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## Review of Research on Public Libraries: A Scopus Based Bibliometric Analysis

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# **Review of Research on Public Libraries: A Scopus Based Bibliometric Analysis**

## **Abstract**

Public libraries are considered as peoples universities and can play a vital role in overall development of community they serve with the help of the resources and services. We have collected to data from the Scopus database for the period of 1971-2019. We have identified the trends in public libraries research, prominent authors who are involved in the research on public libraries issues and Y applied to evaluate the author's contribution. Core journals and productive countries also determined and taken up the author supplied keyword analysis over decades. This work would be useful to the researchers who are working on the public libraries.

**Keywords:** Public Libraries, Bibliometric analysis, research, core journals, USA

## **Introduction**

Public libraries are an essential part of modern society, which improves literacy and expand the imagination by providing access to information resources and services (Parvathamma and Reddy 2009). The public libraries' services can be vital in fostering the motivation for learning, improving literacy education, and the lives of older adults (Van Der Zee 1988; Zapata 1994). Access to the right information at the right time to the citizen is essential to act and take appropriate decisions in day to day life (Jankovic 1977). Public library service is a provision for empowering its users and contributing to achieving economic regeneration (Broady-Preston and Cox 2000). IFLA/UNESCO Public Library Manifesto 1994 states, "public library as, the local gateway to knowledge, provides a basic condition for lifelong learning, independent decision- making and cultural development of the individual and social groups" (Richards 2014). As noted in an article, public libraries play a key role in making

provision of information among the disadvantaged communities i.e., survival information and citizen action information (Pienaar 1995). Many authors have reviewed and researched the role of public libraries in their work as an agent for:

- (i) development of socio-economic conditions (Mallik and Nayek 2018)
- (ii) identifying adults with poor literacy and helping them (McLoughlin and Morris 2004)
- (iii) act against crime by maintaining social order and promoting moral values through the provision of better leisure opportunities (Hayes and Morris 2005).
- (iv) public room and physical meeting place (Aabø 2005)
- (v) reducing the digital divide (Chaudhuri and Flamm 2006)
- (vi) developing people's interest in cultural activities (Erich 2016)
- (vii) reducing the social inequalities with the provision of access to information (Sánchez-García and Yubero 2016).
- (viii) community economic development (Mehra et al., 2016)
- (ix) improving the information literacy skills (Yılmaz and Soylu 2014)
- (x) improving health literacy with the provision of health information (Ntlotlang and Grand 2016) &
- (xi) engagement of citizens in e-governance (Bertol et al. 2006).

Many authors have conducted a bibliometric analysis study to investigate research trends and output on a topic such as digital libraries (Singh, Mittal, and Ahmad 2007), ebooks (Shankar Reddy Kollé et al. 2018), an institutional repository (Ammarukleart and Kim 2017). Before that, we have searched the Scopus database with

( TITLE ( "public librar\*" ) AND TITLE ( bibliometric\* ) OR TITLE ( scientometric\* ) ).

Only one result was found as a result of the above search strategy that was related to the trends in public library research in India using data from the <https://shodhganga.inflibnet.ac.in/simple-search> which institutional repository of the thesis submitted Indian universities. Considering the role and the importance of public libraries, it is very necessary to know how the research on public libraries carried out at a global level. As there was no study was undertaken to reveal the trends in public libraries research. We have performed a bibliometric analysis of public library research for the period of 1971 to 2019 using the data from the Scopus database.

### **Methodology**

Several authors have employed the Scopus database for the evaluation of research progress on different topics (Sweileh et al. 2016; Shankar Reddy Kollé et al. 2018; Seriwala et al. 2015; Raghunatha Reddy et al. 2019). Scopus is the most trusted indexing database, which indexes more than 39,000 peer-reviewed journals across the field of knowledge. The main advantage of choosing Scopus is the maximum number of journals related to Library & Information Science indexed in Scopus. We have collected the data from the Scopus using advance search technique as provided below on October 4<sup>th</sup>, 2019:

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TITLE-ABS-KEY ( "public Librar*" ) AND PUBYEAR > 1970 AND PUBYEAR < 2020 AND ( LIMIT-TO ( SUBJAREA , "SOCI" ) ) AND ( LIMIT-TO ( DOCTYPE , "ar" ) )
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As a result of the above search strategy, a total of 4,428 articles were found in the database. Information such as title, author/s, journal, year, citations, affiliation, keywords, references, index keywords, and funding information was downloaded in the text as well as CSV format. We have chosen only articles because the articles carry the findings of the original research work (S. R. Kollé, Shankarappa, and Ho 2017). The first-author article was confirmed by the availability of the author's name in the affiliations field (Raghunatha Reddy et al. 2019). The corresponding author was determined by the existence of the author's name in the field of

correspondence address (Raghunatha Reddy et al. 2019). Microsoft Excel has employed the analysis purpose wherever found necessary. The decade wise growth of research articles along with authors, pages, and cited references was performed to confirm the growth of research on public libraries. Geographic Heat Map (MS Excel add-on) was used for mapping the research output geographically. Most prolific authors, countries, and journals were also analyzed. Analysis of most frequently appeared top 25 author-supplied keywords was also performed to reveal the trends in public libraries' research from 1971 to 2019.

## **Results and Discussion**

### ***Decade wise distribution of articles on public libraries***

Table 1 provides the decade wise distribution of articles on public libraries along with the number of authors, citations, cited references and page counts. A sum of 145 articles was published in 1971-80 and it reached 1,854 in 2011-19. The table confirms 12 fold growth of articles on public libraries in the last 29 years. This signifies the importance of public libraries and their role in the modern democratic setup. Figure 1 displays the number of articles over the years from 1971-2019. The figure confirms the exponential growth of research on public libraries. More than 5000 authors were involved in research on public libraries. The articles published in the years 2001-2010 have received a greater average of citations (6.52). One of the reasons for this may be that two articles published in this period have received considerable numbers of citations (Neuman and Celano 2001; Macintyre,

Macdonald, and Ellaway 2008). A sum of 99471 documents was consulted for the writing of 4,428 articles on public libraries. A sum of 53763 pages of literature was produced on public libraries with an average of 12.14 pages per article.

Table 1 Decade wise distribution of articles on public libraries

Years	TP	AU	TC	CR	PG	AU/TP	TC/TP	CR/TP	PG/TP
1971-80	145	154	254	1242	1555	1.06	1.75	8.57	10.72
1981-90	451	500	900	5537	4542	1.11	2.00	12.28	10.07
1991-20	754	812	3121	13556	8193	1.08	4.14	17.98	10.87
2001-10	1224	1545	7985	25888	15850	1.26	6.52	21.15	12.95
2011-19	1854	2753	5307	53248	23623	1.48	2.86	28.72	12.74
	4428	5764	17567	99471	53763	1.30	3.97	22.46	12.14

**Note:** TP: total articles; AU: total authors; AU/TP: average authors per article; TC: total citations; TC/TP: average citations per article; CR: cited references; CR/TP: average cited references; PG: total pages; PG/TP: average pages per article;

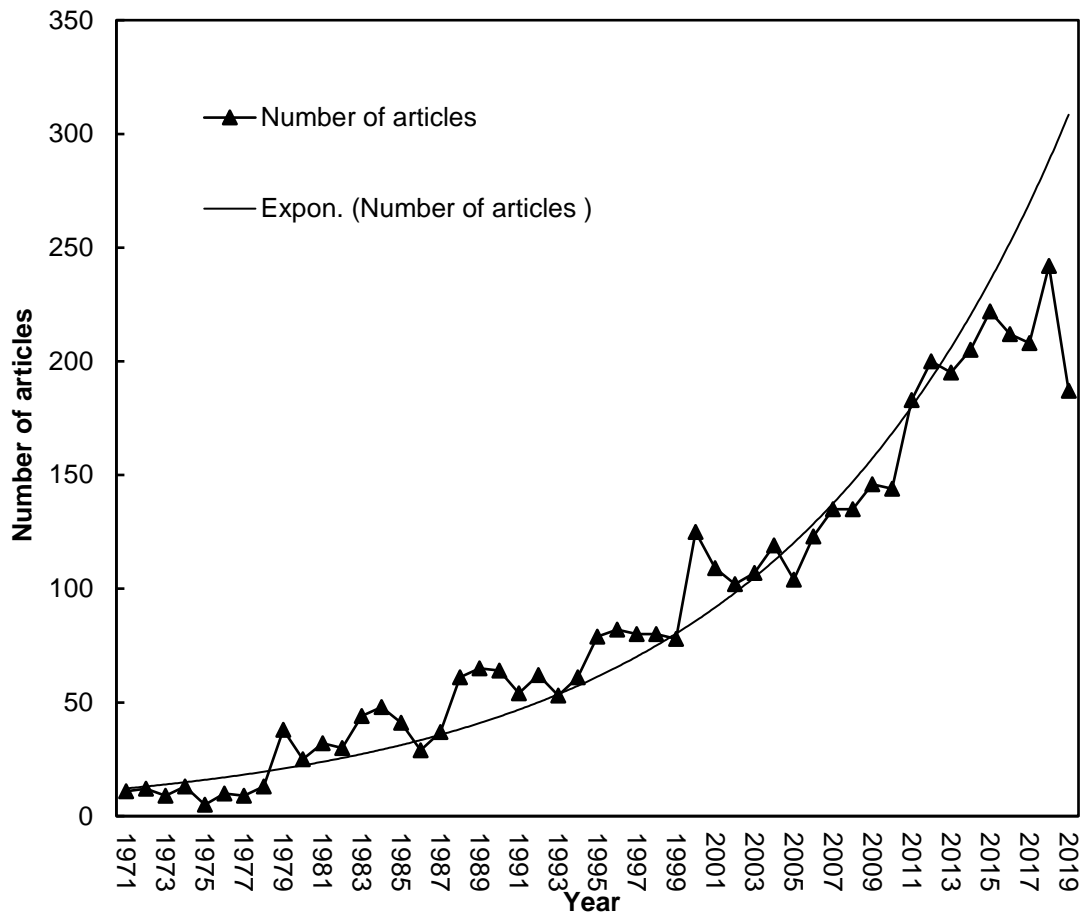


Figure 1 Number of articles on public libraries over year from 1971-2019

### Journals

Table 2 provides a list of the most productive journals with 46 or more articles on public libraries. 4428 articles were published in the 502 sources with an average of 8 articles per source. Almost 55% of the articles were published in the 20 journals (Table 2). Among them, *Public Library Quarterly* has contributed almost 12.37 % (539) articles, followed by the *Journal of Librarianship and Information Science* (4.34 %; 192 articles), & *Library Management* (3.43 %; 152 articles). These three journals have contributed almost 20% of the articles on public libraries. Three journals, which were started publishing on public libraries in 1971 & 1972, were *Journal of Librarianship and Information Science*, *Libri* and *International Library Review*.

Table 2 productive journals with 46 or more articles on public libraries during 1971-2019.

Journal	TP	%	IF2018
<i>Public Library Quarterly</i>	539	12.17	N/A
<i>Journal Of Librarianship And Information Science</i>	192	4.34	1.203
<i>Library Management</i>	152	3.43	N/A
<i>Library And Information Science Research</i>	131	2.96	N/A
<i>New Library World</i>	131	2.96	N/A
<i>Library Trends</i>	129	2.91	0.627
<i>Library Review</i>	126	2.85	N/A
<i>Reference Librarian</i>	109	2.46	N/A
<i>Library Quarterly</i>	104	2.35	1.24
<i>Australian Library Journal</i>	102	2.3	0.346
<i>Libri</i>	98	2.21	0.553
<i>Journal Of Library Administration</i>	85	1.92	N/A
<i>Bottom Line</i>	82	1.85	N/A
<i>Vjesnik Bibliotekara Hrvatske</i>	79	1.78	N/A
<i>IFLA Journal</i>	77	1.74	N/A
<i>Library Philosophy And Practice</i>	70	1.58	N/A
<i>Journal Of Documentation</i>	61	1.38	1.573
<i>Performance Measurement And Metrics</i>	52	1.17	N/A
<i>Library Journal</i>	51	1.15	0.438
<i>Information Development</i>	46	1.04	1.265

Note: TP: total articles; IF2018: Impact factor as per the Journal Citation Report 2018

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### **Prolific Authors**

A sum of 5338 authors has contributed towards the publication of 4428 articles on public libraries during 1971-2019. The top ten most contributed authors with the first author articles and the corresponding authors' articles are provided in table 3. As per the number of articles, Bertot, J.C. from Florida State University, USA was a productive author on public libraries



research with 31 articles followed by the McClure, C.R. (28 articles), & Jaeger, P.T. (27 articles). One fact that is more interesting is that the top three authors are from Florida State University, USA. Of the top ten authors, five authors from the USA, three from the United Kingdom and each from Norway and Australia. These fifteen authors have contributed almost 7% of the articles on health literacy during 2004-18. In the era of multi-authorship, the studies are concentrated on the first author and the corresponding author (S. R. Kolle, Shankarappa, and Ho 2017). In this context, Ho proposed *the Y* index, which is concerned with the first author articles and the corresponding author articles as defined (Y.-S. Ho 2012; Y.-S. Ho 2013; Y. S. Ho 2014).

$$j = FP + RP \quad (1)$$

$$h = \tan^{-1}\left(\frac{RP}{FP}\right) \quad (2)$$

$j$  denotes the sum of the first author articles and corresponding author articles, wherein  $h$  is concerned with publication characteristics, which can indicate the proportion of first author articles and corresponding author articles (Hsu and Ho 2014). When the  $j$  value is greater, the more contribution the analyzed unit makes. The variation in the  $h$  value means either more the first author articles or more the corresponding author articles. When the  $h$  value is  $\Rightarrow 0.7854$ , the author contributed a greater number of corresponding author articles and similar when the  $h$  value is  $= < 0.7854$ , the author contributed a greater number of the first author articles. When the  $h$  value is  $= 0.7854$ , the author contributed an equal number of the first and the corresponding author articles (Y.-S. Ho 2012; Y.-S. Ho 2013; Y. S. Ho 2014). As reported in the literature the first author and the corresponding should get major credit than any other authors (Marušić et al. 2004; Riesenber and Lundberg 1990; Mattsson, Sundberg, and Laget 2011).

We have applied the *Y* index to evaluate the authorship contribution on public libraries' research for the period of 1971-2019. As per the *Y* index, Waters, R.L. from Mill Drive, United States has emerged as the leader in the public libraries research ( $h=0.7853$ ;  $j= 38$ ) followed by the Bertot, J.C. ( $h=$  Bertot, J.C.;  $j=29$ ), and Jaeger, P.T. ( $h=0.6202$ ;  $j=24$ ). Based on the number of articles and *Y* index, four authors may be considered as a major contributor towards the public libraries research in the last five decades i.e., Bertot, J.C., Waters, R.L., McClure, C.R., & Jaeger, P.T.

Table 3 Most prolific authors on public libraries research during 1971-2019

Author	TP	%	FA	CA	Institute	<i>h</i>	<i>j</i> (R)
Bertot, J.C.	31	0.7	15	14	Florida State University, USA	0.7509	29 (2)
McClure, C.R.	28	0.63	5	7	Florida State University, USA	0.9505	12 (7)
Jaeger, P.T.	27	0.61	14	10	Florida State University, USA	0.6202	24 (3)
Waters, R.L.	19	0.43	19	19	Mill Drive, United States	0.7853	38 (1)
Goulding, A.	18	0.41	9	8	Loughborough University, United Kingdom	0.7266	17 (6)
Usherwood, B.	15	0.34	11	8	University of Sheffield, United Kingdom	0.6287	19 (5)
Audunson, R.	14	0.32	6	6	Oslo University College, Norway	0.7853	12 (8)
Jones, D.J.	14	0.32	14	9	State Library of New South Wales, Australia	0.5713	23 (4)
Morris, A.	13	0.29	6	2	University Parkway, United States	0.3217	8 (9)
Streatfield, D.	13	0.29	9	10	Information Management Associates, UK	0.8379	19 (5)

Note: TP: total articles; %: percent of 4428 articles; FA: first author articles; CA: corresponding author articles; R: rank

### *Productive countries and funding agencies*

A sum of 100 countries was involved in the research on public libraries from 1971 to 2019. The top ten most contributing countries with the number of articles are provided in table 4. The United States of America has emerged as the most productive country with 1903 articles (42.98%), followed by the United Kingdom (508; 11.47%), Canada (226; 5.10%) and Australia (206; 4.65%). The geographical distribution of articles is displayed in figure 2. Green denotes the maximum contribution and dark red denotes the less contribution by the country. Of the 4428 articles, 415 articles are having the funding information, which accounts for 9 % of the articles (table 5). This confirms that funding option towards public library research is negligible. The most funding for the public libraries research (32; 7.7 %) was received from the Institute of Museum and Library Services, followed by the U.S. National Library of Medicine (18; 4.34%), National Institutes of Health (17; 4.1%) and Bill and Melinda Gates Foundation (13; 3.13%). Of the ten funding agencies, seven are from the USA and two from the United Kingdom.

Table 4 Productive countries on public libraries research during 1971-2019

Country	TP	% of 4428
United States	1903	42.98
United Kingdom	508	11.47
Canada	226	5.10
Australia	206	4.65
Spain	102	2.30
Croatia	97	2.19
Nigeria	70	1.58

Japan	69	1.56
India	61	1.38
Brazil	59	1.33

Note: TP: total articles.

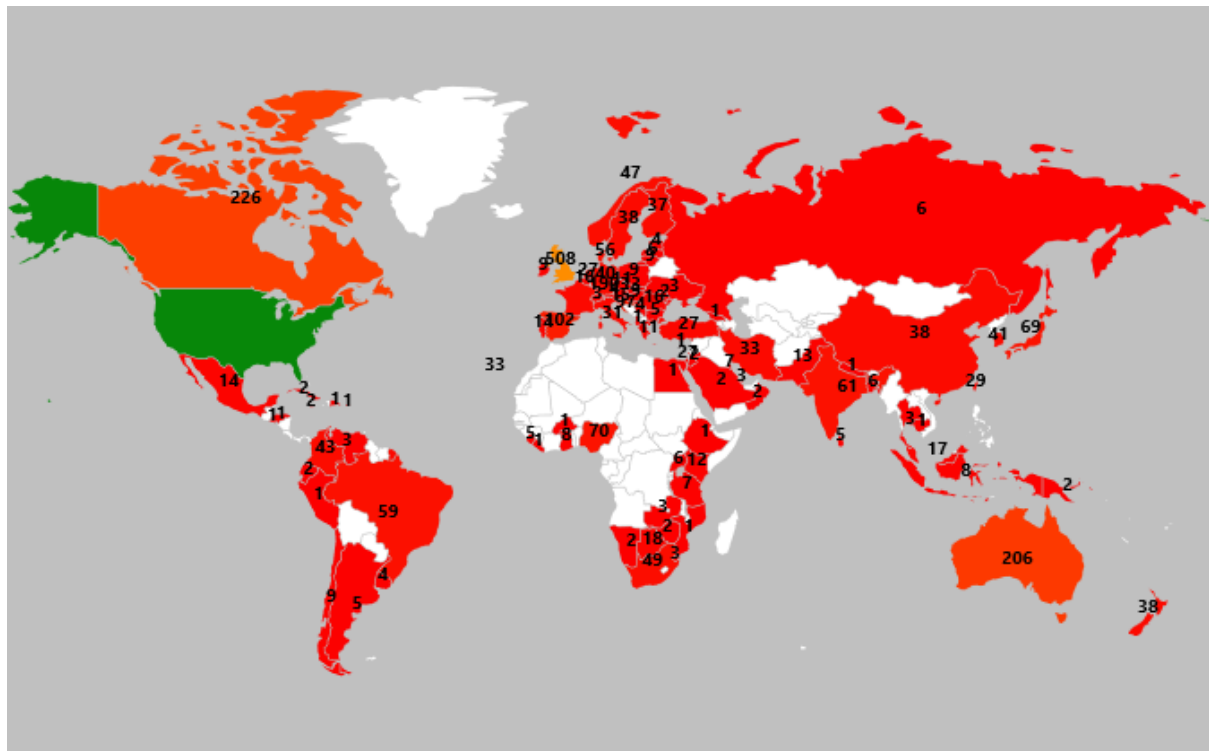


Figure 2 geographical distribution of articles on public libraries during 1971-2019

Table 5 Top funder for the public libraries research during 1971-2019

Funding sponsor	TP	% of 415	Country
Institute of Museum and Library Services	32	7.71	USA
U.S. National Library of Medicine	18	4.34	USA
National Institutes of Health	17	4.1	USA
Bill and Melinda Gates Foundation	13	3.13	USA
City, University of London	13	3.13	UK
National Science Foundation	13	3.13	USA

Australian Research Council	10	2.41	Australia
Social Sciences and Humanities Research Council of Canada	10	2.41	Canada
United Nations Educational, Scientific and Cultural Organization	10	2.41	UK
American Library Association	9	2.17	USA

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Note: TP: total articles.

### *Author-supplied keywords analysis*

As per the guidelines of the journal, the authors need to supply the 4-5 keywords, which can indicate the content of the article. Analysis of author-supply keywords can indicate the trend in research. Of the 4,428 articles on public libraries, only 2410 articles were containing the authors-supplied keywords, which accounts for 54% of the articles. The decade-wise distribution of the top 25 author-supplied keywords is presented in table 6. It is observed and confirmed that the articles published after 1991 are contained the author-supplied keywords. The most existed authors-supplied keywords that keep on increasing from decade to decade were “Public libraries”, “Public library”, ‘Academic libraries”, “Library services”, “Reading”, “Library users”, “Information literacy”, & “Collection development”. This confirms that research on these topics are still relevant and increasing day by day. Quite several studies were related to the public library service towards the children's, young adults, teenagers, visually impaired persons, & elderly persons. Quite a few studies were related to reading habits and users study in public libraries. Considerable numbers of studies were concerned with an information literacy program and collection development in public libraries. Some of the keywords existed fewer numbers of times in recent times were "Internet", "Librarians", "United Kingdom", "United States of America", & “Reference services”. This confirms that some slowdown of research activities on these topics in recent times. The keyword “Social media” existed in 29 articles in recent times. This confirms that few studies were related to

the use of social media such as Twitter, Facebook in public libraries for reaching users, providing service, and user education.

### **Discussion and conclusion**

The present study investigated the publication output on public libraries from 1971-2019 in terms of publications trend, core journals, prolific authors, productive country, funding agency, and authors supplied keywords. A sum of 4428 articles was published in public libraries. It was noticed that the exponential growth of literature on public libraries (figure 1). From the year 2000 onwards, more than 100 articles were published and after 2013, it reached more than 200 articles. Not only articles, the number of authors, average cited references, average page counts also increased, which confirms the solid growth of research activities on public libraries in the last decade. This is not a surprising matter as the public libraries are considered as Peoples Universities and they serve every person of the society and can play a vital role in creating informed citizens through providing library and information service. Public libraries can build a strong community with the provision of access to information for fostering social inclusion and security, civic engagement, economic development (Scott 2011a). Especially in rural areas, rural public libraries can contribute to rural economic development by offering a range of services (Abu, Grace, and Carroll 2011). These can do an excellent job by providing space even in the digital age and also found that visitors have increased in 2013 than in 1993 and also regarded as community assets (Barclay 2017; Oliphant 2014). The exponential growth of literature was also observed in case of research on institutional repository (Ammarukleart and Kim 2017), information literacy (Kolle 2017), eBooks (Kolle et al. 2018), electronic journals (Gupta et al. 2019), & digital libraries (Singh, Mittal, and Ahmad 2007). The *Public Library Quarterly* was the most productive journal. It is not surprising as the journal is meant for addressing the challenges

and opportunities faced by public libraries across the globe. Apart from this, *the Journal of Librarianship and Information Science & Library Management* also publishing a good number of research articles on public libraries since 1971. Any research working on the public library system should scan these journals to keep updated with new developments. As per the Y index and also based on the number of articles contributed, we identified four authors as prominent who highly involved research activities on the public libraries are Bertot, J.C., Waters, R.L., McClure, C.R., & Jaeger, P.T. The four authors may be considered as leaders in the field. The main focus of the studies was concerned with that how the public libraries can play a vital role in building inclusive digital community (Bertot, Real, and Jaeger 2016; Real et al. 2015), e-governance through public libraries (Bertot et al. 2013; Jaeger et al. 2012), public libraries and internet issues , challenges, & implications (Bertot, McClure, and Jaeger 2008a; Bertot et al. 2012), effect of free internet on community (Bertot, McClure, and Jaeger 2008b), & building digital public libraries (John Carlo Bertot 2002). The authors from the USA has contributed more than 40% of the articles. It is not surprising as the USA provides better facilities for the research and more than 25% of the Universities from the USA are ranked within the top 100 universities as per the QS World University rankings <https://www.topuniversities.com/university-rankings/world-university-rankings/2018>>. One of the interesting facts is that the majority of the top contributing funding agencies are from the United States of America. A positive correlation is found between the countries' expenditure on research activities and publication output (Schulz, Kennedy, and Rymer 2016). Still, many developing countries are not able to reap the potential benefit that could be experienced in investing in public libraries' research. The main hot topics of the research were the library user's study, services, and free internet access in public libraries, reading habits, information literacy, marketing, outreach programs, collection development and use of social media for providing services by the public libraries.

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