology as well as in social sciences including Library and Information Science (LIS). The Journal of Documentation is one of the most established and prestigious scholarly journals in the field of library and information science. The journal provides a unique focus on theories, concepts, models, frameworks and philosophies related to documents and recorded knowledge. As noted on the website of the journal, the articles published in the journal have long-lasting value, with the longest citation half-life in their SSCI category. It is a double-blind peer-reviewed academic publication and is regularly being published by Emerald Group of Publishing. David Bawden of the City University (London) is the current editor of the journal. The journal publishes scholarly articles, research reports and critical reviews. The primary audience for the journal comprises educators, scholars, researchers and policy-makers involved in the field of library and information science. The journal started as a quarterly publication in 1945 and expanded to five issues per year between 1997 and 1999. Since 2000, the journal has been published as a bimonthly publication. On the eve of its 60th anniversary in 2004, the journal published a series of review articles between 2004 and 2006. The article authored by Rachel Ivy Clarke and Sayward Schoonmaker entitled "Metadata for diversity: Identification and implications of potential access points for diverse library resources" published in the September 2019 issue of the journal has won the Association for Library Collections and Technical Services (ALCTS) outstanding publication award. The journal is indexed and abstracted in Social Science Citation Index (SSCI) of the Clarivate Analytics and Scopus of the Elsevier. The journal is also indexed in the four leading international library and information science databases as has been reflected in a study by (Garg *et al.*, 2022). The impact factor as indicated on the website of the journal for 2023 is 1.97 and the cite score of the journal based on Scopus database for 2023 is 4.2. The current study makes a comprehensive bibliometric study of 1,278 articles published in 24 volumes of the journal from 2000 to 2023. The present study may be useful to professionals of library and information science.

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REVIEW OF LITERATURE

Studying the conceptual structure of a journal in a research area can be beneficial to practitioners and academicians. Bibliometric study of a single journal is primarily intended to create a portrait of the journal that exhibits its productivity, impact and its ability in diffusing the knowledge in the specific field it portrays. In the last two decades several individual journals in the disciplines of LIS have been the focus of bibliometric studies. Readers can see bibliometric studies related to international individual journals by (Garg *et al*., 2003) for papers published in the international journal Scientometrics from 1978 to 2001, (Mukherjee *et al*., 2009) for articles published in the Journal of the American Society for Information Science and Technology (JASIST) from 2000 to 2007 (Garg and Singh 2022) for papers published in the journal Library and Information Science Research (USA) from 1994 to 2020 (Gaviria-Marin *et al*., 2018) for papers published from 1997 to 2016 in Journal of Knowledge Management (Abdi *et al.,* 2018) for papers published in Information Processing and Management from 1980 to 2015, (Gaur *et al*., 2023) for papers published from 2007 to 2021 in Journal of Informetrics respectively. Few studies related to Indian LIS journals are by (Garg *et al*., 2020) for DESIDOC Journal of Library and Information Technology (DJLIT) from 1992 to 2019, (Garg and Bebi 2021) for a bibliometric analysis of papers published in Collnet Journal of Scientometrics and Information Management from 2007 to 2019 and (Giri and Das 2023) for papers published in volume 1 (2012) to volume11 (2022) of the Journal of Scientometric Research.

Journal of Documentation (J. Doc) has been the subject of several bibliometric studies earlier also. For example, (Tsay and Shu 2011) analysed 14,174 references appended in 354 articles published in the journal from 1998-2008 (11 years). The study revealed that journal articles are the most cited documents, followed by books and book chapters, electronic resources and conference proceedings respectively. The three main classes of cited journals were papers from the discipline of library science, science and social sciences. The three highly cited subjects of library and information science journals were searching, information work and online information retrieval. (Roy and Basak 2013) examined the articles published in 36 issues of the journal published between 2005-2010 for authorship pattern, degree of collaboration, geographical distribution of papers and citation analysis. The study found a trend of growth in contributions published during the study period and that average number of contributions per volume was 41. The majority of papers were multi-authored. The geographical distribution revealed that the contributions by the United Kingdom was the highest. Most of the contributions were on information retrieval followed by information science (philosophy and theory), cataloguing and classification, knowledge and information management, etc., in that order. (Dasgupta *et al*., 2018) conducted a bibliometric analysis of publications published in J. Doc from 1991 to 2013 (25 years) using the Web of Science database. An analysis of 1,193 downloaded records found that the highest number of articles was published in 2011 and lowest in 1995 and England published the highest numbers of records. The highest number of citations was 668 in 2010 and lowest in 1996. (Mokhtari *et al*., 2020) analysed 2,394 papers published in J.Doc from its inception in 1945 to 2018. The study found an increasing trend in published papers and citations received. Also highly cited and most influential authors were well-known in the field. However, the contributions of developing countries and their affiliated institutions to the journal were relatively low. Highly frequent keywords and keyword co-occurrence patterns showed that the journal considered most topics related to LIS, including newly emerged ones. The authors and sources (generally journals) cited in the journal are all prolific and influential ones. (Dhanaraju and Vemulapalli 2021) examined 672 articles published in 10 years between 2011 and 2020. The study found that the highest numbers of articles were published in 2019. The distribution of papers demonstrates that writers with academic affiliations published more articles and that the study's highest number of articles published is more than 20 pages and 2019 has the most articles and citations and according to author credibility, LIS scholars have contributed the most over the research period. Foreign authors were heavily involved in the publication of the majority of articles. (Durgannavar *et al.,* 2022) conducted a bibliometric analysis of 1,706 articles published in J.Doc from 1970 to 2019 using the Scopus database. The study found that annual scientific production and average citations constantly had an uptrend. The journal's had tremendous impact in terms of citations (37,161) with an h-index of 80 and a g-index of 148. The United Kingdom was the dominant country in terms of number of papers and citation count. University of Sheffield (UK) topped the list with 128 publications. The thematic map consists of eleven clusters and 'information retrieval' was found to be the largest cluster comprehending 56 sub-themes occurring 995 times. Co-citation network identified four clusters with Wilson TD as the most cited authors. The study also found that the most collaborative authors are from the United Kingdom. The present study is different from the above quoted studies as it uses different bibliometric parameters not used in the above quoted studies. These parameters are i-10 index suggested by Google Scholar and papers not cited (PnC %). Also the present study uses a longer time period of study than above cited studies except the studies by (Mokhtari *et al.,* 2020) and (Durgannavar *et al*., 2022) However, these studies are silent on the counting methodology used in the data analysis.

OBJECTIVES

Following are the objectives of the study:

Type of documents used for dissemination of results in the journal under study;

Chronological distribution of output from 2000 to 2023 in eight blocks, each of three years;

Pattern of Impact Factor (IF) and SJR of the journal from 2000 to 2023;

Most productive countries, institutions and authors and their citation impact in terms of Citation Per Paper (CPP), i-10 index and PnC% (Papers not Cited %) using citations as obtained from Web of Science database;

Change in the pattern of authorship during the study period;

Pattern of citations and identification of highly cited authors based on citations received.

METHODOLOGY

Web of Science (WoS) and Scopus are the two main bibliographic databases for publication metadata and citation data. The publication and citation data used in the present study was downloaded from the Web of Science core collection on March 5, 2024 using "Journal of Documentation" in the "Publication title" tag for the time period from 01.01.2000 to 31.12.2023. This query resulted in 1,814 records. Data was extracted from WoS core collection in CSV format and bibliometric analyses were done using Microsoft Excel. Authors have used the method of complete count for publication and citation analysis. Under this method, each country or institution or authors in multi-authored papers are given unit credit for their contributions, unlike first author count, where only the first author gets the credit. The method of complete count inflates the number of contributions and citations. In the present study also, the actual number of papers was 1,278 and increased to 2,678 using the complete count method. Downloaded data consisted of the name of all the authors along with their affiliation(s), year of publication of the paper; and citations received by each paper. The study examined the different bibliometric parameters mentioned under the objectives above under head 3.

RESULTS AND ANALYSIS

Type of documents used for dissemination of results

During the 24 years period of study from volume 56 (2000) to volume 79 (2023), the journal published 1,814 records. Of the 1,814 records, 1210 (66.7%) were articles and 68 (3.7%) reviews. Articles and reviews constituted 1,278 (70.4%) records. Other type of documents which were published in the journal were book reviews (432, 23.8%), editorial material (82, 4.5%), reprint (11, 0.60%), biographical items (4), letters (4), correction (2) and bibliography (1). In the present study, authors have included only articles and reviews and did not include other types of documents in the analysis as their impact in terms of citations is negligible.

Chronological distribution of output from 2000-2023

Table 1 presents the distribution of output for 24 years from 2000 to 2023 in eight different blocks of three years each. This grouping is done to avoid the yearly fluctuation in data which may result in an incorrect pattern of literature growth. During the study period from 2000 to 2023, the journal published 1,278 articles and reviews. Thus, on an average about 53 records were published in each volume. Data depicted in Table 1 indicates that the journal published less than average number of articles per block in the first five blocks, the lowest being in the first two blocks of 2000-2002 and 2003-2005. The number of articles started increasing from the third block of 2006-2008 and the highest number of articles were published in the last block of 2021-2023 in which the journal published almost one-fourth (23.2%) of all records. In the last two blocks, the journal published about 40% of total records. Table 1 also indicates that in terms of the absolute output, the number of papers is increasing; however, the rate of growth of published articles is inconsistent. Highest rate of growth (65.5%) was during the block of 2018-2020.The quantum of output increased more than three times in the last block of 2021-2023 as compared to the first block of 2000-2002.

Table 1: Chronological distribution of output in block of three years.

Year	Articles	Reviews	Total	Total (%)	Annual Growth rate
2000-2002	84	6	90	7.04	-
2003-2005	88	6	94	7.5	4.5
2006-2008	110	7	117	9.2	24.5
2009-2011	122	7	129	10.1	10.3
2012-2014	133	4	137	10.7	6.2
2015-2017	186	8	194	15.2	41.6
2018-2020	211	10	221	17.3	65.5
2021-2023	276	20	296	23.2	33.9
Total	1210	68	1278		

Average output per year=1278/24=53.25.

Impact Factor and SCImago Journal Ranking (SJR) from 2000-2023

Impact Factor (IF)

Impact factor is the most used journal ranking indicator. It was suggested by (Garfield 1972), the founder of the Science Citation Index now Web of Science. The variation of the impact factor of the journal from 2000 to 2022 is depicted in Figure 1. The data depicted in Figure 1 indicates a highly fluctuating trend of impact factor from 2000 to 2022. The lowest value of impact factor (0.96) is in the year 2005. An increasing trend has been observed after 2005 with a peak in the year 2010. A declining trend is observed again after 2010 with another peak in 2015. However, a continuous rising trend is visible from 2016 onwards with a peak of 2.97 (~3) in the year 2022.

SCImago Journal Rank (SJR)

The SJR[19] indicator is ameasure of the prestige ofscholarly journals that accounts for both the number ofcitations received by a journal and the prestige of the journals where the citations come from. It has been suggested as an alternative to the journal impact factor of the Web of Science. However, it is not as popular as the journal impact factor. The SJR also shows a fluctuating trend like the impact factor. The highest (1.648) value of SJR is in the year 2001, after which it shows a declining trend. The value of SJR is more than one in the years 2002-2004 and 2012. In the remaining years the value of SJR is less than one and is lowest in the year 2016. However, the journal remained in Quartile one (Q1) during the entire study period.

Prolific countries and impact of their output

Productivity

An analysis of data indicates that 62 countries scattered in different continents of the globe contributed to the total output. Of the 62 countries, the highest numbers of countries (30) were located in Europe followed by Asia with 19 countries. Remaining 13 countries were located in Africa (7), North America (4) and Oceania (2). Table 2 depicts the publication and citation data for the most productive 28 countries which produced half-percent or more papers each along with their impact in terms of Citations Per Paper (CPP), i-10 index and papers not cited (PnC %). These 28 prolific countries accounted for 96.3% of the total output. The remaining 34 non-prolific countries contributed only 100 (3.7%) of the total output. The pattern of output indicates a highly skewed distribution of research output of the prolific countries as it varied considerably in the range of 13 and 735 papers. The output of non-prolific countries also indicates a highly skewed distribution of output as it varied in the range of one to 10 papers. Among the 28 prolific countries listed in Table 2, the United Kingdom (UK) produced the highest number of publications contributing slightly more than one-fourth (27.4%) of the total output. This was followed by the output from the USA, which published a much less number of papers as compared to the UK. These two countries together produced slightly less than half (45.5%) of the total output. The remaining 26 countries listed in Table 2 contributed about half (50.8%) papers in the range of 13 to 171 papers. It also indicates a skewed distribution of publication output. One of the possible reasons for the high number of papers from the UK may be because the journal is published from the UK and several members of the editorial board are from the institutions located in the UK resulting in more number of papers. The UK was also found to be the highest publishing country in the studies by (Mokhtari *et al*., 2020) (Durgannavar *et al*., 2022).

Other 34 countries: Iran (10), Estonia (8), Poland and Serbia each (6), Lithuania, Russia, Turkey, India, Republic of Korea and South Africa each (5), Czech Republic, Malta and Mexico each (4), Iceland, Portugal, Slovakia, Hong Kong, Nigeria, Vietnam and Namibia each (2), Bahrain, Bulgaria, Cyprus, Kuwait, Oman, Saudi Arabia, Thailand, United Arab Emirates, Cuba, Chile, Egypt, Ghana, Tanzania and Uganda each (1).

Impact: Impact of output has been examined using three different indicators. These are citations per paper, i-10 index and papers not cited (PnC %). Details of these have been described below.

Citation per paper: The value of CPP for the global output is 16.5. Data presented in Table 2 indicates that only the UK, Finland, Canada, Denmark, Australia, Austria, Greece and Switzerland had a higher value of CPP than 16.5. Among all the listed countries in Table 2, the value of CPP is highest for Switzerland followed by Greece. The value of CPP is almost equal for the UK and Australia. Switzerland had the highest value of CPP, because of the 18 papers published by Switzerland 11 were cited 10 or more times. CPP was lowest for Brazil and Italy. Brazil had a low CPP because of the 23 published papers only one paper was cited 10 or more times. Similarly, for Italy, five of the 34 papers were cited 10 or more times.

i-10 Index: Of the total 2,678 papers published during the study period, 1,104 (41%) papers were cited 10 or more times. Of the total 28 prolific countries (Table 2), 12 countries had a share of papers with i-10 index equal or more than 41%. The highest proportion of papers cited 10 or more times were contributed by Greece (80%) followed by Austria (71.4%) and Switzerland (61.1%). Other countries for which the share of i-10 index is more than 41% in decreasing order are the UK (51.8%), Germany (50.7%), Denmark (50%), Spain (48.2%), Finland (46.2%), the Netherlands (44.4%), Norway (44.1%), Croatia (42.9%) and Singapore (42.4%). i-10 index for the remaining 16 countries is less than 41% and is the lowest for Brazil.

Papers not cited (PnC %): Of the 2,678 papers included in the study, only a minuscule proportion (8.4%) papers remained uncited and the rest were cited one or more times. Among all the countries, Hungary contributed 46% of papers which

Table 2: Distribution of output and impact of most prolific countries.

Sl No#	Country	TNP	TNC	CPP	i-10 index (%)	PnC (%)
1.	UK	735 (27.4)	15427	21.0	381 (51.8)	41 (5.6)
2.	USA	484 (18.1)	6145	12.7	158 (32.6)	53 (11.0)
3.	Finland	171 (6.4)	3377	19.7	79 (46.2)	10 (5.8)
4.	China	167 (6.2)	1257	7.5	48 (28.7)	30 (18.0)
5.	Sweden	135 (5.0)	1733	12.8	54 (40.0)	11 (8.1)
6.	Canada	110 (4.1)	1981	18.0	42 (38.2)	5 (4.5)
7.	Denmark	108 (4.0)	2090	19.4	54 (50.0)	17 (15.7)
8.	Australia	90 (3.4)	1925	21.4	33 (36.7)	5 (5.6)
9.	Germany	69 (2.6)	1043	15.1	35 (50.7)	7 (10.1)
10.	Norway	68 (2.5)	1013	14.9	30 (44.1)	6 (8.8)
11.	Spain	56 (2.1)	688	12.3	27 (48.2)	1 (1.8)
12.	The Netherlands	45 (1.7)	682	15.2	20 (44.4)	0 (0.00)
13.	Belgium	39 (1.5)	302	7.7	11 (28.2)	9 (23.1)
14.	Italy	34 (1.3)	199	5.9	5 (14.7)	4 (11.8)
15.	Singapore	33 (1.2)	244	7.4	14 (42.4)	4 (12.1)
16.	Slovenia	32 (1.2)	317	9.9	13 (40.6)	2 (6.3)
17.	Brazil	23 (0.9)	100	4.3	1 (4.3)	5 (21.7)
18.	Austria	21 (0.8)	475	22.6	15 (71.4)	0 (0.00)
19.	Greece	20 (0.7)	557	27.9	16 (80.0)	0 (0.00)
20.	Switzerland	18 (0.7)	2114	117.4	11 (61.1)	0 (0.00)
21.	Taiwan	18 (0.7)	168	9.3	5 (27.8)	0 (0.00)
22.	Japan	17 (0.6)	190	11.2	4 (23.5)	1 (5.9)
23.	Israel	16 (0.6)	162	10.1	5 (31.3)	0 (0.00)
24.	Croatia	14 (0.5)	203	14.5	6 (42.9)	1 (7.1)
25.	France	14 (0.5)	149	10.6	4 (28.6)	3 (21.4)
26.	Ireland	14 (0.5)	116	8.3	4 (28.6)	0 (0.00)
27.	New Zealand	14 (0.5)	116	8.3	4 (28.6)	0 (0.00)
28.	Hungary	13 (0.5)	138	10.6	4 (30.8)	6 (46.2)
Sub-total		2578 (96.3)	41,917	16.3	1083 (42.0)	221 (8.5)
Other 34 countries		100 (3.7)	2272	22.7	21 (18.9)	4 (4.4)
Total		2678 (100.0)	44189	16.5	1104 (41.2)	225 (8.4)

remained uncited. More than 15% papers remained uncited for Belgium (23.1%), Brazil (21.7%), France (21.4%), China (18%) and Denmark (15.7%) in that order. For remaining countries, the share of uncited papers was less than 15%. No paper remained uncited for Austria, Greece, Switzerland, Taiwan, Israel, Ireland and New Zealand.

Prolific institutions and impact of their output

An analysis of data for institutional productivity found that 562 institutions located in different parts of the globe produced the total output. Average number of institutions per paper is 2678/562=4.8. Prolific institutions producing 25 (~ 1%) or more of the output have been listed in Table 3. The 21 institutions listed in Table 3 produced more than one-third (39.2%) of the global output and received about 44.2% of all the citations. Remaining 541 institutions produced 60.8% of the total output and received about 55.8% of all citations. Of the 21 institutions listed in Table 3, seven were located in the UK and remaining 14 institutions were located in USA and Sweden three each, China (2) and one each in Canada, Denmark, Finland, Norway, Singapore and Slovenia. University of Sheffield topped the list of contributing institutions. It also ranked first in the study undertaken by (Durgannavar *et al.*, 2022) The CPP for these 21 prolific institutions is 18.6, which is slightly higher than the

Table 3: Distribution of output and impact of most prolific institutions.

Sl No	Institution	TNP	TNC	CPP	i-10 index (%)
1.	University of Sheffield (UK).	132 (4.9)	3131	23.7	74 (56.1)
2.	Loughborough University (UK).	97 (3.6)	1911	19.7	52 (53.6)
3.	University of Tampere (Finland).	85 (3.2)	2164	25.5	47 (55.3)
4.	University of Copenhagen (Denmark).	84 (3.1)	1980	23.6	49 (58.3)
5.	University College London (UK).	78 (2.9)	2148	27.5	47 (60.3)
6.	City University of London (UK).	76 (2.8)	1872	24.6	46 (60.5)
7.	University of Strathclyde (UK).	65 (2.4)	1253	19.3	37 (56.9)
8.	University of Boras (Sweden).	43 (1.6)	703	16.3	19 (44.2)
9.	Robert Gordon University (UK).	40 (1.5)	457	11.4	16 (40.0)
10.	Nankai University (China).	34 (1.3)	268	7.9	8 (23.5)
11.	Wuhan University (China).	33 (1.2)	254	7.7	11 (33.3)
12.	Rutgers, The State University of New Jersey (USA).	32 (1.2)	424	13.3	10 (31.3)
13.	University of Wolverhampton (UK).	31 (1.2)	422	13.6	13 (41.9)
14.	Nanyang Technological University (Singapore).	30 (1.1)	218	7.3	12 (40.0)
15.	Drexel University (USA).	29 (1.1)	282	9.7	10 (34.5)
16.	Oslo Metropolitan University (Norway).	29 (1.1)	365	12.6	11 (37.9)
17.	University of Ljubljana (Slovenia).	28 (1.0)	287	10.3	12 (42.9)
18.	Western University (Canada).	28 (1.0)	635	22.7	11 (39.3)
19.	Lund University (Sweden).	26 (1.0)	405	15.6	14 (53.8)
20.	University of Texas at Austin (USA)	25 (0.9)	194	7.8	6 (24.0)
21.	Uppsala University (Sweden)	25 (0.9)	173	6.9	5 (20.0)
Sub-total		1050 (39.2)	19546 (44.2)	18.6	510 (48.6)
Other 541 institutions		1628 (60.8)	24643 (55.8)	15.1	614 (37.7)
Total		2678 (100.0)	44189 (100)	16.5	1124 (42.0)

global value of CPP, indicating that these institutions received more citations than expected. Among these institutions, the value of CPP is highest (27.5) for University College, London closely followed by University of Tampere, Finland with a CPP value of (25.5) and City University London (24.6). University of Tampere, Finland also ranked second in terms of CPP for papers published in the journal of "Library and Information Science Research" by (Garg and Singh 2022). The CPP was less than the global CPP for 13 institutions. The CPP was less than 10 for Nankai University (China), Wuhan University (China), Nanyang Technological University (Singapore), University of Texas at Austin (USA), Uppsala University (Sweden) and Drexel University (USA). It indicates that the research output of these institutions does not commensurate with the impact.

i-10 index: Of the 1050 papers published by the 21 prolific institutions, slightly less than half (510, 48.6%) papers were cited 10 or more times. The highest share of papers cited 10 or more times were contributed by University College London (UK) and City University of London (UK). Sixty percent of papers published by these two universities were cited 10 or more times. More than fifty percent of papers published by University of Sheffield (UK), Loughborough University (UK), University of Tampere (Finland), University of Copenhagen (Denmark), University of Strathclyde (UK) and Lund University (Sweden) were cited 10 or more times. For the remaining 13 institutions, the proportion of papers cited 10 or more times was less than 50%. Like CPP, the lowest number of papers cited 10 or more times was for Uppsala University (Sweden). Only 20% of papers published by Uppsala University (Sweden) were cited 10 or more times.

Prolific authors and the impact of their output

The total output was produced by 1,841 authors. Thus, the average number of authors per paper is 1.5. Table 4 lists 15 prolific authors contributing eight or more papers during the study period of 2000-2023. Of the 15 prolific authors, seven were from the UK. The remaining eight authors were from Finland (2) and one each from USA, Denmark, China, Singapore, Slovenia and Sweden. Of the 15 prolific authors two each were from University of Tampere (Finland) and Loughborough University (UK). Remaining 11 authors were scattered among other 11 institutions scattered in

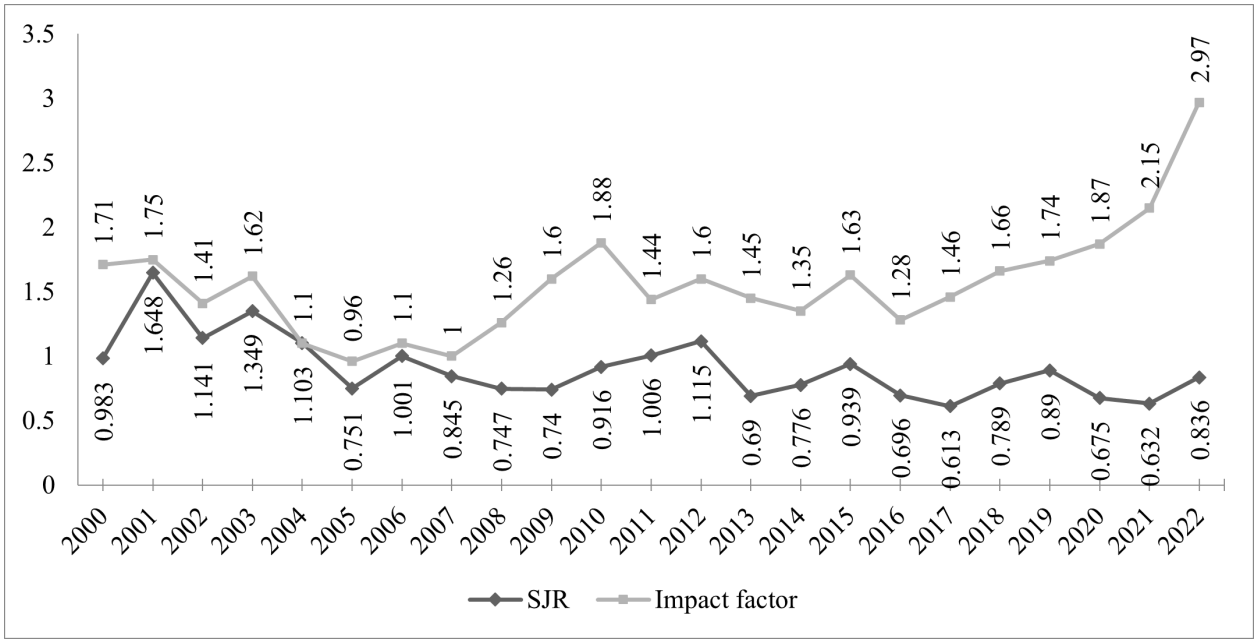

Figure 1: Trend of Impact Factor and SCImago Journal Ranking (SJR) from 2000 to 2022.

different parts of the globe. These 15 prolific authors published 191 (7.1%) papers. The remaining 92.9% papers were contributed by 1,826 authors indicating a highly skewed distribution of author productivity. Of the 1,826 authors, 1447 (~ 79.2%) authors produced one paper only whereas the remaining 379 (20.7%) authors produced two to seven papers. Savolainen, Reijo of the University of Tampere (Finland) topped the list of the most prolific authors with 24 papers. He was also found to be one of the most prolific authors ranking second for papers published in the journal "Library and Information Science Research" during 1994-2020. CPP is higher than global value (16.5) for eight authors and for the remaining 7 authors; it is less than the global value. Among all the authors, CPP is highest (67.3) for Hjorland, B of the University of Copenhagen (Denmark). Ford, N of the University of Sheffield (UK) ranked second in ranking based on CPP. The value of CPP is lowest for Luyt, Brendan of the Nanyang Technological University. Singapore. CPP is also less than 10 for Huvila, Isto (Uppsala University, Sweden) and Gorichanaz, Tim (Drexel University, USA). Authors explored the reason for the high values of CPP for different authors. It is observed that 80% papers published by Hjorland, B were cited 10 or more times and almost an equal proportion (78%) of papers published by Ford, N were also cited number 10 or more times. Other authors for whom the proportion of papers cited 10 or more times is 50% or more are Thelwall, Mike of the University of Wolverhampton (UK), Zumer, M. of the University of Ljubljana (Slovenia). However, Zumer, M. had a low value of CPP as compared to Hjorland, B and Ford, N.

Pattern of citations and highly cited papers

Citation counts are used to examine the impact of each article published in the journal by making a count of the number of times these are cited by other articles. Citation counts are used to evaluate the influence of an article by determining how often it has been cited by other researchers. High number of citations to a publication is considered as an indication of influence, visibility and impact. An author's visibility can be measured by determining how often his/her articles have been cited in other articles. Table 5 depicts the citation pattern of papers published in the journal during 2000-2024 (March 5, 2024). During this period, 1,278 papers received 22,204 citations. Of the total papers included in the analysis only a minuscule number of 111(8.7%) papers remained uncited and the remaining papers were cited one or more times. Table 5 depicts details of the pattern of citations. Of the total cited papers, about one-third (33.8%) were cited between 1-5 times. Only 25 papers received 100 or more citations. Of these only nine papers were cited more than 200 times. Table 7 lists 25 papers that were cited 100 or more times.

Highly cited papers

Table 6 lists 25 papers cited 100 or more times. These 25 papers attracted more than one-fourth (26.7%) of all citations. These 25 papers originated from different institutions located in different parts of the globe. The highest number of highly cited papers was from the UK (8), Finland and Australia each four, USA (3), Denmark (2) and one each from Switzerland, Canada, Turkey and Norway. Two most highly cited papers which received more than 500 citations originated from Swiss Federal Institute

Table 4: **Highly prolific authors and impact of their output.**

Sl No	Author	Institution	TNP	TNC	CPP	i -10 index (%)
1.	Savolainen, R	University of Tampere, Finland.	24 (0.9)	570	23.8	13 (54.2)
2.	Vakkari, P	University of Tampere, Finland.	19 (0.7)	543	28.6	9 (47.4)
3.	Ford, N	The University of Sheffield, UK.	18 (0.7)	602	33.4	14 (77.8)
4.	Thelwall, Mike	University of Wolverhampton, UK.	16 (0.6)	379	23.7	11 (68.8)
5.	Robinson, Lyn	City University London, UK.	15 (0.6)	320	21.3	9 (60.0)
6.	Oppenheim, C	Loughborough University, UK.	14 (0.5)	361	25.8	8 (57.1)
7.	Cox andrew	The University of Sheffield, UK.	12 (0.4)	169	14.1	6 (50.0)
8.	Gorichanaz, Tim	Drexel University, USA.	10 (0.4)	96	9.6	4 (40.0)
9.	Hjorland, B	University of Copenhagen, Denmark.	10 (0.4)	673	67.3	8 (80.0)
10.	Yu, Liangzhi	Nankai University, China.	10 (0.4)	115	11.5	4 (40.0)
11.	Luyt, Brendan	Nanyang Technological Univ. Singapore.	9 (0.3)	43	4.8	3 (33.3)
12.	Ruthven, Ian	University of Strathclyde, UK.	9 (0.3)	196	21.8	4 (44.4)
13	Zumer, M	University of Ljubljana, Slovenia.	9 (0.3)	126	14.0	6 (66.7)
14	Huvila, Isto	Uppsala University, Sweden.	8 (0.3)	72	9.0	2 (25.0)
15	Morris, A	Loughborough University, UK.	8 (0.3)	113	14.1	2 (25.0)
Sub-total			191	4378	22.9	103
Percent contributions			7.1	9.9	-	53.9
Other 1826 authors contributed 1-7 papers			2487	39811	16.01	1001
Percent contributions			92.9	91.9	-	40.2
Total			2678 (100)	44189 (100)	16.50	1104 (41.2)

Table 5: **Pattern of citations.**

Number of citations	Number of Papers (%)	Total citations
Uncited	111 (8.7)	0
1	89 (7.0)	89
2	89 (7.0)	178
3	86 (6.7)	258
4	100 (7.8)	400
5	68 (5.3)	340
6-10	246 (19.2)	1907
11-20	217 (17.0)	3156
21-30	87 (6.8)	2179
31-40	66 (5.2)	2296
41-50	38 (3.0)	1702
51-99	56 (4.4)	3763
>100	25 (2.0)	5936
Total	1278 (100.0)	22204

of Technology Zurich (Switzerland) and Microsoft Research, Cambridge (UK).

Since the number of citations received depends upon the citation window, i.e., the time period for which citations were calculated. The variation in citations was normalized by using Citation per Year (CPY) used by (Garg and Tripathi 2017). Analysis of data based on CPY results in a change in the ranking of authors based on total citations. The rank remained unchanged for the

Table 6: Highly cited papers.

Sl No	Bibliographic details	Affiliation	TNC	CPY (Rank)
1.	L Bornmann, and HD Daniel *J. Doc., 64*(1), 2008, 45-80.	Swiss Federal Institute of Technology Zurich (Switzerland).	857	57 (1)
2.	S Robertson *J. Doc., 60*(5), 2004, 503-520.	Microsoft Research, Cambridge (UK).	678	36 (2)
3.	D Bawden *J. Doc., 57*(2), 2001, 218-259.	City University London (UK).	421	22 (3)
4.	K Sparck Jones *J. Doc., 60*(5), 2004, 493-502.	University of Cambridge (UK).	420	19 (5)
5.	Z Liu *J. Doc., 61*(6), 2005, 700-712.	San Jose State University (USA).	360	20 (4)
6.	B Hjorland *J. Doc., 58*(4), 2002, 422-462	University of Copenhagen (Denmark).	309	15 (6)
7.	PJ McKenzie *J. Doc., 59*(1), 2003, 19-40.	The University of Western Ontario (Canada).	300	15 (6)
*8.	$A. Foster, and # N. Ford *J. Doc., 59*(3), 2003, 321-340.	$University of Wales (UK) #University of Sheffield, (UK).	268	13 (9)
*9.	$S Talja, #K Tuominen, and $R Savolainen J. Doc., 61(1), 2005, 79-101.	$University of Tampere (Finland) #Library of Parliament (Finland).	201	11 (12)
*10.	$M Baptista Nunes, $F Annansingh, $B Eaglestone, and #R Wakefield J. Doc., 62(1), 2006, 101-119.	$University of Sheffield (UK) #Kusala Web Developments Ltd, Sheffield (UK).	200	12 (11)
11.	P Vakkari *J. Doc., 57*(1), 2001, 44-60.	University of Tampere (Finland).	167	8 (18)
12.	SS Kurbanoglu,B Akkoyunlu, and A Umay *J. Doc., 62*(6), 2006, 730-743.	Hacettepe University (Turkey).	161	9 (16)
13.	A Lloyd *J. Doc., 62*(5), 2006, 570-583.	Charles Sturt University (Australia).	150	9 (16)
14.	P Vakkari, N, and Hakala *J. Doc., 56*(5), 2000, 540-562.	University of Tampere (Finland).	148	6 (20)
15.	A Lloyd, M Anne Kennan, KM Thompson, and A Qayyum *J. Doc., 69*(1), 2013, 121-144.	Charles Sturt University (Australia).	139	14 (8)
16.	A Lloyd *J. Doc., 66*(2), 2010, 245-258.	Charles Sturt University (Australia).	133	10 (13)
17.	P Borlund *J. Doc., 56*(1), 2000, 71-90.	University of Copenhagen (Denmark).	130	6 (20)
*18.	$SA Williams,#MM Terras, and #C Warwick *J. Doc., 69*(3), 2013, 384-410.	$University of Reading (UK) #University College London (UK).	127	13 (9)

Sl No	Bibliographic details	Affiliation	TNC	CPY (Rank)
19.	R Audunson *J. Doc., 61*(3), 2005, 429-441.	Oslo University College (Norway).	120	7 (19)
20.	C Ross,M Terras, C Warwick, and A Welsh *J. Doc., 67*(2), 2011, 214-237.	University College London (UK).	117	10 (13)
21.	S Talja, and H Maula *J. Doc., 59*(6), 2003, 673-691.	University of Tampere (Finland).	117	6 (20)
*22.	$S Boon, $B Johnston, and #S Webber *J. Doc., 63*(2), 2007, 204-228.	$University of Strathclyde (UK) #University of Sheffield (UK).	107	7 (19)
23.	C Prabha,LS Connaway, L Olszewski, and LR Jenkins *J. Doc., 63*(1), 2007, 74-89.	OCLC Online Computer Library Center, Inc. (USA).	105	7 (19)
24.	A Catalano *J. Doc., 69*(2), 2013, 243-274.	Hofstra University (USA).	101	10 (13)
25.	A Lloyd *J. Doc., 65*(3), 2009, 396-419.	Charles Sturt University (Australia).	100	7 (19)
Total			5936	

*Papers published in domestic collaboration.

Table 7: Pattern of authorship in the journal during different periods.

Period	Single authored papers (CAI)	Two-authored papers (CAI)	Multi-authored papers (CAI)	Total
2000-2005	94 (120)	51 (90)	39 (79)	184
2006-2011	113 (108)	85 (113)	48 (73)	246
2012-2017	148 (105)	107 (105)	76 (86)	331
2018-2023	188 (86)	149 (94)	180 (130)	517
Total	543	392	343	1278

top seven authors, but changed for the remaining authors. For example, the author ranked at 15 changed to rank 8 if arranged by CPY. Similarly, the change in ranking of other papers can be seen in Table 6. Of the 25 highly cited papers five papers were authored in domestic collaboration (# 8, 9, 10, 18 and 22).

Co-authorship Index

This measure was suggested by (Garg and Padhi 2011). The methodology is similar to one used to calculate Activity Index (AI) suggested by (Frame 1977) and elaborated by (Schubert and Braun 1986). This is a technique for normalization of absolute data. It indicates the type of co-authorship that dominates the pattern of authorship. For details of co-authorship index readers can see (Garg and Padhi 2001). To calculate CAI, authors have divided the period of 24 years in four blocks each of six years. Data presented in Table 7 indicates single authored papers dominated in the beginning period of 2000-2005, while two authored papers dominated during the period of 2006-2011 and multi-authored papers dominated in the last phase of 2018-2023. This indicates that no uniform pattern of authorship is being observed during the study period.

DISCUSSION AND CONCLUSION

The Journal of Documentation is one of the most established and prestigious scholarly publications in the field of library and information science and is regularly being published since 1945 by Emerald Group of Publishing. The present study examined the chronological pattern of the growth of output, variations in impact factor and SCImago ranking (SJR) of the journal during 2000-2023 and identified most prolific countries, institutions and authors and their citation impact in terms of citation per paper, i-10 index and papers not cited (PnC%). The study also examined citation patterns of papers besides identifying highly cited papers. The study found that the journal published 1,278 articles and reviews with ~53 numbers of contributions per volume. The study found an increasing trend in published papers, with the lowest

number of papers in the first block of 2000-2002 and the highest number of articles in the last block of 2000-2023. The quantum of output increased more than three times in the last block of 2021-2023 as compared to the first block of 2000-2002. The geographical distribution revealed that 62 countries contributed to the journal with the highest share of papers from European countries. The United Kingdom, the publishing country of the journal, was the dominant country in terms of number of papers and University of Sheffield (UK) topped the list of the most prolific institutions. Most of the prolific institutions and authors were also from European countries like the publishing countries. Based on this, one can say that the journal is highly Eurocentric. The pattern of output indicates a highly skewed distribution of research output for countries, institutions and authors. Global value of CPP is 16.5 and it is the highest for Switzerland followed by Greece. The lowest i-10 index is for Brazil. The value of CPP is the highest for University College London followed by University of Tampere (Finland). However, the i-10 index is highest for the University of Sheffield. Savolainen, Reijo of the University of Tampere (Finland) topped the list of the most prolific authors with 24 papers. Pattern of citations indicates that only a small number of papers remained uncited and the remaining papers were cited one or more times. Of the 25 papers that received 100 or more citations, eight were from the UK and remaining 17 were from other eight countries. Two most highly cited papers which received more than 500 citations originated from Swiss Federal Institute of Technology Zurich (Switzerland) and Microsoft Research, Cambridge (UK). Analysis of data for the pattern of co-authorship indicates that single authored papers dominated in the beginning period of 2000-2005, while two authored papers dominated during the period of 2006-2011 and multi-authored papers dominated in the last phase of 2018-2023. This indicates that no uniform pattern of authorship is being observed during the study period.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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