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August 2021

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B, Rangaswamy, "Researcher's Perception on Zotero and Mendeley Reference Management Tools: A Study" (2021). *Library Philosophy and Practice (e-journal)*. 5935.

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Researcher's Perception on Zotero and Mendeley Reference Management Tools: A Study

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ABSTRACT

The purpose of this study to understanding the researcher's level of awareness, usage of reference management tools, benefits and obstacles of reference management tools in particularly "Zotero & Mendeley". Structured design questionnaire randomly distributed through web 2.0 technologies (E-mail, LIS links, WhatsApp, Facebook) and finally, we received 170 dully filled respondents. A total of 51 (30%) researchers not aware of RMS, because of the reasons lack of library staff support 45%, lack of technical support, and lack of knowledge on citation styles respectively 63 (13.7%). Based on the listed reasons the investigator suggests that the library and staff should provide a learning environment for using RMS through conducting seminars, workshops, orientation programs, and other kinds of possible ways.

KEYWORDS: Reference Management Tools, Zotero, Mendeley, Researcher's, Perception

INTRODUCTION

Reference management plays a very important role in the research work, references managing, organizing, to proper citing with a consistent style very difficult manually. To avoid these are the barriers in managing references introduced reference managing software, today's number of software available to manage references. (Francese, 2013) mentioned the importance of providing proper citations in scholarly communication. Several RMS features attract the user to using RMS for their research work (Nilashi, Ibrahim, Sohaei, Ahmadi, & Almaee, 2016). The study conducted by (Francese, 2008) on the use of references management software (RMS) to help scholars to manage large sets of references, and to

produce citations and references in a consistent style required by the publishing agency. In the present-day reference management market there are several different RMSs exist, with different features and purposes in the market for the analysis, namely, Mendeley (Medaille, 2010), Zotero (Ray, 2017), EndNote, CiteULike, and RefWorks (Zhang, 2012). Citations are always treated as the backbone of any manuscript. The present study dwells into the use of reference management software such as Zotero and Mendeley, among research scholars. (Emanuel, 2013) examined that many scholars today use older reference tools such as CiteULike, endnote, Biblio, and so on. But today's scholarly community wants to learn new tools and use them in their research works like Zotero and Mendeley as mentioned in the studies by (Parabhoi, Sahu, & Bhoi, 2018) and found that both Mendeley and Zotero have user-friendly features. Following is a brief note about Zotero and Mendeley.

Zotero is a free, OSS reference management tool that helps a researcher to collect, organize, and analyze research and can be shared in various ways. It can organize, tag, and search in advanced ways. Zotero interacts seamlessly with online resources and can automatically extract and save complete bibliographic references. Zotero instantly creates references and bibliographies for any text editor, and directly inside Word, LibreOffice, and Google Docs. With support for over 9000 citation styles, it formats a work to match any style guide or publication instantaneously (Zotero.org.). (Ray, 2017) conducted a study on Zotero OSS, which was developed by the Center for History and New Media at George Mason University, Virginia on 5 October 2006. It uses JavaScript language for coding purposes. (Fernandez, 2011) study says that it supported windows, macOS, Linux operating systems and it has good user-friendly features. For example, easy to cite, easy to manage references, can customization, and so-on.

Mendeley is a free reference manager, it is also an academic social network that can help you (Hicks, 2011) organize your research, collaborate with others online, and discover the latest research. It supports the automatic generation of bibliographies, collaborates easily with other researchers online, Easy import papers from other research software, find relevant papers based reading, and access papers from anywhere online. (Medaille, 2010); (Barsky, 2010) studied Mendeley and found that it helps to organize one's research, collaborate with others online, and discover the latest research-based on our searching keywords, automatic online synchronizations, group discussion, importing and exporting of the bibliographic data

made easy. It has some limitations of online storage and mandatory login as it is free as well as premium.

REVIEW OF LITERATURE

Several studies were conducted on different bibliographic management tools in different aspects. In research, giving a proper reference is the most important aspect, similarity studies (Francese, 2013); (Emanuel, 2013); (Sarrafzadeh and Hazeri, 2014) and (Rempel & Mellinger, 2015) found that majority 79 of researchers used EndNote reference tool ease of use earlier days with the availability of free of cost and other features. But present scenario researchers their attitude has been changed into Zotero and Mendeley have several features available, (Parabhoi et al., 2018) study results reveal that out of 160 respondents used Mendeley (28.75), Zotero (28.12) and rest of them used other reference management tools. It is clearly showing that Mendeley and Zotero Open Source Software are most popular in the becoming days. (Nilashi et al., 2016); (Zhang, 2012) conducted a study on features of RMS, study results reveal that "Ease of use, Citing, Collaboration, Search, Editing, Data format, Import-Export, and Technical features make the selection decision more solid for researchers.

Selection of reference management tools among researchers Zhang (2012) describes the strengths and weaknesses of RMS tools. This study helps researchers to select a better RMS among available RMS tools in the present scenario. (Francese, 2013); (Amrutha, Kumar, & Kabir, 2018) conducted a study on the usage of RMS in an academic environment among researchers. In this study, he found that researchers have a lack of knowledge about the use of RMS. (Lonergan, 2017); (Ram & K, 2014); (Osmani, Mza, Ahmad, & Arif, 2016) Survey results indicated that multiple RMS was in use, with faculty preferring Zotero over the library-supported RefWorks. More than 40 percent did not use any RMS. (Pathak & Johnson, 2018) study results show that a majority of students not aware, but the majority of CSIR researchers have aware of RMS, however, the adoption and use of RMS tools are very low (Bugyei, Kavi, & Obeng-Koranteng, 2019).

Several studies' results show that a majority of researchers and students not aware, and adoption of RMS. So that in this point of view libraries should provide better support to researchers learning RMS. (Kali, 2019) reported that reference management software needs to manage and give proper citation in the rapid growth of scientific literature with the variation of formatting in different citation styles. Scientific writing is an essential component

of the research curriculum so that he suggests that it is imperative for systems to effectively make use of these tools in their future research work.

NEED FOR THE STUDY

In the present software market available many more open source and commercial reference management software (RMS) are available for managing the research references. Most of the researchers not aware of and don't possess knowledge about various reference styles and also selecting the best and cost-free research management tools such as Zotero and Mendeley for their research purpose. It is felt that there is a need for this kind of study to assess the level of awareness, use of the OSS RMS for analyzing the references for their research. This study also aims to find out the preference for the use of Zotero and Mendeley RMS tools and also to know the library supports the use of such RMS tools.

OBJECTIVES OF THE STUDY

The main objectives of the study are;

- To find out the awareness, usage, and purpose of RMSs by researchers.
- To examine the reasons for using Zotero and Mendeley RMSs in their research work.
- To find out benefits derived by the use of RMSs.
- To identify the problems and risks associated with the use of RMSs
- To analyses the rating of RMSs features.

METHODOLOGY OF THE STUDY

The Survey method was used for this study with the help of a structured online google form questionnaire. The questionnaire is designed keeping given stated objectives consisting of open-ended and close-ended questions. The questionnaire was sent through different LIS groups, LIS forums, Individual email ID, and use of social networking sites Facebook, Twitter, Blogs. Finally, we received only 170 responses from different disciplines within three months.

DATA ANALYSIS AND INTERPRETATION

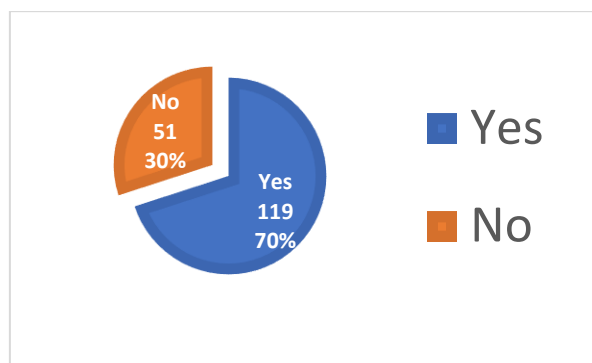
170 duly filled questionnaires were selected for further analysis and interpretation of data. The response to 12 questions was analyzed in the form of tables and figures using simple statistical methods, using MS excel-2019, SPSS statistical software, and providing citation, reference we were used Mendeley reference management software.

Table 1: Demographic characteristics of respondents

Gender			Qualification					
Male	Female	Total	Faculty guiding research	Faculty pursuing research	Post-doctoral research fellow	Ph.D. Research scholar	Postgraduate	Total
115	55	170	10	26	04	49	81	170

Data were collected from 170 researchers at a different academic level, out of which 115 (67.6) are males, while 55 (32.4) are females. Among the respondents, 49 (28.8) are Ph.D. research scholars, 26 (15.3) are faculty with pursuing research, 10 (5.9) are faculty with guiding to researchers as well as they did research, and the rest of the 81 (50) are postgraduate students. (Table I).

Figure 1: Aware of reference management tools



A dichotomous question was asked to researchers and students to know their knowledge of RMS's. More than half of the researchers' 199 (70) are aware of RMS's, while 51 (30) of researchers don't know RMS's (Figure- 1).

Figure 2: Adoption of reference management tools

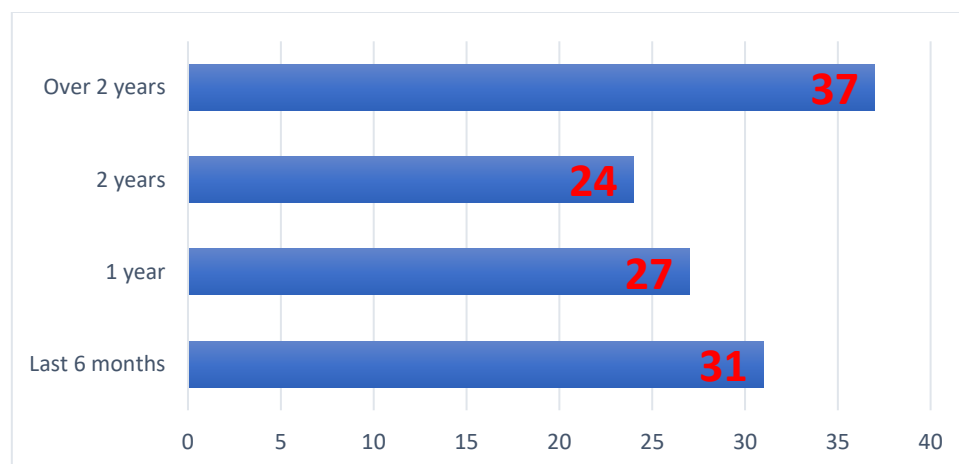
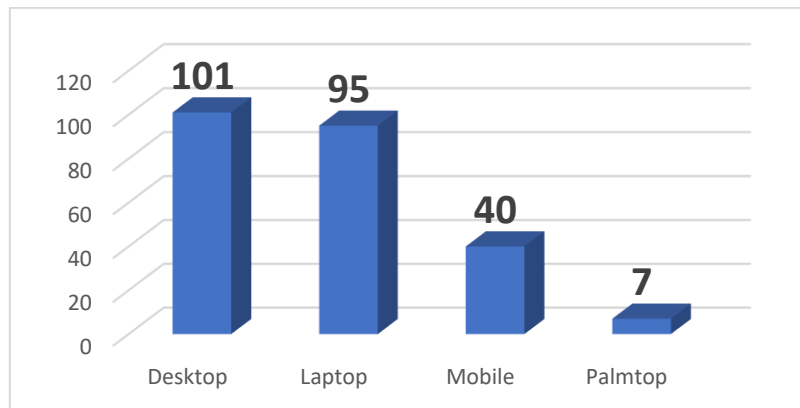


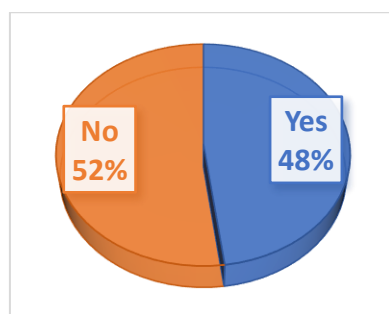
Figure 2 Indicates that the period for which respondents have been using RMS's. The results reveal that 37 (31.1) of respondents use RMS's for more than 2 years, followed by members who use them in the past 1-2 years. Some of the researchers (26.1) were using RMS's for six months to a year.

Figure 3: Devices to access reference management tools



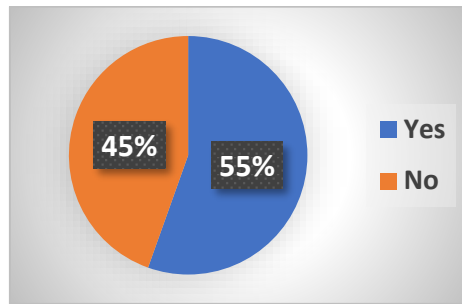
Researchers use various electronic gadgets to access RMS's; however, Desktops are used by most researchers 101 (84.9) while accessing SNSs, followed by laptops 95 (79.8), of respondents and rest of the 40 (33.6) of respondents used mobile phones; only 7 (5.9) are accessing RMS's through palmtops. (Figure 3). It is depicted from the figure that the desktop has emerged as the major tool for accessing RMS's.

Figure 4: Attend any courses/seminars to learn RMS



A question about asking researchers how do you learn the use of RMS's, half of the 52% respondents answered to this learning with self. While 48% of respondents are learning through seminars/workshops, (Figure 4).

Figure 5: Library/Library staff support for leaning RMS



A question about the role of libraries was made to answer one of the research questions, the 55% of respondents say to get support from the library, and the rest of the 45% spelled that we didn't get any support from library/library staff, to learn the use of RMS's to their research work, (Mcminn & Mcminn, 2011) study results also shows only 42% of respondents get supports from their library (Figure 5).

Table 2: Reason for choosing RMS (Mendeley & Zotero)

Sl. No.	Reasons	No. of respondents	%
1	Easy to use	108	92.3
2	Free of cost	113	96.6
3	Has good features	108	92.3
4	Compatibility with MS word	88	75.2
5	Good online Storage	96	82.1
6	For creating custom reference styles	75	64.1
7	Immediate updates	103	88.0
8	To upload my works for worldwide access	70	59.5
9	Good offline Storage	58	49.6
10	Compatibility with Libre office	91	77.8
11	Got to know from conference/ workshop/ seminar	83	70.9
12	Suggested by co-researcher/ colleague	47	40.2
13	Compatibility with mobile apps	66	56.4
14	Purchased/ provided by institution/ university/library	65	55.6

Table 2 explore that the Information about user behaviors and the reasons behind are analyzed through the questionnaire to be better understood the reason for choosing Zotero and Mendeley RMS's. Table II indicates that most of the researchers' 113 (96.6) used which are free of cost, 108 (92.3) of respondents are given primary priority to use these two RMS's have a good feature to help easy to use. At least 47 (40.2) of researchers choose suggested by co-researcher/colleague, 65 (55.6) of researchers used these two tools provided by the library and with the help of library staff.

Table 3: Purpose of use RMS (Mendeley & Zotero)

Sl. No.	Purpose	No. of respondents	%
1	To manage references	114	96.6
2	For literature search	96	81.4
3	To track citations	86	72.9
4	To create a custom reference style	60	50.8
5	To share research works	73	61.9
6	For easy research collaboration online	73	61.9
7	For making Notes	101	85.6
8	For group discussion	91	77.1

Table 3 indicates the purpose of use RMS, for different purposes which are interpreted in the above table the analyzed data informs that the use of reference management software to manage references with 114 (96.6), for literature search within the software 96 (81.4), a little 91 (77.1) percentage of scholars RMS use for group discussion and least 60 (50.8) of respondents says that custom reference style.

Table 4: Benefits derived from the use of RMS

Sl. No.	Benefits	No. of responses	%
1	Saves Time	113	21.4%
2	Easy to cite/ provide references	111	21.1%
3	Easy generation of bibliography	108	20.5%
4	Easy download and installation	100	19.0%
5	Free storage	95	18.0%

Table 4 shows the benefits of RMS's that a good number of researchers opined positively to use of RMS's. It reveals that saves the time of researchers with easy to provide references is a common benefit for respondents (21.4). They also pointed out that the use of RMS's can generate a bibliography without any difficulty 108 (19).

Table 5: Risks/Problems association with the use of RMS

Sl. No.	Risks associated with the use of RMS	No. of respondents	%
1	Lack of technical support	63	13.7%
2	Lack of knowledge on citation styles	63	13.7%
3	Insufficient training by OSS	60	13.0%
4	Cloud storage/ Upgradation costs	59	12.8%
5	Some styles are not available	58	12.6%
6	Difficult to learn on our own	47	10.2%
7	Software is too complex	42	9.1%
8	Difficult to install and add plugins	40	8.7%
9	Language difficulties	29	6.3%

Respondents were asked to indicate problems faced while using RMS's. Table 5 enlisting the most problems associated with RMS's. It depicts that above table researchers similarly 63 (13.7) of spelled on lack of technical support and lack of knowledge on different reference citation styles, it followed by insufficient training by OSS 60 (13); a number 47 (10.2) of respondents felt that difficult to learn our own, least of 29 (6.3) of researchers opined that language difficulties mean local language variations.

DISCUSSION & CONCLUSION

This study established that both Zotero & Mendeley reference management tools are the most popular & most used tools by researchers in India. Researcher why selecting these two reference management tools, because of ease of use, available with free of cost, easy to download and install, saves time of the researcher's and easy to customized researcher needed citation style these are the reasons 119 (70%) of researchers choose Zotero & Mendeley RMS. While remaining 51 (30%) of the research community didn't aware and they don't use RMS, because of lack of technical support, lack of knowledge on citation style, lack of library staff guiding support, and other kinds of obstacles. Based on this study results the investigator suggests that universities, institutions, and research organizations should provide the learning environment for the researchers through conducting various kinds of training, workshop, seminar programs on reference management tools for providing a citation to an appropriate source of information.

REFERENCES

- Amrutha, R. V, Kumar, K. S. A., & Kabir, S. H. (2018). Use of Reference Management Software among science research scholars in University of Kerala. *Indian Journal of Information Sources and Services*, 8(1), 54–57.
- Barsky, E. (2010). *Mendeley References : Issues in Science and Technology Librarianship*. <https://doi.org/10.5062/F4S46PVC>
- Bugyei, K. A., Kavi, R. K., & Obeng-Koranteng, G. (2019). Assessing the Awareness and Usage of Reference Management Software (RMS) among Researchers of the Council for Scientific and Industrial Research (CSIR) Ghana. *Journal of Information and Knowledge Management*, 18(3), 1–24. <https://doi.org/10.1142/S021964921950031X>
- Emanuel, J. (2013). Users and citation management tools : use and support. *Reference Services Review*, 41(4), 639–659. <https://doi.org/10.1108/RSR-02-2013-0007>
- Fernandez, P. (2011). Zotero : information management software 2 . 0. *LibraryHi Tech News*, (4), 5–7. <https://doi.org/10.1108/07419051111154758>
- Francese, E. (2008). The Usage of Reference Management Software (RMS) in an Academic Environment : A Survey at Tallinn University, 1995, 293–296.
- Francese, E. (2013). Usage of Reference Management Software at the University of Torino. *JLIS.It.*, 4(2), 145–174. <https://doi.org/10.4403/jlis.it-8679>
- Hicks, A. (2011). Mendeley: A Review. *Collaborative Librarianship*, 3(2), 2–4. Retrieved from <https://digitalcommons.du.edu/collaborativelibrarianship/vol3/iss2/10%0AThis>
- Kali, A. (2019). Reference management : A critical element of scientific writing. *Journal of Advanced Pharmaceutical Technology & Research*, 34–36. <https://doi.org/10.4103/2231-4040.169875>
- Lonergan, N. (2017). Reference management software preferences among liberal arts faculty. *Reference Services Review*, 45(4), 584–595. <https://doi.org/10.1108/RSR-06-2017-0024>
- Mcminn, H. S., & McMinn, H. S. (2011). Library support of bibliographic management tools : a review. *Reference Services Review*, 39(2), 278–302. <https://doi.org/10.1108/00907321111135493>
- Medaille, A. (2010). Mendeley Nicole A . Cooke , Column Editor. *Public Services Quarterly*, 6(4), 360–362. <https://doi.org/10.1080/15228951003772454>
- Nilashi, M., Ibrahim, O., Sohaei, S., Ahmadi, H., & Almaee, A. (2016). Features Influencing Researchers' Selection of Reference Management Software. *Journal of Information &*

- Knowledge Management*, 15(3), 1–23. <https://doi.org/10.1142/S0219649216500325>
- Osmani, M., Mza, R., Ahmad, B. A., & Arif, A. S. (2016). Reference management software (RMS) in an academic environment: A survey at a research university in Malaysia. *Journal of Theoretical and Applied Information Technology*, 88(1), 135–144.
- Parabhoi, L., Sahu, R. R., & Bhoi, N. (2018). Usefulness of citation or bibliographic management software: a case study of LIS professionals in India. *International Journal of Information Movement*, 2(XI), 55–61.
- Pathak, A., & Johnson, S. (2018). Use and awareness of reference management software among community college students. *Journal of New Librarianship*, 3(2), 229–256. <https://doi.org/10.21173/newlibs/5/12>
- Ram, S., & K, J. P. A. (2014). The use of bibliographic management software by Indian library and information science professionals. *Reference Services Review*, 42(3), 499–513. <https://doi.org/10.1108/RSR-08-2013-0041>
- Ray, A. K. (2017). Zotero : Open Source Citation Management Tool for Researchers. *International Journal of Library and Information Studies*, 7(3), 238–245.
- Rempel, H. G., & Mellinger, M. (2015). Bibliographic Management Tool Adoption and Use. *Reference & User Services Quarterly*, 54(4), 43–53.
- Sarrafzadeh, M. (2014). The familiarity and use of reference management software by LIS faculties in Iran. *New Library World*, 115(11/12), 558–570. <https://doi.org/10.1108/NLW-02-2014-0018>
- Zhang, Y. (2012). Comparison of Select Reference Management Tools. *Medical Reference Services Quarterly*, 31(1), 37–41. <https://doi.org/10.1080/02763869.2012.641841>