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Research Productivity of College and Research Library Journal: A Bibliometric Study

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Abstract

The study analyses research productivity of College and Research Library Journal from 2012 to 2021 using bibliometric method. The journal published 808 research papers within the period. The published papers were analysed to determine, the type of document published, chronological distribution of published documents, authorship pattern, most productive articles and the subject coverage of published articles. The result of the study revealed that the types of documents published in C&RL include articles, book reviews, editorial materials, errata and letters. Articles and book reviews were highly published. There was a gradual and unsteady rise in publication within the period with 31.19% rate of increase. The average author per paper was 2.03 and the degree of collaboration was 0.58. The most productive article in C&RL from 2012 to 2021 has a citation of 256. The areas mostly covered in C&RL are Information Literacy, Library Personnel, Organization and Management, Scholarly Communication, Information Behaviour and Library Collection.

Keywords: Bibliometrics, Research Productivity, Authorship Pattern, academic journal, C&RL and Academic Research

Introduction

The major criteria for measuring authors' impact on their field are the number of times the author has published, and the number of times the articles were cited by other researchers. Researchers, especially those in the academia are expected to regularly publish as a way of promoting growth and recognition within their specific fields. A lot of scholars believe that publishing their academic research articles in renowned journals will make them gain personal recognition while contributing to the overall body of knowledge in their profession. Research also promotes growth and recognition among librarians. Ibegbulam and Eze (2016) believe that librarians who do research are more attuned to change and have more successful dealings with their faculty than those who do not research. The level of visibility of librarians however, depends on the academic journal where they publish their articles. There

are lots of journals in the field of library and information science among which is the College and Research Library (C&RL).

College and Research Library (C&RL) is a bimonthly peer-reviewed academic journal published by the Association of College and Research Libraries; a division of American Library Association. It was established in December 1939 and was published quarterly for its first 18 years, then bimonthly since 1956. It publishes articles that are intended to help academic librarians build an intellectual framework to serve the needs of colligate users. The journal becomes an open access in 2011. College and research library publishes original research on all aspects of academic librarianship, including academic library collections and services, digital library assessment, library leadership, libraries and information technology in higher education, scholarly and professional publications in library and information science and library and information science education. Its publication house is located in United States. C&RL is abstracted and indexed in SCOPUS, Social Science Citation Index, Library and Information Science Abstract and so many others. Its coverage history is from 1946 to 1947 and from 1987 till date (Wikipedia, 2022).

College and Research library is one of the leading journals in library and information science. According to Scimago Journal Rank (an indicator which measures the scientific influence of a journal by considering the number of citations received by the journal and the importance of the journals from where this citation comes), this journal is ranked 3.547 and 3.330 in 2013 and 2014 respectively. C&RL has an H-Index of 55 which means that 55 articles of C&RL Journal have more than 55 citations. It is particularly interesting therefore to study the publications of this journal within an extensive period. The analysis of an extensive period of output of the journal can help gain a clear picture of the trend in LIS research. It can also help in determining the evolution and progress of the journal as well as library profession.

Objectives of the study

The study analyses the publication output of College and Research Library to determine its productivity patterns and trend. Specifically, the study determines:

1. the type of published documents in C&RL Journal from 2012 to 2021
2. the chronological distribution of publications of C&RL Journal
3. the authorship pattern of published document
4. the most productive articles published in C&RL Journal from 2012 to 2021
5. To examine the subject coverage of the articles.

Review of Literature

Bibliometric Analysis

Library and information science has greatly changed its fields of knowledge and application in relation to scientific evolution. LIS research subsequently changed from traditional areas of research to more diversified areas. The research interest of LIS professionals is mainly on current emerging areas, such as status surveys, user studies, bibliometric studies, ICT application, scientometric studies, library automation and citation studies (Bhanu Partap, 2015). However, the present explorations of bibliometrics (a broader term for scientometrics and citation study) bring extensive insight into significant issues from various fields of study. Bibliometric analysis is a quantitative analysis of various forms of literature. It can also be seen as the numerical analysis of publications produced by individuals, institutions or other corporate entities in a certain area within a certain period of time as well as the cross-science of quantitative analysis of all knowledge carriers with mathematical and statistical methods (Zhang and Kouthra, 2021). Bibliometrics methods are most often used in the field of library and information science though many research fields use bibliometrics methods to explore the impact of their field.

Bibliometric analysis can be used as a tool for identifying core research areas or authors. It can also be used to identify the pattern of publications, authorship, citations, and journal coverage with the hope to give an insight into the dynamics of the field under consideration (Warraich and Ahmad, 2011). Bibliometric analysis is also useful in evaluating scholarly communication with the intent of finding or establishing links or relationships with other studies, researchers, scholars, institutions and corporations. This study therefore adopts bibliometric methods in analysing the research productivity of College and Research Library from 2012 to 2021.

Related Empirical Studied

Muhammad, Nusrat, Sanila and Nadeem (2021) conducted a bibliometric study on research output of the Library Quarterly (QL) Journal from 2010 to 2019. A total of 469 publications were published in LQ during the period. Six different types of documents were published in LQ during this time period. Articles and book reviews were highly published accounting for 213(45.416%) each. The article published by Drabinski, Emily gained the highest total citations (55) in numbers in the year 2013. Waqar, Akhtar, Nadeem and Haroon (2021) worked on bibliometric analysis of research publication of Library Management Journal from

2013 to 2021. A total of 369 documents were published in the journal between the time span of 2013 to 2020. These 369 documents include 339(91.87%) articles, 25(6.78%) review papers and 4(1.08%) editorials. 158(42.81%) documents were single authored publications. average author per document was 1.74

Shukla and Verma (2018) conducted an analysis on articles published in the Library Herald between the period of 2008 and 2017. A total of 222 published articles were examined and analyzed for authorship pattern, most productive authors, geographical distribution and references distribution. It was observed that single authored articles contributed about 97, representing 48.68% of the total number of published articles while double-authored publications were 87(39.18%). The most prolific author was observed to be Dr.K.P. Singh, with 11 contributions (31.43%). India emerged the first position for having maximum contributed 161, constituting 80.50% publications. Moyon and Shukah (2017) conducted a study on the bibliometric analysis of international research journal of library and information science from 2011 to 2019. The study discovered that out of 218 publications analysed two authored papers have the highest number (45.8%) of publications. The average degree of collaboration was 0.66%.

Somaraya and Mulla (2016) conducted a study on the bibliometric analysis of Journal of Information Literacy from 2011 to 2015. The researchers examined and analysed 155 articles which were published in 5 volumes within the period of study. The analysis revealed that 47.1% of the articles were research articles, 19.35% were book reviews, 18.71% were projects and conference papers while the remaining 14.84% were articles on seminar and symposium. The analyses also revealed that single-authored articles covered 73.55% while the degree of collaboration of co-author publications was 0.26%. The most prolific author was J. Seeker. Hydar Ali, Mahadevamurthy and Jagadeesha (2015) conducted a bibliometric study of all types of publications of JAL from 1999-2016. It is found that out of 1853 documents types, majority were articles i.e. 886 (47.81%). The highest number of publications was in the year 1999 and there was a sharp decrease in growth rate from 1999 to 2007. A large majority of documents i.e.72.91 percent were single authored. “Academic libraries” and “Information Literacy” were the frequently used keyword with their occurrence in 30 and 27 publications respectively.

A study conducted by Mondal & Saha (2015) on the journal JILA from 2008-2014 revealed that there was steady growth of publications during the study period and degree of

collaboration was 0.55. In the geographical contribution it revealed that 69.72% research papers belong to national contribution and 28.89% belong to international contribution. Thavamani (2015) examined the authorship trends of contributions in the Indian Journal of Forensic Medicine & Toxicology during 2007 to 2013. The study revealed that an average number of authors per paper is more than 3 and average productivity per author is less than half (0.5). Moreover, the majority (86%) of the contributions were collaborative works, so the degree of collaboration was 0.862.

Singh and Bebi (2014) conducted a bibliometric analysis on the research output of Journal of Library Herald from 2003-2012. The result showed that out of 324 articles published in the journal, 114 articles (48.8%) were single-authored, while 90 articles (38.50%) were double-authored. The researchers also observed that the most productive author was Nosrat Riahanian who had contributions in 16 journal articles during the period of study. Also, Singh and Chander (2014) examined 336 articles published, in the 'Library Management Journal for the period 2006-2012. The study revealed that majority of the papers was single authored (56.55%). This was followed by 29.17% by two authors. Velmurugan (2013) study, aims at examining the publication of papers in Annals of Library and Information Studies from 2007 to 2012. It was observed from the study that out of 203 publications, the highest number of contributions i.e., 43 (21.19%) were published in the year 2010. Most of the contributions are found to be double authored i.e., 88 (43.35 %). The degree of collaboration was 0.64.

Methods

The research method adopted for this study was bibliometric research design. The study analyses documents published in the C&RL Journal from 2012 to 2021. This period was chosen because it is assumed that the most recent decade will give a true picture of the trend in LIS research. The research papers downloaded from the journal website (<https://crl.acrl.org<issues>current>) were organised manually and analysed by the use of MS-Excel. In order to determine the most productive articles, Google Scholar- Research Impact Metric: Citation Analysis (<https://guides.lib.umich.edu>citations>) was searched to download the articles and their citations. In examining the subject coverage, Aspasia Togia and Afrodite Malliari (2017) topic classification style was adopted.

Data Analysis

Table 1: Type of published documents in C&RL Journal from 2012 to 2021

Document Type	Number of Document	Percentage
Articles	448	55.45
Book review	293	36.26
Editorial material	62	7.67
Errata	4	0.50
Letters	1	0.12
Total	808	100

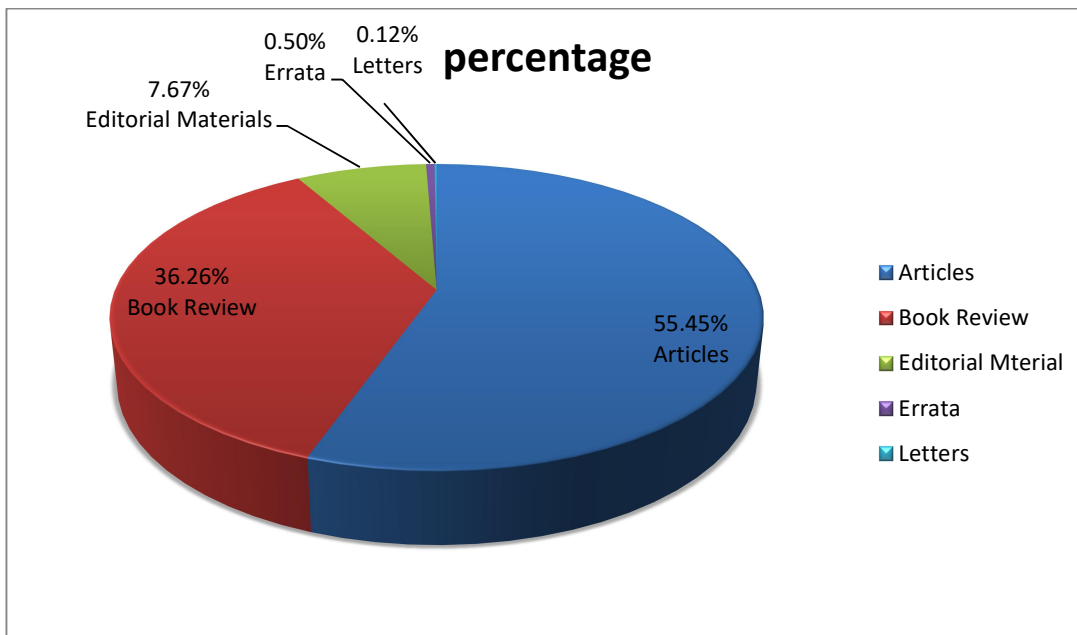


Fig 1: Pie chart showing type of published document.

Table 1 and figure 1 show the different types of documents published by C&RL within the period. It could be observed that out of 808 publications, majority i.e. 448 (55.45%) were articles. Nearly a third 293 (36.26%) of the publications were book reviews. Editorial materials, Errata, and letters accounted for only 8.29% of total publication..

Table 2: Chronological distribution of published documents

Year	Articles	Book Review	Editorials	Errata	Letters	TP	PP
2012	30	35	7	1	-	73	9.03
2013	33	33	3	2	1	72	8.91
2014	55	12	7	-	-	74	9.16
2015	43	20	3	1	-	67	8.29
2016	43	28	6	-	-	77	9.53
2017	49	35	8	-	-	92	11.39
2018	48	28	7	-	-	83	10.27
2019	49	31	7	-	-	87	10.77
2020	50	30	7	-	-	87	10.77
2021	48	41	7	-	-	96	11.88
Total	448	293	62	4	1	808	100

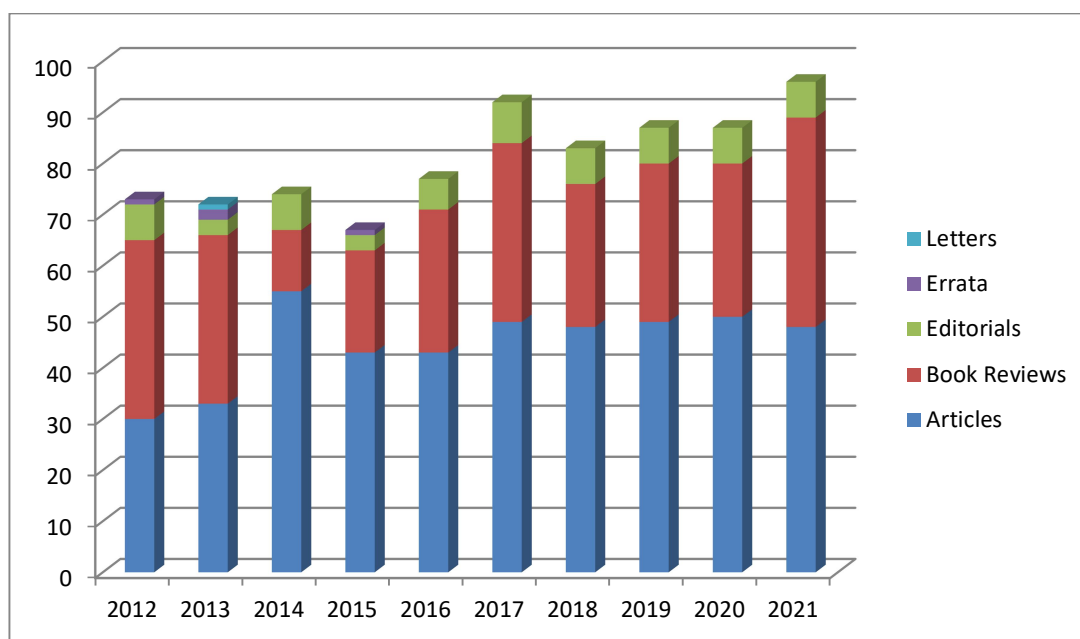


Fig 2: Bar chart showing yearly publication output.

Table 2 and Figure 2 show yearly publication of documents. Publication of articles was high for each of the years, accounting for over 40% whereas publication of book review was below 40% for most of the years with exception of 2012 and 2013. Editorial materials were published at a very low rate for all the years with an average of 6.2. Errata and letters were not published in most of the years. Errata was published only in 2012, 2013 and 2015 with

total publication of 4 while letters was published only once in 2013. The highest number of publications was in the year 2021 accounting for 96 (11.88%) publications while the least was in 2015 with 67 (8.29%) publications.

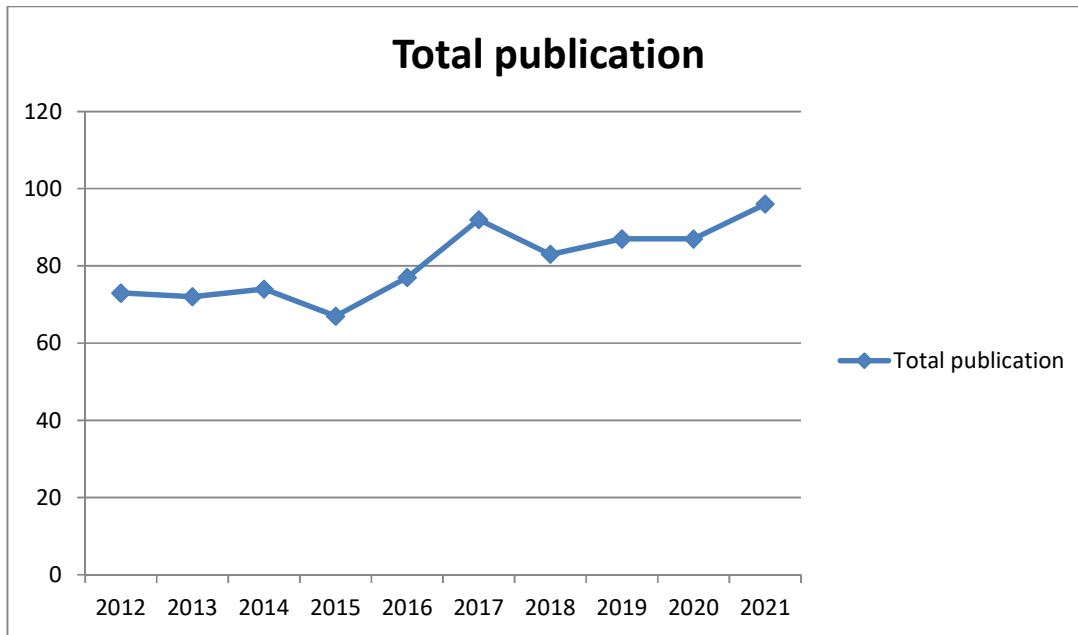


Fig 3: Line graph showing the trend in publication of C&RL.

Figure 3 shows the trend in publication overtime. Looking at the line graph, it could be seen that publication rose gradually and unsteadily in the period. For example, there was obvious decline in publication in 2015 by 9.5%, after which it rose significantly by 37% and then dropped slightly in 2018 and grew slowly to 96 in 2021. The rate of change (increase) within the period is 31.51%.

Table 3: Authorship pattern of published document

Number of Authors	Number of Document	Percentage
1	339	41.96
2	252	31.19
3	136	16.83
4	48	5.94
5	14	1.73
6	11	1.36
7	6	0.74
8	2	0.25
Total	808	100

Table 3 shows the authorship pattern of published document. It could be observed from the table that out of 808 publications, 339 (41.96%) were single authored papers. Double authored papers were 252(31.19%) in number. Next is three authored papers and it accounts for 136 (16.83%). Four authored papers accounts for 48 (5.94%). Publications that have more than four authors were 33(4.08%) in number. The average author per paper was 2.03 authors while the degree of collaboration was 0.58.

Table 4: Most productive articles from 2012 to 2021 sourced from Google Scholar

DT	DOI	Authors	PY	Vol.	Issue	TC
Article	10.5860/crl-299	David W. Lewis.	2012	73	5	256
Article	10.5860/crl.75.4.442	Kyung-Sun Kim, Sei-Ching Joanna Sin & Eun Young Yoo-Lee	2014	75	4	222
Article	10.5860/crl-374	Asher A. D., Duke L. M. & Wilson S.	2013	74	5	187
Article	10.5860/ crl12-406	Stone, Graham & Ramsden B.	2013	74	6	178
Article	10.5860/crl.75.5.705	Foasberg M. Nancy	2014	75	5	158
Article	10.5860/crl-271	Yvonne M., Newby J. & Ke Peng	2012	73	4	150
Article	10.5860/crl12-423	Clark M., Vardeman K. & Barba S.	2014	75	3	120
Article	10.5860/crl.75.4.557	Karen A., Jody Bales F., Jaymie T. & Brian S.	2014	75	4	120
Article	10.5860/crl-254	Hoffmann K. & Doucette L.	2012	73	4	118
Article	10.5860/crl-321	Cory Lown, Tito Sierra & Josh Boyer	2013	74	3	112
Article	10.5860/crl-255	Jeanine Marie S., Marisa L. R. & Karen J. M.	2012	73	4	105

Table 4 presents data on the most productive articles. These articles were most cited articles in C&RL published within 2012 to 2021. They were sourced from Google Scholar database. The most productive article was article 10.5860/crl-299 authored by David. W. Lewis in 2012. This article attracted 256 citations. This was followed by article 10.5860/crl.75.4.442 which was published in 2014 and was cited 222 times. The authors of the article are Kyung-Sun Kim, Sei-Ching Joanna Sin and Eun Young Yoo-Lee. The third most productive article was

10.5860/crl-374 published in 2013 with 187 citations and authored by A. D. Asher, L. M. Duke and S. Wilson. Paper published in 2013 was the fourth most productive paper with 178 citations. The DOI of the paper is 10.5860/crl12.406 and the authors are Stone, Graham & Ramsden B.

Table 5: Subject coverage of the articles

Coverage areas	Descriptions	number	%
Information literacy	Issues related to information literacy and bibliographic instruction (skills, competences, methods, assessment etc.)	73	16.29
Library personnel	Issues related to library personnel (qualifications, Professional development, professional experiences, enumerations, etc.	61	13.62
Organization and management	Elements of library management and administration, such as staffing, budget, financing, etc. and issues related to the assessment of library services, standards, leadership, etc	51	11.38
Scholarly communication	Issues related to different aspects of scholarly communication, such as publishing, open access, copyright issues, analysis of literature, methods, and techniques for the evaluation and impact of scientific research (e.g., journal rankings, bibliometric indices, etc.)	50	11.16
Information Behaviour	Interaction of individuals with information sources. Topics such as information access, user anxiety, information needs, information seeking, and information use are included here	50	11.16

Library Collections	Development and evaluation of all types of library collections, including special collections. Issues related to e-resources (e-books, e-journals, etc.), including their use, interlibrary loan, evaluation, management, theft cases etc	41	9.15
Library services	Issues related to different library services, such as circulation, reference services, ILL, digital services, etc., including innovative programs and services	26	5.80
Digital libraries and metadata	Issues related to digital collections, digital libraries, institutional repositories, design and use of metadata, as well as data management and curation activities	22	4.91
Informatric	The use of mathematical and statistical methods in research related to information. Bibliometrics, content analysis and webometrics are included here	18	4.02
Research in LIS	Issues related to research methods employed in LIS research as well as librarians' engagement in research activities	14	3.13
Information retrieval	Theory, algorithms, and experiments in information retrieval, issues related to data mining, and knowledge discovery	9	2.01
Spaces and facilities	issues on Library buildings and library place	8	1.79
Social Media	Issues related to social media (facebook, twitter, blogs, etc.) and their use by both libraries and library users	7	1.56

Library information systems	Issues related to different aspects of information systems, such as OPAC, ILS, etc. Design, content, and usability of library websites	5	1.12
Information/knowledge management	Issues related to the process of finding, selecting, organizing, disseminating, and transferring data, information and knowledge	4	0.89
LIS theory	Issues related to theoretical aspects of LIS and theoretical studies on the transmission, processing, utilization, and extraction of information	1	0.22
Other	Topics that could not be classified anywhere else and were represented by minimal number of articles (e.g., information history, faculty-librarian cooperation	8	1.79
		448	100

Table five shows the subject coverage of the articles. The most covered subject was Information Literacy which appeared in 73(16.29%) publications followed by Library Personnel that appeared in 61(13.62%) publications. The next most covered subject was Organization and Management which was covered in 51(11.38%) publications. Scholarly Communication and Information Behaviour where covered in 50 (11.16%) each while Library Collection appeared in 41 (9.15%) titles. These mentioned subjects account for over 70% of all subjects covered in the articles. The subjects that were least covered (covered in less than 10 articles) are Information Retrieval, Spaces and Facilities, Social Media, Library Information System, Information/Knowledge Management and LIS Theory.

Research Findings

The findings of the study are as follows

1. College and Research Library Journal published 808 documents from 2012 to 2021. Articles were highly published. They account for over half (55.45%) of the total publications. Publication of book review within the period was significant since it accounts for more than a third (36.26%) of all publications. editorial materials, errata and letters were scantily (8.29%) published.
2. Analysis of chronological distribution of publications revealed that Publication of articles was high for each of the year, accounting for over 40% whereas publication of book review was below 40% for most of the year with exception of 2012 and 2013. Editorial materials were published very low for all the years with average of 6.2. Errata was published only four times in three years while letters was published only once in 2013. The highest number of publications was in the year 2021 accounting for 96 (11.88%) publications while the least was in 2015 with 67 (8.29%) publications. There was a gradual and unsteady rise in publication in the period. The rate of change (increase) was 31.51%.
3. In the study of authorship pattern of the documents, it has been observed that single authored papers were most published accounting for (41.96%) followed by double authored (31.19%) papers. The next was three authored papers with (16.83%) publications. The average author per paper was 2.03 authors while the degree of collaboration was 0.58.
4. The most productive article was article 10.5860/crl-299 authored by D. W. Levis and published in 2012. This article attracted 256 citations. This was followed by article 10.5860/crl.75.4.442 published in 2014 with 222 citations.
5. The most covered subjects were Information Literacy, Library Personnel, Library Organization and Management, Scholarly Communication, Information Behaviour and Library Collection. These subjects covered over 70% of all subject areas covered in the articles. The subjects that are least covered (covered in less than 10 articles) are Information Retrieval, Spaces and Facilities, Social Media, Library Information System, Information/Knowledge Management and LIS Theory.

Discussion and Conclusion

The result of the findings show different documents published by C&RL journal which includes include articles, book reviews, editorial materials, errata and letters. Article was highly published and accounts for 55.45%. This finding is in line with earlier findings of Somaraya and Mulla (2016), Hydar Ali, Mahadevamurthy and Jagadeesha (2015) and many others who observed that articles are highly published than other documents. The reason may be because researchers are more interested in articles moreover article seems to attract more citations than other publications. It is interesting to note that these published documents made a total of 808 publications which means that C&RL journal published 808 papers (with average publication of 80.8) within ten years interval. This is relatively high when compared with the total output of most of the reviewed journals, for example, Muhammad et al. (2021), Waqa et al. (2021), and Moyon and Shukah (2017) in their various studies revealed average publications of 46.9, 41.0 and 24.2 respectively. There was a gradual rise in publication within the period with 31.19% rate of increase and 2021 was the most productive year.

Though 41.96% of the publications were single authored papers, the degree of collaboration was relatively high i.e. 0.58 and average author per paper was 2.03. This means that research collaboration is encouraged in the field. Interestingly, over ten (10) articles published in C&RL within the ten years period have over 100 citations. The most productive article has 256 citations. Information Literacy, Library Personnel, Library Organization and Management, Scholarly Communication, Information Behaviour and Library Collection were highly covered in C&RL.

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