JETIR.ORG ISSN: 2349-5162 | ESTD Year : 2014 | Monthly Issue
JOURNAL OF EMERGING TECHNOLOGIES AND INNOVATIVE RESEARCH (JETIR)
An International Scholarly Open Access, Peer-reviewed, Refereed Journal

THE LITERATURE ON REFERENCE MANAGEMENT TOOLS: A BIBLIOMETRIC REFLECTION

Jyoti S. Gedam[1] and Dr. Smita D. Suryawanshi[2]

[1]Library Assistant
Knowledge Resource Centre
Sant Gadge Baba Amravati University,
Amravati-444602

And
[2]Dr. Smita D. Suryawanshi
Research Supervisor (Librarian)
Smt. Narsamma Arts, Commerce and
Science College, Amravati

ABSTRACT

The paper aims to provide a bibliometric overview of the literature on reference management tools available on the Web of Science (WoS). Our choice of a bibliometric approach is significant, as it allows us to comprehensively study the literature available on WoS. We utilized a Biblioshiny app to analyze the data retrieved from WoS, further enhancing the depth of our research. The findings revealed that the literature on reference management tools is continuously growing. However, some areas still need to be explored through research. The average citation per document is calculated as 12.7. Bradford's core zone contained eight journals, in which 73 documents were published. Thelwal M, Volkov L P and Dorokhov I N are the most prominent authors publishing on reference management tools. Authorship pattern revealed a trend towards single authorship. The United Kingdom, USA, Netherlands, Canada and Germany were the most cited countries. The top ten highly cited documents shared 43.10% of citations. The conceptual study revealed the leading themes in the literature on reference management tools. The current study is the first direct bibliometric study on reference management tools. It's important to note that our study is limited in that it only covers the literature available in WoS. However, we recognize this limitation and believe that upcoming studies might include Scopus or other indexing databases to provide more generalized results.

Keywords: Reference Management Tools, Web of Science, Bibliometric Study, Biblioshiny

1. INTRODUCTION

Reference management is one of the important steps in the research process. Researchers worldwide have been using different reference management tools to find relevant documents related to their subject since they offer the features to search from multiple databases and for reference management. Harrod's Librarians' Glossary and Reference Book defines[1] reference management tools as "Software used to record bibliographical references in a personal database which can form the foundation of citation in published papers. The Software permits customizable fields to be created and the automatic formatting of references into the layouts required by publishers. Some packages work in association with word processors so that the references can be accessed directly in formatted from by the word processor itself; some also enable downloaded records from online or

CD-ROM searches to be saved in a compatible format." Today, RMTs can import citations from online databases in different formats. There are different ways in which a person learns about reference management tools. Published literature is one of the sources of scholarly knowledge about it. It is important because it helps to know the current features of different tools and compare them with each other[2] the users' usage level. The current articles attempt to trace a bibliometric glance at the literature on reference management tools. The literature review from ProQuest databases, Web of Science, Scopus, Google Scholar, Emerald Insight, and the databases under One Nation One Subscription (ONOS) shows that no bibliometric article on reference management tools has been available until now.

2. OBJECTIVES

1. To take an overview of annual scientific production.
2. To find out the most prominent journals publishing on reference management tools.
3. To find out the most productive authors along with fractionalized authorship.
4. To reveal the authorship pattern in the literature of reference management tools.
5. To reveal the conceptual structure in a thematic map and through the co-occurrence of keywords.

3. METHODOLOGY

The data on the reference management tools was searched on 03 January 2025 using a falling search query under the advanced search option of Web of Science. The records were selected based on a title-wise search to find only core articles related to the subject.

((((((((((((((((((TI=("Reference Management Tool*")) OR TI=("•Reference Management Software*")) OR TI=("Citation Management Tool*")) OR TI=("Citation Management Software*")) ORTI=("Referenc e Manager*")) OR TI=("Citation Manager*")) OR TI=("Bibliographic Management Tool*")) OR TI=("Bibliographic Management Software*")) OR TI=("RefWorks*")) OR TI=("Mendeley*")) OR TI=("Zotero*"))OR TI=("CiteULike*")) OR TI=("EndNote*")) OR TI=("ReadCube*")) OR TI=("JabRef*")) OR TI=("Citavi*")) OR TI=("Docear*")) OR TI=("Paperpile*")) OR TI=("WizFolio*")) OR TI=("Qiqqa*")) OR TI=("BibMe*")

In all, 343 records were found. However, only articles, review papers, proceeding papers and software reviews were considered for the current study. Thus, the records were reduced to 218 documents. All 218 documents were analyzed through the Biblioshiny app[3].

3.1 Annual Scientific Production

There were 218 documents published on reference management tools from 1989 to 2024. Figure 1 shows year-wise annual scientific production. Most years reflect that articles are published articles in single digit numbers except 2017(18 articles), 1998(15 articles), 2018(13 articles), 1996(12 articles), 2015(12 articles), 2016(12 articles), 1991(10 articles) and 1999(10 articles). These 218 documents have been published with an annual growth rate of 18.5. The citing documents have 2424 references with 11.12 citations per paper; the average citation per document is 12.7.

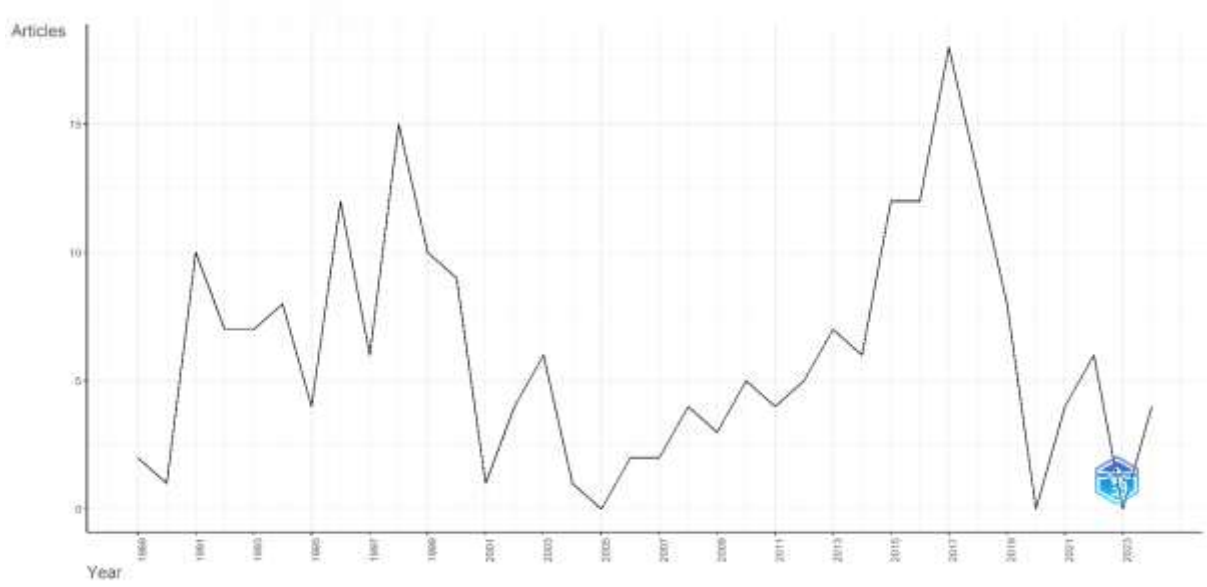

Figure 1: Year wise articles published

3.2 Most prominent journals

Table 1: Most prominent journals

Sr.no.	Braford's Core Zone	Rank	Freq	CumFreq
1	Journal Of the Association for Information Science and Technology	1	13	13
2	Scientometrics	2	12	25
3	Journal Of the Medical Library Association	3	11	36
4	Journal Of Informetrics	4	10	46
5	Journal Of Academic Librarianship	5	9	55
6	Library Software Review	6	7	62
7	Doklady AkademiiNauk SSSR	7	6	68
8	Jama-Journal of The American Medical Association	8	5	73

The most prominent journals are calculated through the Bradford zone. The Bradford core zone contains 8 journals, which cumulatively published 73 documents. The second zone contains 30 journals, which produced 74 documents. The third zone contains 71 source journals, which published 71 documents. The list of the prominent journals denoted by the Bradford core zone is given in Table No. 1. Overall, 109 journals produced 218documents.

3.3 Most productive authors

Table no. 2 shows that Thelwall M is the highest (21 papers) contributing author in the literature on reference management tools. He is followed by Volkov L P (8 documents), Dorokhov I N (7 documents), Kafarov V V (7 documents), Bornmann L (5 documents), Haunschild R (5 documents), Satyamurti S (4 documents) and remaining eight authors in the table have three documents each to their credit. Fractional authorship, which considers each author's individual contribution, shows little difference in ranking the most productive authors. However, Thelwall M maintains his first position at 13.75 fractionalised authorship. Satyamurthi S, in the sixth position, comes in the second position with 4.00 fractionalised authorship. He is followed by Volkov L P, Shmaefsky B R, Wilson T, Bornmann L, Haunschild R, Dorokhov I N and Kafarov V V.

Table no. 2. Most prominent authors

Sr. No.	Authors	Articles	Authors	Articles fractionalized
1.	Thelwall M	21	Thelwall M	13.75
2.	Volkov LP	8	Satyamurti S	4.00
3.	Dorokhov IN	7	Volkov LP	3.08
4.	Kafarov VV	7	[Anonymous]	3.00
5.	Bornmann L	5	ShmaefskyBR	3.00
6.	Haunschild R	5	Wilson T	3.00
7.	Satyamurti S	4	Bornmann L	2.50
8.	[Anonymous]	3	Haunschild R	2.50
9.	Bhargava P	3	Dorokhov IN	2.08
10.	Costas R	3	Kafarov VV	2.08
11.	Kousha K	3	Bjorner S	2.00
12.	Maflahi N	3	Collins LJ	2.00
13.	Mohammadi E	3	Combs J	2.00
14.	Moshiri M	3	Faughnan JG	2.00
15.	Reiss G	3	KippMei	2.00

3.4 Authorship pattern

In overall contribution, there are 57.80% single-authored papers, 21.56% two-authored papers, 11.47% three-authored papers, 4.13% four-authored papers and 5.05% five and more five-authored papers. There is the dominance of single-authored papers. The degree of collaboration by the Subramanyam formula[4] is calculated to 0.42, while the collaborative co-efficient calculated through Ajiferuke *et al*[5]. is measured to 0.74.

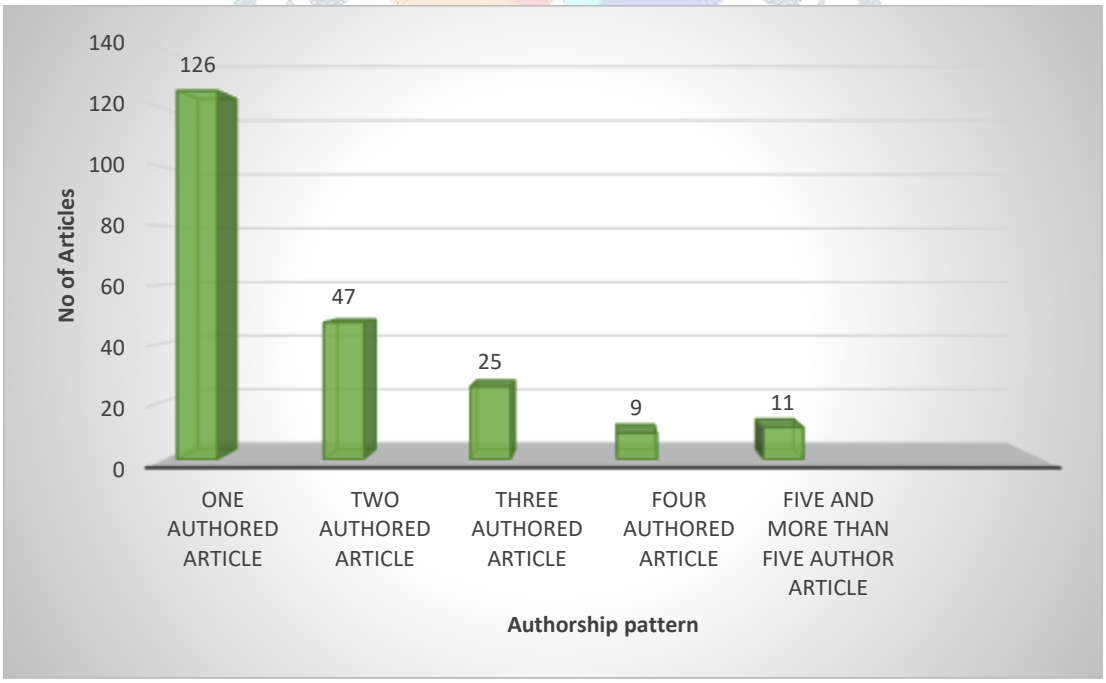

Fig 2. Authorship pattern

3.5 Most cited counties

The United Kingdom leads in citations, with 1186 (30.41%) citations for its overall contributions to the literature on reference management tools. The USA follows with 634 citations. However, it's worth noting that the average article citations for the first six countries in the table are significantly lower. The Netherlands and Canada rank third and fourth in terms of citations, but they take the lead in average article citations, with percentages of 49.68% and 42.33% respectively.

Table 3. Total citations per country

Country	Total citations	Average article citations
UnitedKingdom	1186	30.410
USA	634	8.234
Netherlands	298	49.667
Canada	254	42.333
Germany	144	13.091
Israel	30	10.000
Italy	27	9.000
Spain	22	4.400
Iran	21	7.000
Czech Republic	19	19.000
Brazil	18	6.000
India	18	4.500
Palau	13	13.000
Russia	12	4.000
Egypt	11	11.000

3.6 Highly cited documents

Table 4 shows highly cited documents from the literature on reference management tools. Two hundred eighteen papers have received 2768 citations. A paper by Li, Thelwall, and Giustini published in 'Scientometrics' entitled 'Validating online reference managers for scholarly impact measurement' in the year 2012 received highest citations. The paper written by Mohammadi and Thelwal entitled 'Mendeley readership metrics for social sciences and humanities: research evaluation and knowledge flows' published in 'The Journal of the Association for Information Science and Technology' received 187 citations. The top ten documents shared 1193 (43.10%) citations. These citations are not just from the journals indexed in WoS but represent all the journals published worldwide.

Table 4: Highly cited documents

Sr.no	Paper	Total Citations	Total Citations per Year	Normalized TC
1	Li, Xuemei, Thelwall, M. and Giustini, Dean (2012), "Validating online reference managers for scholarly impact measurement", *Scientometrics*,Vol. 91 No.2, pp.461-471, DOI:10.1007/s11192-011-0580-x	187	13.36	4.03
2	Mohammadi, E. Thelwall, M. (2014), "Mendeley Readership Altmetrics for the Social Sciences and Humanities: Research Evaluation and Knowledge Flows", *Journal of the association for information science and technology*, Vol.65 No.8, pp.1627-1638, DOI:10.1002/asi.23071.	187	15.58	4.30
3	Wichor, M. B., Jelena Milic, MD and Frans Mast, (2017), "Reviewing retrieved references for inclusion in systematic reviews using EndNote", *Journal Of The Medical Library Association*, Vol.105 No.1, pp. 84-87,. DOI:10.5195/jmla.2017.111.	156	17.33	6.10
4	Mohammadi, E., Thelwall, M., Haustein, S., and Lariviere, V., (2015), "Who Reads Research Articles? An Altmetrics Analysis of Mendeley User Categories", *Journal Of The Association For Information Science And*	149	13.55	4.19

	Technology, Vol. 66 No. 9, pp.1832-1846, DOI:10.1002/asi.23286.			
5	Thelwall, M., and Wilson, P., (2016), "Mendeley Readership Altmetrics for Medical Articles: An Analysis of 45 Fields", *Scientometrics*, Vol. 67 No. 8, pp.1962-1972, DOI: 10.1002/asi.23501.	94	9.40	2.29
6	Maflahi, N., and Thelwall, M., (2016), "When are readership counts as useful as citation counts? Scopus versus Mendeley for LIS journals", *Journal Of The Association For Information Science And Technology*, Vol.67 No.1. pp.191-199, DOI:10.1002/asi.233692016-02-10.	90	9.00	2.20
7	Mohammadi, E., Thelwall, M., and Kousha, K., (2016), "Can Mendeley bookmarks reflect readership? A survey of user motivations", *Journal of The Association for Information Science and Technology*, Vol.67 No.5, pp.1198-1209,DOI:10.1002/asi.23477.	87	8.70	2.12
8	Gotschall, Terri., (2021), "EndNote 20 desktop version", *Journal Of The Medical Library Association*, Vol.109 No.3, pp. 520-522, DOI:10.5195/jmla.2021.1260.	84	16.80	3.82
9	Jeng, W., He, D., and Jiang, J., (2015), "User Participation in an Academic Social Networking Service: A Survey of Open Group Users on Mendeley", *Journal Of The Association For Information Science And Technology*, Vol.66 No.5, pp 890-904, DOI:10.1002/asi.23225.	83	7.55	2.33
10	Thelwall, M., (2018), "Early Mendeley readers correlate with later citation counts", *Scientometrics*, Vol.115 No.3, pp 1231-1240. DOI:10.1007/s11192-018-2715-9	76	9.50	2.81

3.7 Conceptual Structure in the form of keywords and thematic map

Table 5: Most Relevant Keywords

Author Keywords (DE)	Articles	Keywords-Plus (ID)	Articles
Mendeley	23	Impact	16
Altmetrics	20	Altmetrics	14
Citation analysis	10	Web	12
Bibliometrics	9	Metrics	11
Bibliography	7	Science	10
Reference Management Software	7	Indicators	8
Zotero	7	Articles	7
Citations	5	Citations	7
CiteUlike	5	Information	7
Endnote	5	Citation	6
Refworks	5	Counts	6
Scientometrics	5	Social-Sciences	6
Mendeley Readership	4	Downloads	5
Research	4	Humanities	5
Research Evaluation	4	Citation Analysis	4

Mendeley (23), Almetrics (20), Citation analysis (10), Bibliometrics (9), Reference Management Software (7), and Zotero (7) are the most frequently occurring authors' keywords. The articles considered for bibliometric overview clearly show that most documents are available on Mendeley and Zotero. While the words associated with reference management come at the forefront, they have become chiefly occurring keywords. Keywords-plus shows a little difference in the list of most frequently occurring keywords. However, Almetrics (14) and Citations (7) could secure a place in the top fifteen frequently occurring keywords list. There are 254 authors' keywords, while the keywords-plus are 181.

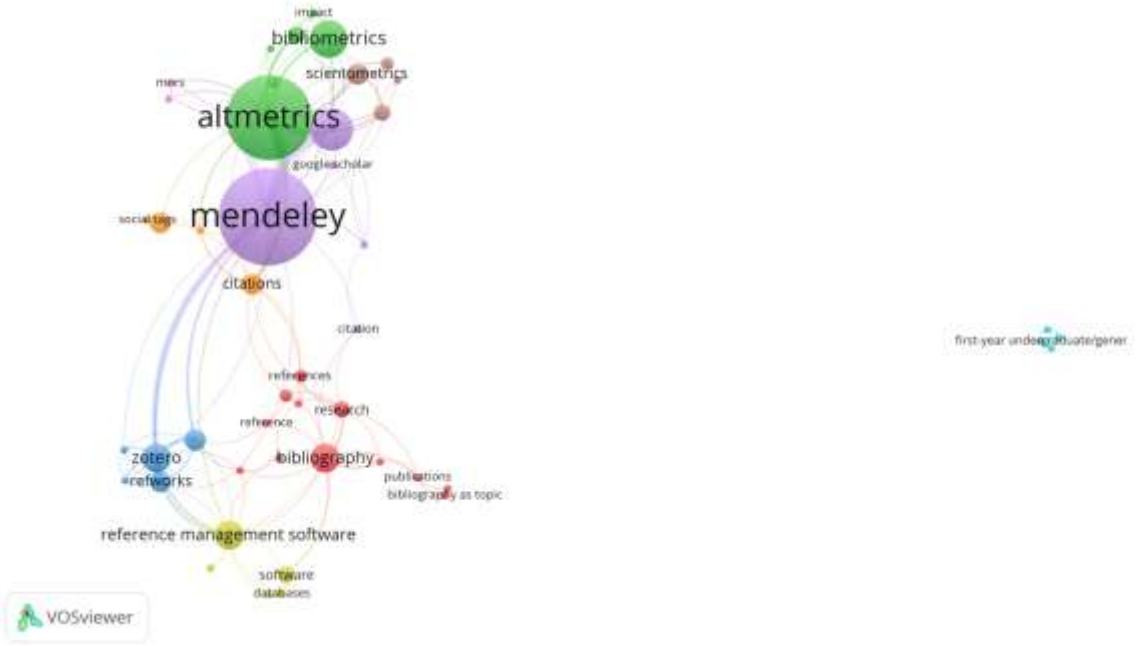

Figure 3: Co-occurrence of keywords with TLS

Figure 3 reflects the co-occurrence of keywords with their total link strength based on authors' keywords[6]. The full counting method is used. The keywords having a minimum of two occurrences have been selected. Out of 254 keywords, 47 met the threshold. The total strength of the occurrence links with other keywords has been calculated. Naturally, keywords with the greatest total link strength are selected. The VoSviewer graph reflects the word 'Mendeley' in 23 occurrences, with a total link strength 56. Next prominent keywords are Almetrics (Occurrence-20, TLS-47), Citation analysis (Occurrence-10, TLS-24), Zotero (Occurrence-7,TLS-21), Reference Management Software(occurrence-7,TLS-18), RefWorks (occurrence-5,TLS-17), Citations (occurrence-5,TLS-14), Bibliography (Occrence-9,TLS-13), Endnote(occurrence-5,TLS-13) and bibliometrics (occurrence-9,TLS-11).

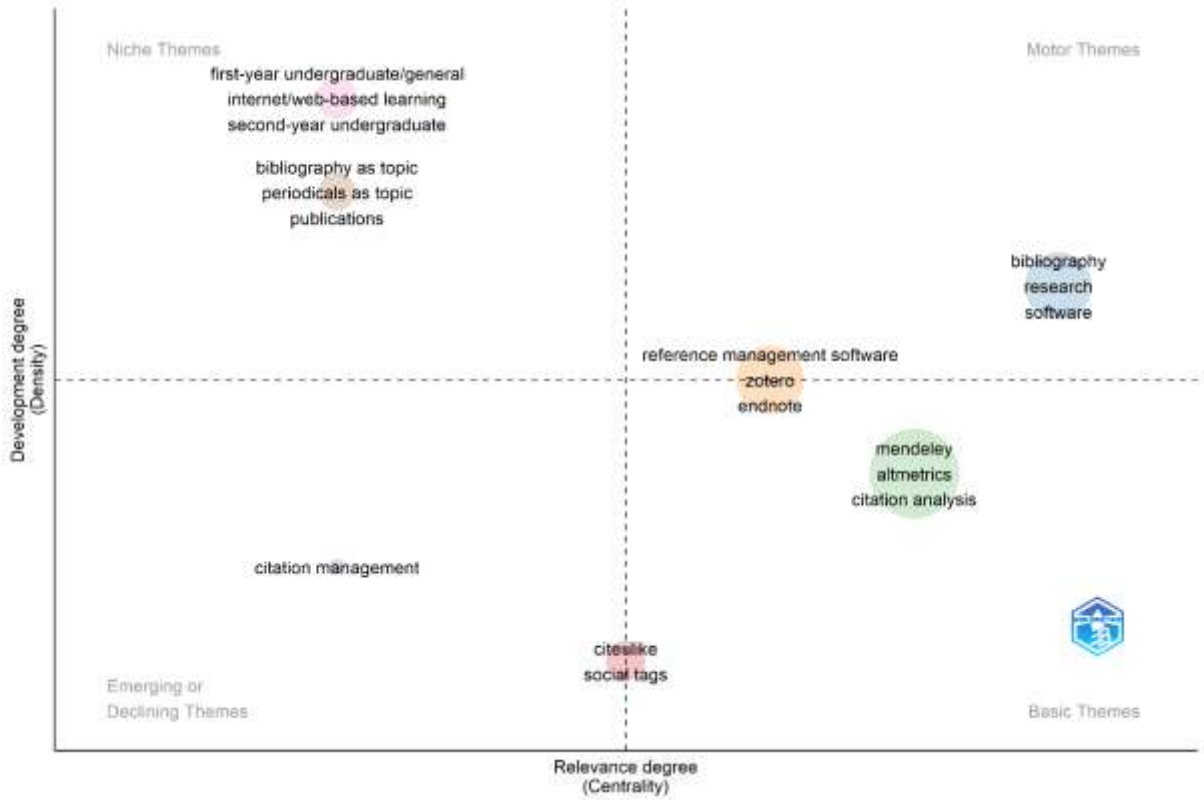

Figure 4: Thematic map

Figure 4 shows a thematic map based on author keywords. The figure is divided into four quadrants. The first lower part denotes emerging or declining themes. In this study, 'Citation management' belongs to that category. The left upper side of the graph shows niche themes such as 'first-year undergraduate/general', 'internet/web-based learning', second-year undergraduate', 'bibliography as topic', and 'periodicals as topic', which are highly important. These keywords show that users have experimented with reference management tools over time. 'Reference management software', 'bibliography', 'research' and 'software' are the motor themes in the graph's upper right corner. Meanwhile, the basic themes are 'mendeley', 'metrics', and citation analysis.

4. CONCLUSION

Reference management tools have proven beneficial for researchers in maintaining the scientific tradition of reference management. These tools have been equally helpful for systematic literature reviews and bibliometric analysis. The article took an overview of the literature available on reference management tools by using WoS. Two hundred eighteen documents were available. The average citation per document is calculated as 12.7. Bradford's core zone contained eight journals, in which 73 documents were published. Thelwal M, Volkov L P and Dorokhov I N are the most prominent authors publishing on reference management tools. Authorship pattern revealed a trend towards single authorship. The United Kingdom, USA, Netherlands, Canada and Germany were the most cited countries. The top ten highly cited documents shared 43.10% of citations. The conceptual study revealed the leading themes in the literature on reference management tools.

REFERENCES

1. Prytherch, R. 2001. Harrod's Librarians' Glossary and Reference Book 2000. 9thed. Gower Publishing company limited; Aldershot, 618.
2. Madhusudhan, M. 2016. Use of online citation tools by students and research scholars of department of library and information science, University of Delhi. DESIDOC Journal of Library and Information Technology. 36 (3): 164-172. Doi:10.14429/djlit.36.3.9428.
3. Aria, M. and Cuccurullo. C. 2017. Bibliometricx: An R-tool for comprehensive science mapping analysis. Journal of Informatics, 11(4): 959-975.
4. Subramanyam, K. 1983. Bibliometrics studies of research collaboration: A review. Journal of Information Science. 6: 33-38.
5. Ajiferuke *et al.* 1988. Collaboration coefficient: A single measure of the degree of collaboration in research. Scientometrics. 14 (5-6): 421-423.
6. Van Eck, N J. and Waltman. L. 2010. Software survey: VOSviewer, a computer program for bibliometric mapping. Scientometrics, 84 (2): 523-538.