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### Publication Trend in Library Philosophy and Practice (e-journal) : A Scientometric Approach

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## **Publication Trend in Library Philosophy and Practice (e-journal) : A Scientometric Approach**

### **ABSTRACT**

*Scientometrics is an effective method to quantitatively analyse the productivity and progress of all forms of written communication. This study aims to examine the scientific research productivity of Library Philosophy and Practice (e-journal) for a selected period of 22 years between 1998 and 2019. Required data pertaining to this study under various parameters were collected from Scopus database. Further, analysis was carried out under various dimensions to measure the year wise distribution of articles published during the selected period, its relative growth rate, doubling time, collaboration coefficient, country and affiliation wise distribution of articles and its citation patterns etc. The findings of the study revealed that the highest numbers of articles were published in the year 2019 and the lowest appeared in the year 1998. In the year 2013, there was no single article of the journal indexed in Scopus database. The country wise distribution of articles showed that the highest contribution of 33.52% made from Nigeria, while the institution wise distribution indicated that the University of Ibadan was rated as the highest research producer. Analysis also revealed that the average citation per paper during the selected period was 1.51. Authors found from the analysis that the publication title 'Using Google Analytics for improving library website content and design: A case study' authored by Fang W. received a citation of 67 and ranked as the highly cited paper during the period of study.*

**Keywords:** *Author productivity, Scientometric analysis, Library science, Library Philosophy and Practice, Publication profile, Bibliometrics.*

### **INTRODUCTION**

The Library Philosophy and Practice (LPP) is a peer-reviewed e-journal that publishes articles in the field of library and information science. The journal is owned and published by the University Libraries of the University of Nebraska--Lincoln, USA. It covers emerging theories and practices of the librarianship. It also includes reports of successful innovative or experimental library procedures, methods, or projects in all areas of librarianship, set in the context of applied research (Library Philosophy and Practice, 2020). The first issue of LPP was published in the year 1998. Since its inception, the journal has served as a medium to publish articles related to information science and library management; and also provides a forum for communication among library and information science professionals and to introduce new concepts systems and technology. Publications of LPP are indexed by various indexing and citation databases such as SCOPUS, Library and Information Science Abstracts (LISA) and DOAJ. LPP is an open access journal having ISSN 1522-0222 facilitate the authors to publish their research work without any publication fees.

Scientometrics is one of the methods known to evaluate and trace scholarly output available. Its quantitative analytics of scholarly publications has been used for evaluating and mapping the growth of a particular domain well-defined by some scope and limitations. Scientometrics as a technique has extensive applications in identifying the research trends in a subject, authorship trends and collaboration in research, core periodicals, obsolescence and dispersion of scientific literature useful in estimating the

comprehensive of secondary periodicals, studying the author's productivity and impact of research, distribution of scientific publications by the research organization, citation studies and so on (Brindha and Murugesapandian, 2016). Scieintometric as a quantitative method facilitates to measure and analyse the literature. It is a tool that can provide the publication patterns as well as citation patterns of literature under various parameters. It is one of the effective mechanisms to measure the individual country's, authors and affiliations output in a publication environment.

## **Review of Literature**

Review of available published literature works indicates that several studies have been conducted by different authors to analyse and interpret the research trends focusing on collaborative authorship, relative growth rate (RGR) and doubling time (DT). Such studies are performed not only in the domain of libraries and information science but also in different other disciplines. Little literature on similar kinds which are published previously under different domains have been taken into account for the present study.

Rai, Singh & Varma (2019) performed a study on literature published in cyber security during a selected period of 2001 to 2018 under various indicators to observe the growth pattern, collaborations, citations, authorship, country wise contributions, funding, affiliations etc. Authors revealed that RGR appeared to be a better measure for growth with strong regression in comparison to AGR and CAGR and found that Cyber Security had a growing trend of collaboration in research. Authors emphasized the need for collaborative cyber security research by Indian defence to focus on Cyber security research and suggested to plan strategically for the future with effective collaborations.

Singh, Ranjan & Rai (2019) conducted a scientometric analysis on information visualization in research publications during 1990-2018. The result of the study indicated that the research of information visualization had increased during the selected study period. The findings of the study revealed that developed countries had more research advantages than the developing countries. It was also found from the study that Nucleic Acids Research, BMC Bioinformatics and Bioinformatics were the top three journals published literature on information visualization.

Chaman, Dharani & Biradar (2017) conducted a scientometric study on Indian chemical science research literature for the period 2005 to 2014 and revealed that Indian chemical science literature relative growth rate (RGR) decreased from 0.77 in 2005 to 0.16 in 2014 likewise world annual growth rate decreased from 0.73 in 2005 to 0.25 in 2014. It was clear from the study that the growth rate of publication was

decreased in the same way doubling time had been increased. The study concluded with the findings that the global mean relative growth rate (RGR) and doubling time (DT) records 0.25 and 2.97 respectively.

Ramiah (2016) performed a study on research publication on Spintronics based on the Web of Science database during the period 2000-2014. The results of the study shows that the growth of the literature was not seen in exponential ratio and it was in arithmetic ratio in the explosion on the mobile literature are not taken place during the period of study.

Jan, Wani and Hafiz (2015) analysed the growth pattern of cloud computing literature during 2009-2013 using the Web of Science database. Authors had studied the relative growth rate (RGR) and doubling time (DT) and also the authorship pattern is measured by using collaborative index (CI) and modified collaborative coefficient (MCC). Authors identified that the USA was on the top in its number of publications followed by China. Authors concluded that research output in the field of cloud computing was higher during the block year 2009-2013 and also the publication output were increasing every year. However suggested the need for strengthening training programs at institutional level, national and international level and also the international collaboration.

Elango & Rajendran (2012) carried out an assessment of Indian Journal of Marine Sciences published from 2001 to 2010. They utilised collaboration index and collaboration coefficient measures to estimate collaboration between authors. It was clear from the result that average collaboration rate of 0.57 was acknowledged as the good collaboration among the authors.

Poornima et al. (2011) observed from their study that multi authored publication patterns was popular among the authors in Food Science and Technology. Authors found that the research showed a very good collaboration between multi authorship patterns in that particular research area and observed that the majority of the publications (95.94%) appeared with multi authors.

Velmurugan (2014) explained the pattern of authorship and collaborative research on Indian Journal of Pure and Applied Physics for the year 2009-2012. In this study the author had discussed the various scientometric indicators such as DC, RGR, and DT to measure the data. The findings of the results revealed that the maximum number of contributions were published in the year 2012 and was minimum in the year 2011. Author found that the highest number of author productivity was published in the year 2010. Further it was observed that the degree of collaboration ranges from 0.90 to 0.92 and the average degree of collaboration was 0.915.

## **OBJECTIVES**

The main objective of this study is to quantitatively measure the publication output of Library Philosophy and Practice (e-journal) for a selected period of 22 years starting from the year 1998 to 2019 covering all the possible dimensions of publications. The specific objectives of the study are as follows:

- To identify the year wise distribution of publications during the selected period of study
- To examine the relative growth rate (RGR) and doubling time (DT)
- To measure the collaborative coefficient (CC)
- To list out the highly prolific authors and highly cited publications
- To examine the institution wise, country wise and subject wise distributions of published literature during the selected period.

## **METHODOLOGY**

Authors used Scopus, one of the globally leading indexing and citation analysis databases which available under subscription mode to collect the required data under various parameters. All the required data were collected using the search mechanism provided by the database and the search string used to expand the result was (SRCTITLE (library AND philosophy AND practice) OR SRCTITLE (lpp)) AND PUBYEAR > 1997 AND PUBYEAR <2020. There were 2455 publications retrieved by Scopus database with this search string during the selected period from 1998 to 2019. All the retrieved and collected data were subsequently examined, observed, analyzed, by applying various scientometric indicators such as relative growth rate(RGR), doubling time (DT), collaborative coefficient (CC) and authorship patterns to analyze and interpret the data. Results of the analysis represented in tabular forms and diagrammatical forms and added with visualization for a better understanding wherever found required.

## **ANALYSIS AND INTERPRETATION**

### **Year wise Distribution**

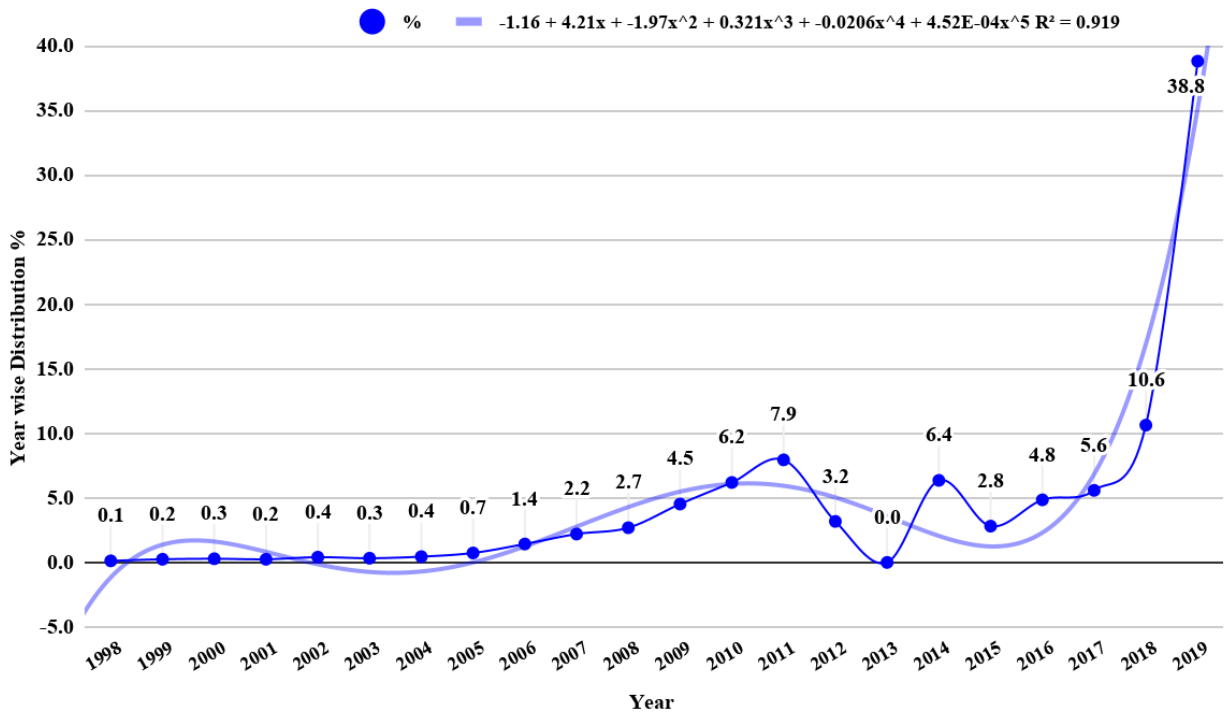
The total number of 2455 papers published during the selected period of study retrieved from the database have been taken into consideration and arranged according to the year in which they are appeared in the journal. The year wise distribution of the articles published from 1998 to 2019 is depicted in Figure-1. Distribution metrics of published literature showed that out of total 2455 articles, the highest percentage of (38.82%) total publications appeared in the year 2019 and the lowest number 0.12% was published in the year 1998. The range of articles published per year throughout the selected period found to be between 3 and 953. It was observed from the year wise distribution of publications that the growth of

literature output had been increased during the year 2003 to 2011. Further it was noticed from the analysis that Scopus had not indexed any LPP publication for the year 2013 and that could be the reason why the publication graph showed a down fall in its count for that particular year.

Fig-1: Year wise distribution of publications (1998-2018)

**Relative Growth Rate (RGR)**

The Relative Growth Rate (RGR) expresses growth in terms of a rate of increase in size per unit of size (Hunt, 1990). This formula was used by Krishnamoorthy, Ramakrishanan & Devi. (2009, p.151) in their study methods of modeling relative growth rate. For calculating the mean relative growth rate (R) over



the specific period of interval the following equation can be applied.

Relative Growth Rate (RGR)

$$1 - 2^R = \frac{\text{Log } w2 - \text{Log } w1}{T2 - T1}$$

Where:

$1-2^R$ - mean relative growth rate over the specific period of interval

$W1 = \text{Log}_e w1$  - log of initial number of articles

$W2 = \text{Log}_e w2$  - log of final number of articles after a specific period of interval

$T2-T1$ - the unit difference between the initial time and the final time

The year can be taken here as the unit of time.

### Doubling Time (DT)

The period of time required for a quantity to double in size or value is termed as doubling time. The formula used to indicate the DT is as follows.

$$\text{Doubling Time (DT)} = \frac{0.693}{R}$$

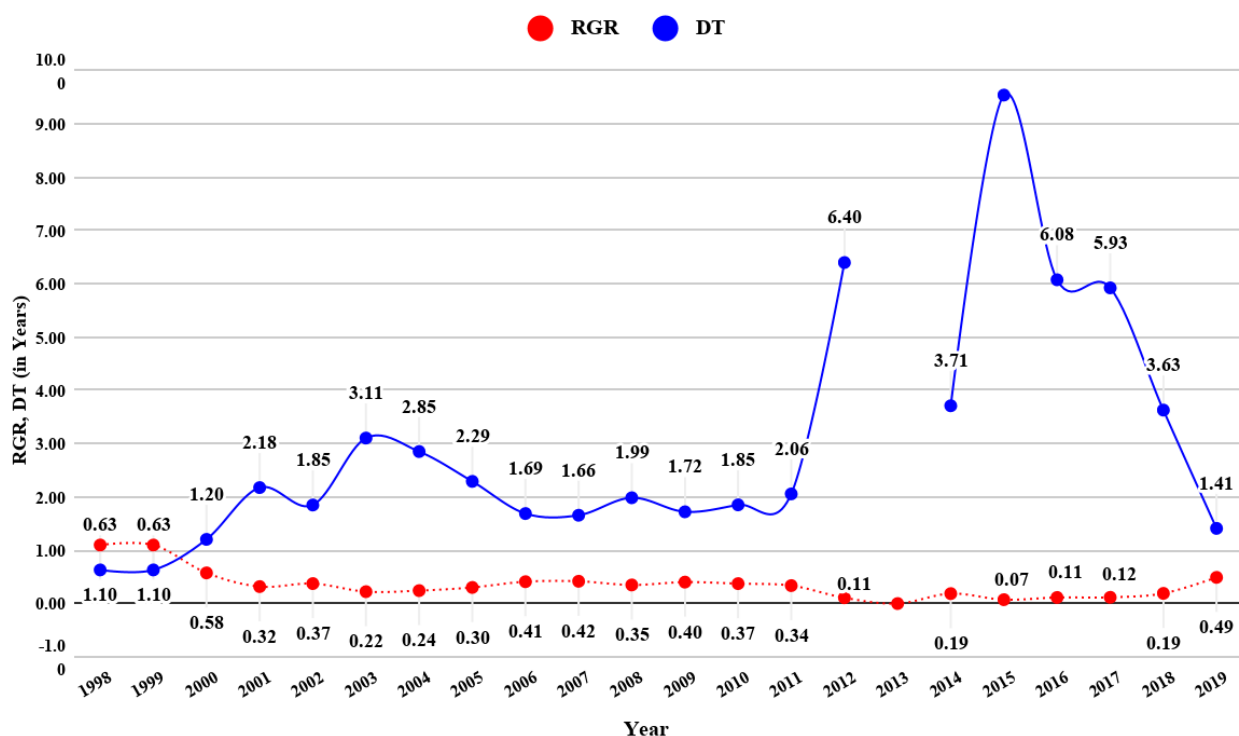


Fig.2: RGR and Doubling time (DT)

The above analysis indicated that there was a drastic uplift in the doubling time for the year 2015. The doubling time has decreased sharply since 2005 which indicates a sharp growth of publication numbers.

### Most prolific authors

The analysis associated with author productivity of LPP that identified the entire average number of authors per paper. The author with the more publications to his credit compared to other authors in the journal is known to be the prolific author. It can be observed from Figure-3 that S. Thanuskodi had published 32 articles in this journal during the selected period of study and found to be the most prolific author followed by the author Bhatti with a publication of 19. Further Jeyshankar and Thirumagal were

having 17 publications each followed by Mahajan (13), Anyim and Ugah (12 each), Balasubramaniam (11) and Baskaran and Ganaie (10 each) were treated as highly prolific authors with a large number of publications.

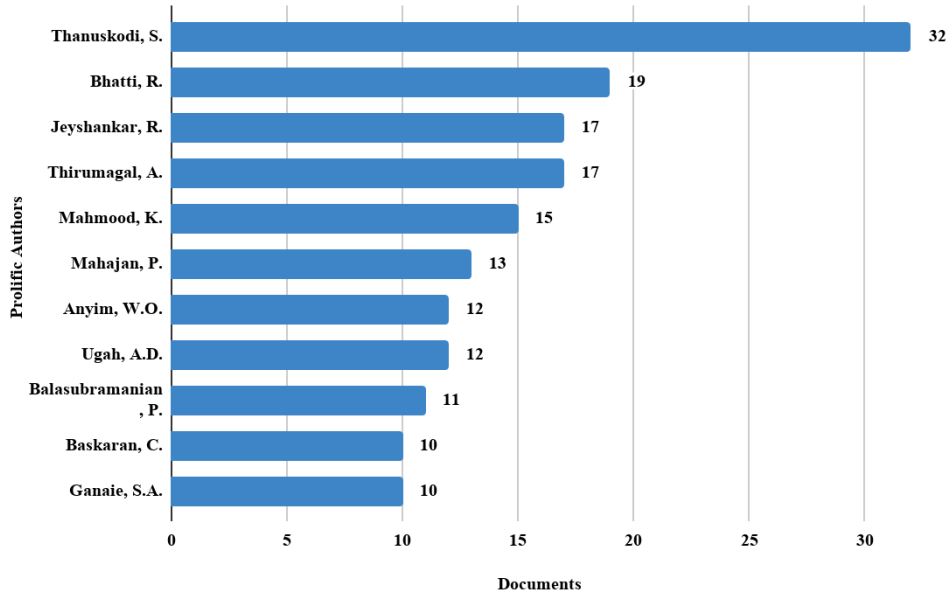


Fig. 3: Top 15 highly prolific Authors

### Collaboration coefficient

To measure the strength of collaboration the following formula of collaboration coefficient as suggested by Ajiferuke, Burell, & Tague (1988) has been used.

$$CC = 1 - \frac{\sum_{j=1}^k \left(\frac{1}{j}\right) f_j}{N}$$

Where;  $f_j$  = Total number of  $j$  authored research papers

$N$  = Total number of research papers published in a year

$k$  = The greatest number of authors per paper

Collaboration Coefficient is a numerical value between 0 and 1. The more it is bigger than 0.5 the better is the collaboration rate among the authors. When it is near 0, it means that authors have a weak collaboration rate.

Figure-4 indicated the year wise values of the collaboration coefficient and was calculated by the formulae, which discreetly accounts for various number of authors' contribution to a single publication. It implied that the collaboration coefficient was a measure which has taken a more detailed account of multiple authorships in comparison to DC and CI.



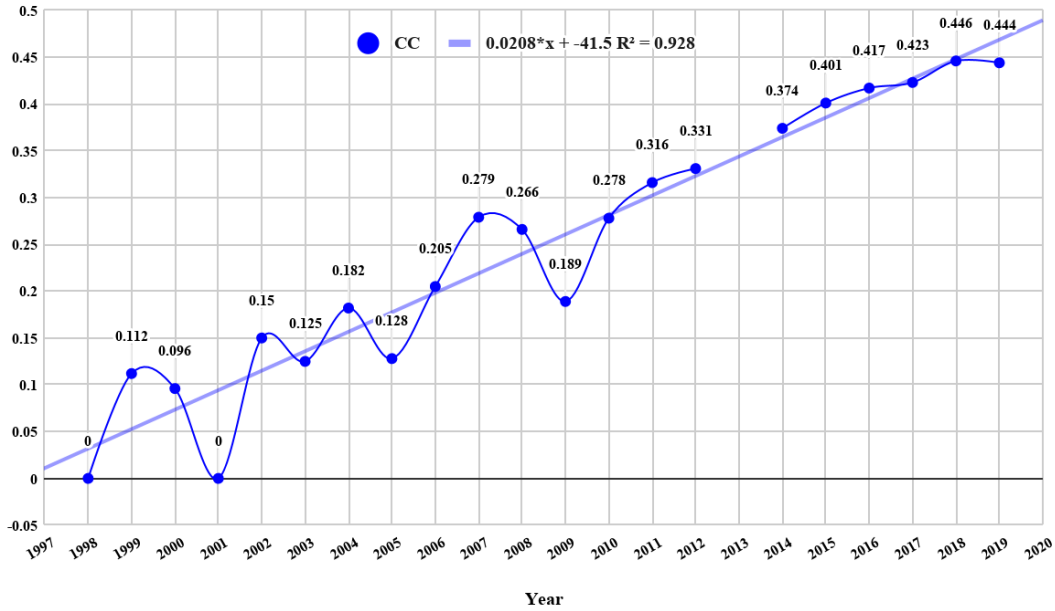


Fig. 4 : Collaboration Coefficient of publication during 1998-2018

### Country wise distribution of articles

The study made an attempt to generate the country wise distribution of articles published in LPP to figure out the top countries contributed to the journal. Figure 4 indicated that out of the total 2455 literature published during the selected period of study, the majority (33.52%) of the contributions were made from Nigeria and stood in the first position, followed by 32.91% contributed by India in the second place. 9.24% of contributions produced by the United States and 5.66% of contributions made by Iran were placed in third and fourth positions respectively. Further, the percentage of contributions made by the other countries with their respective percentages were Ghana (3.79%), Pakistan (3.22%), Indonesia (2.24%), Malaysia (1.47%), South Africa (1.43%) and Saudi Arabia (1.06%). However, it is inferred that out of 47 countries, Nigeria and India gives priority for publishing their research works in the Library Philosophy and Practice Journal compared with other countries.

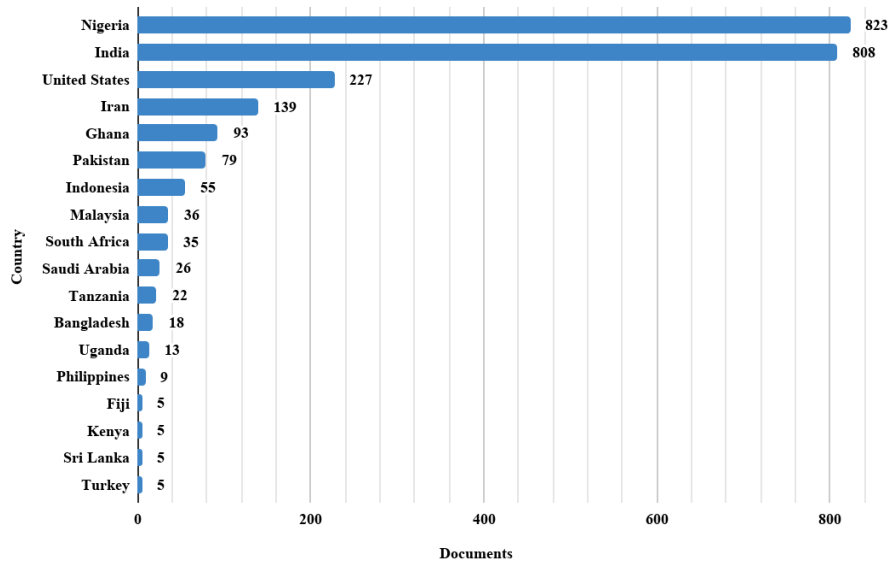


Fig 4 : Country wise distribution of article

#### Institution wise distribution of articles

Authors put their effort to measure the distribution of articles in accordance with the affiliations of the authors who contributed during the selected period of study. It was examined from the list provided in the form of graphical representation as Figure 5 depicts that University of Ibadan was stood first in the list with 97 publications to its credit followed by University of Nigeria (82), Alagappa University (62) and Delta State University, Nigeria with 58 publications in their affiliation.

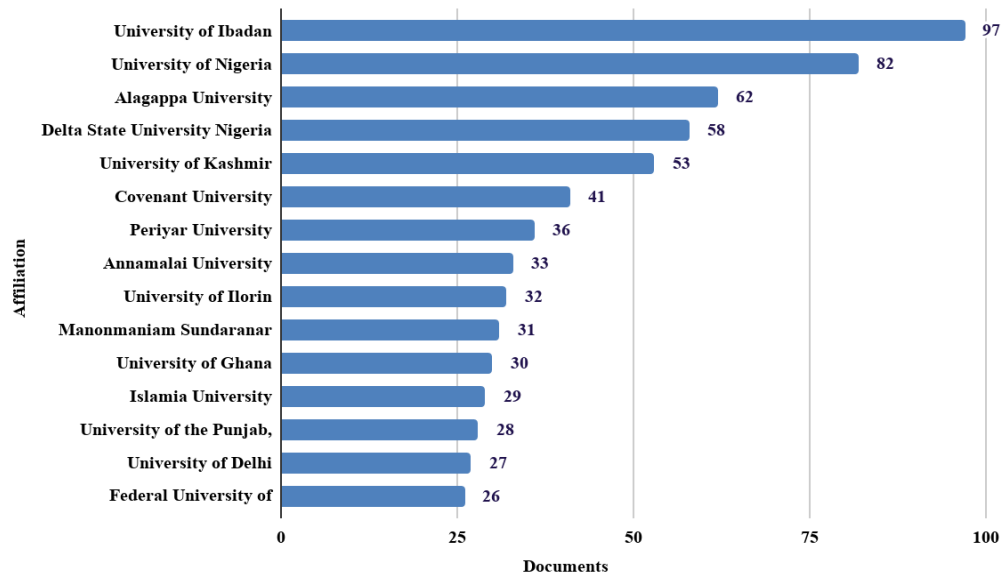


Fig. 5 : Institution wise distribution of publication

### Top 15 most frequently used keyword

Figure-6 examines the main area which was focused on publications which were produced during the stipulated period. This study identifies the authors' interest and involvement of subjects in terms of producing the publication in their respective specialization. The findings of the study reveal that the highest number 88 of scientific scholarly publications were published in the subject of bibliometrics study due to the rapid growth of development in the area that the majority of authors are very much interested to do their research work and followed by 80 papers regarding Nigeria and 73 papers were from academic libraries.

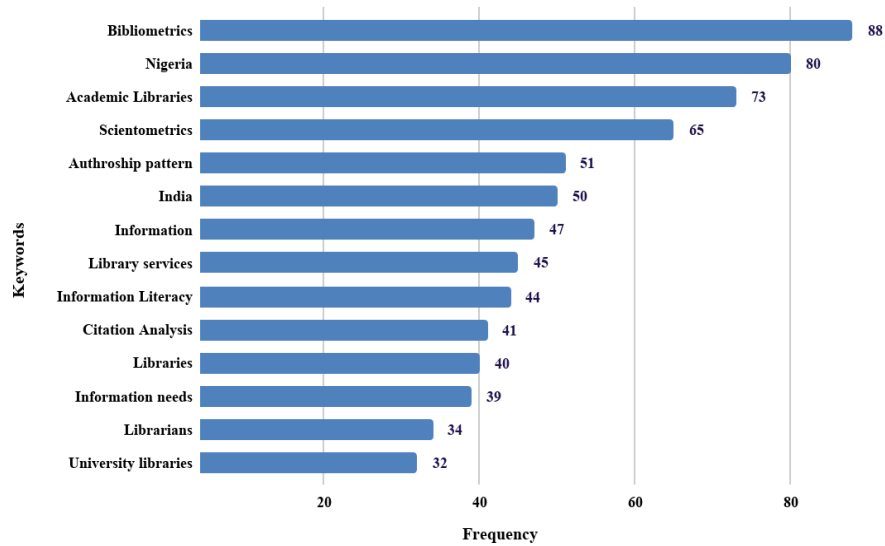


Fig. 6 : Top 15 frequently used keywords

### Highly cited papers

Figure-7 presents a scatter plot of highly cited papers. It reveals that “Using Google Analytics for improving library website content and design: A case study” written by Fang with 67 citations is the most cited paper at present. The article titled “Work motivation, job satisfaction, and organisational commitment of library personnel in academic and research libraries in Oyo State, Nigeria” with 65 citations is in the second place; followed by an article from India titled “Use of RFID technology in libraries: A new approach to circulation, tracking, inventorying, and security of library materials” with 33 citations. The article “The use and impact of electronic resources at the university of Lagos” received 28 citations which is ranked as 4th. It is observed that there are a total of 5 publications from the USA, 4 publications from Nigeria and one each from Botswana, India and Ghana, which have received more than 20 citations. These highly cited articles indicate that publication related to new technological applications are more citable among all articles of the journal.

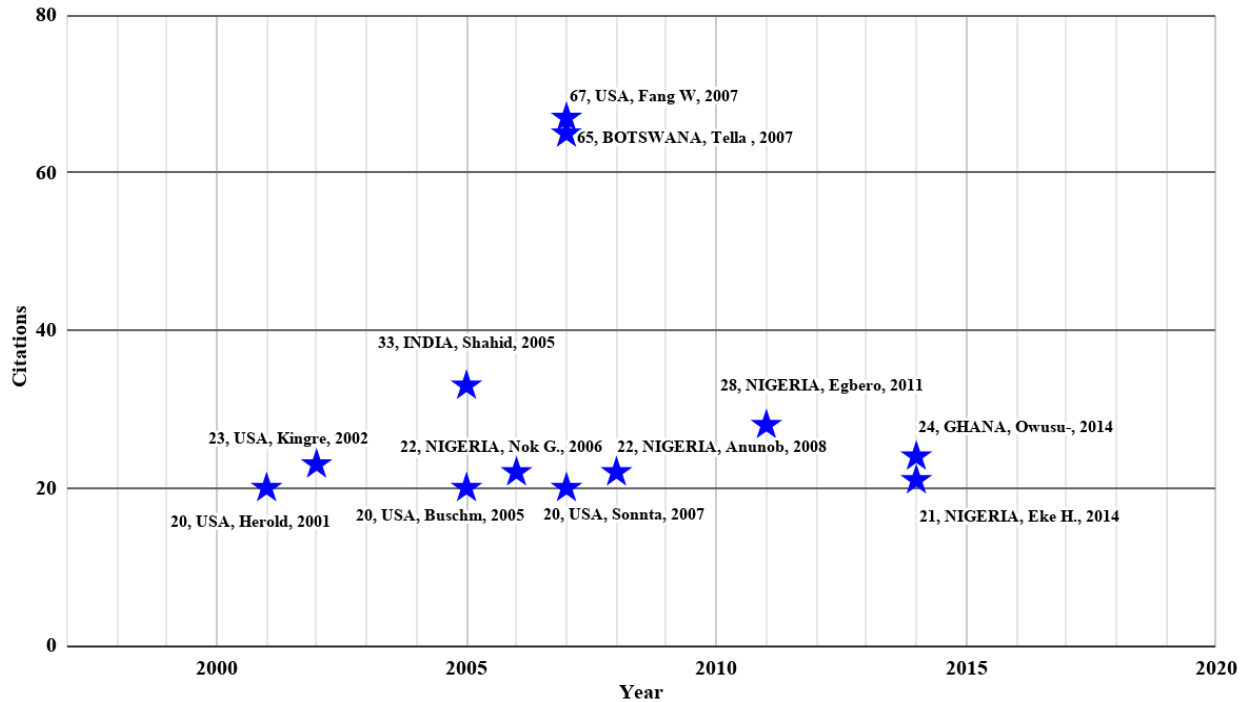


Fig. 7: Publications with at least 20 citations

## Findings

The major findings of the study are as follows:

- The majority of publications (38.82%) found published in the year 2019 and the lowest number (0.12%) was found in the year 1998.
- It was examined analysis that Thanuskodi had published the highest number (32) of articles in LPP journal during the selected period of study followed by Bhatti as 19 articles.
- It was examined from the analysis that University of Ibadan was the institute which holds the maximum number (97) of publications to its credit followed by the University of Nigeria (82) and Alagappa University (62).
- It is found from the analysis that a major portion of the publications (33.52%) appeared in the Library Philosophy and Practice journal is from Nigeria and followed by India (32.91%) with a marginalized difference.
- The maximum number of citations received by LPP was 642 (17.29%) in the year 2011 whereas, the minimum number of citations were 3 (0.08%) in the year 1998.
- The highest number (88) of research output in the form of its publication appeared under the keyword specialized on bibliometric studies, followed by many contributions (80) pertaining to Nigeria and 73 of papers published were from academic libraries.

## **Discussion and Conclusion**

Library Philosophy and Practice (LPP) is one of the leading scholarly peer-reviewed journals in the field of Library and Information Science (LIS). As this journal is an open access journal in the field of LIS, covering a wide range of literature related to library activities and services and are publishing significant scholarly articles to cater to the needs of the user community such as students, research scholars, faculty members, and information professionals in the field of LIS. The journals also covers bibliometrics/scientometric studies, user studies, information sources and services, digital libraries, LIS education, academic libraries, public libraries, special libraries, school libraries and children libraries, internet based studies, collection development, information literacy, cataloguing and classification, libraries and information professionals, information retrieval, information management, knowledge management, and related legal issues in the field of LIS. Based on the study, it was found that the maximum numbers of articles were published in the year 2019. It is examined from the analysis that Library Philosophy and Practice was one of the favorable journals for their publication adopted by countries such as Nigeria and India. It is found from the study that the highest number of literature output in LPP was published in the area of bibliometric studies followed by papers pertaining to Nigeria and also on academic libraries. It is found from the study that the highest percentage of total publications appeared in the year 2019 and the lowest number was found published in the year 1998. However, the range of articles published per year throughout the selected period found to be between 3 and 953 and the growth of literature output had been increased during the year 2003 to 2011. There was a drastic uplift in the doubling time for the publication output in the year 2015. Thanuskodi, Bhatti and Jeysankar and Thirumagal respectively are the authors listed top on most prolific author category. It was observed from the analysis that major contributions according to the affiliations of the authors who contributed to LPP were made by University of Ibadan followed by the University of Nigeria and Alagappa University. There were many publications listed out from Indian universities.

Finally, it was noticed that most of the researchers used the citations from journals articles due to the fact that journal articles are the premier vehicle of emerging information dissemination.

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