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Awareness and Use of Reference Management Software among Science & Technology Research Scholars in SUK: A Study with Citations

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Abstract:

This research aims to thoroughly examine the level of awareness and use regarding Reference Management Software among the science and technology research scholars at Shivaji University, Kolhapur. The primary goal of the study was to assess the scholars' familiarity with various types of Reference Management Software. Additionally, the study seeks to determine which features researchers prefer in different Reference Management Software. The research targeted a population of 85 science and technology research scholars, but analysis was based on responses from only 73 participants. The other 12 scholars were excluded because they belonged to different institutions. The sample size of 73 was considered adequate for drawing significant conclusions about the research. For data collection, structured questionnaires were prepared and handed out during a Conference.

Keywords: Awareness, Reference Management Software, Citation Management tools, Science & Technology, Research Scholars, SUK.

Introduction:

As the volume of scientific literature continues to grow exponentially, effective management of bibliographic information has become essential for researchers to sustain the accuracy and productivity of their scholarly work. Reference management software has significantly transformed the manner in which researchers organize and cite their sources, thereby streamlining the academic writing process. Both free and commercial options are available, providing different needs and budgets. Popular RMS tools, including EndNote, Mendeley, Zotero, RefWorks and others offer functionalities such as automated citation generation, reference organization, and collaborative features, rendering them essential for researchers (Gilmour & Cobus-Kuo, 2011). These tools not only streamline the process of managing bibliographic information but also facilitate the integration of citations and references in academic writing (Johnson & Lee, 2020).

Review of Literature:

Panda (2023) evaluated five widely used Reference Management Software (RMS) such as Citavi, EndNote, Mendeley, Qiqqa, and Zotero. The study also examines the role of academic libraries in helping users identify resources, with an emphasis on the effectiveness of RMS in refining search strategies, saving resources, and enhancing the clarity of research. Singh, Mahawar, and Singh (2022) conducted a study to examine the awareness and usage patterns of Reference Management Software (RMS)

among research scholars at Central Universities in North India. The findings indicate researchers commonly aware with RMS. Mendeley and Zotero being the popular among the research scholars. The authors recommend that need more training programs to enhance the effective utilization of these tools. Pathak and Johnson (2018) investigate the awareness and use of reference management software (RMS) among students at Hostos Community College and Queen borough Community College. The findings indicate that the majority of students from both institutions were unaware and not using RMS. Amrutha, Kumar, and Kabir (2018) conducted a study which identify that a majority of respondents i.e. (76%) using Mendeley software. However, more respondents reported facing challenges in using the RMS tools, including insufficient training, inadequate technical support, poor internet connectivity, and limited knowledge of referencing styles. Kavitha, E. S., and Sathya, K. (2024) conducted a study to examine the awareness and utilization of reference management tools among research scholars at Periyar University. The study shows that the majority of respondents were familiar with reference management tools. The findings indicate that research scholars at Periyar University have excellent understanding of and satisfaction with reference management systems (RMS).

Objectives:

1. To assess the awareness and use of reference management software by research scholars.
2. To find out the specific Reference Management software used for managing citations.
3. To identify the features preferred by research scholars from various reference management software.
4. To find out the challenges faced while using RMS

Hypothesis:

The following hypotheses have been formulated for the present study.

(H1): Science & Technology Research Scholars are well aware of Reference Management Software (RMS) of SUK.

(H2): Mostly Research Scholars are using Reference Management Software for their research.

Scope and Limitations of the Study:

The present study examines the awareness and usage patterns of reference management software among research scholars in the fields of science and technology at Shivaji University, Kolhapur (SUK). However, the study is limited by its focus on a single university and its exclusive consideration of the science and technology disciplines.

Methodology:

The study employed a survey approach, utilizing an offline questionnaire to achieve its objectives. Descriptive data analysis was performed using MS Excel. The research targeted a population of 85 science and technology research scholars, but analysis was based on responses from only 73 participants. The other 12 scholars were excluded because they belonged to different institutions. The sample size of 73

was considered adequate for drawing significant conclusions about the research.

Data Analysis and Interpretation:

Table 1: Subject-wise Research Scholars

Subject	Total No. of Researcher	Percentage(%) of response
Physics	13	17.81
Chemistry	26	35.62
Mathematics	2	2.74
Computer Science	3	4.10
Zoology	13	17.81
Botany	9	12.33
Microbiology	5	6.85
Bio-Physics	1	1.37
Pharmaceutical Science	1	1.37
Total	**73**	**100**

Table 1. Shows that the various subjects in science and technology at Shivaji University, Kolhapur has 73 researches.

Table 2: Age-wise Responses

Age group	Distribution	Percentage
below 27	24	32.88
27-35	39	53.42
35-40	08	10.96
above 40	02	2.74
Total	**73**	**100**

Table 2. presents the distribution and percentage of participants across different age categories: below-27, 27-35, 35-40, and above 40 from a total of 73 respondents. Among them, 32.88% were below-27, 53.42% fell within the 27-35 range, 10.96% were aged 35-40, and 2.74% were above-40. The data indicates that the majority of respondents were aged 27-35.

Table 3. Gender-wise Responses

Gender	Distribution	Percentage
Male	12	16.43
Female	61	84.57
Total	**73**	**100**

Table 3. The data shows that a significant majority of the research scholars, specifically 61 individuals (84.57%), were female, in contrast to 12 males (16.43 %). This clearly indicates that the major proportion of research scholars is females, while males found a minority.

Figure 4. Awareness of RMS

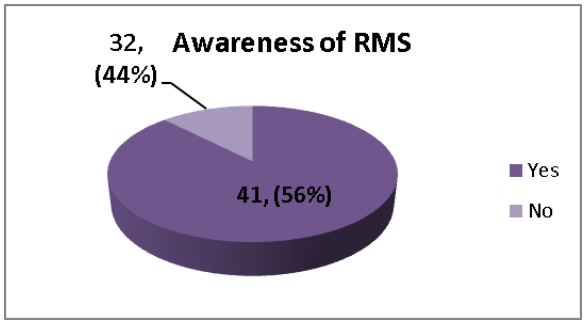


Figure 4. Shows that 41 (56%) of research scholars are familiar with Reference Management Software whereas, 32 (44%) research scholars are not aware.

Figure 5. How did you become aware of RMS?

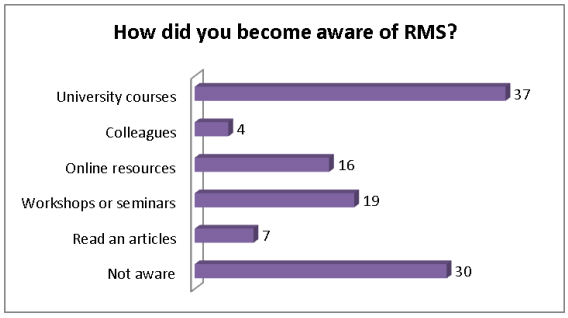


Figure 5. shows 37 research scholars gained awareness through university Ph.D. coursework, 19 through workshops or seminars, 16 via online resources, 7 by reading articles on RMS, 4 from colleagues, and 30 remained unaware. The data suggests that university Ph.D. coursework were the most effective means of raising awareness about RMS among research scholars. Workshops and seminars also played a significant role in informing participants, followed closely by online resources. Surprisingly, a substantial number of research scholars remained unaware of RMS, indicating a need for improved outreach and education efforts in this area.

Figure 6. Have you ever attended any training or workshop on using RMS?

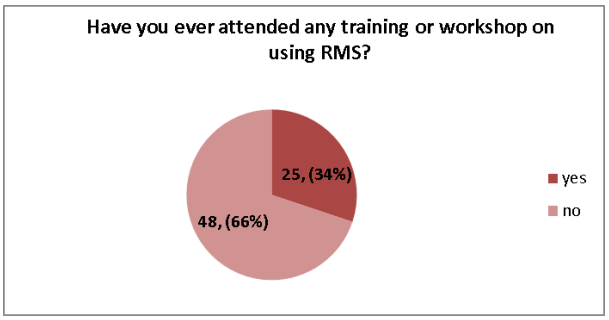
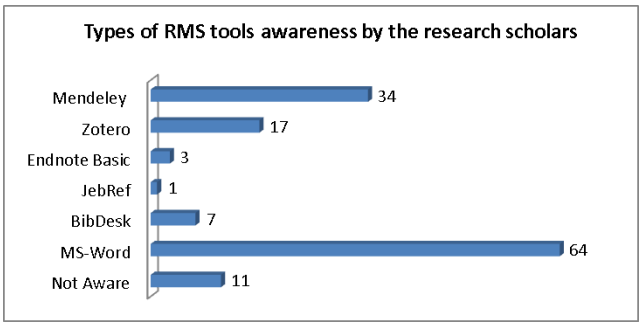


Figure 6, shows that 48 research scholars, representing 66%, participated in training sessions on the use of reference management software, whereas 25 scholars, accounting for 34%, did not attend any such training or workshops. This indicates that a significant majority of scholars recognize the importance of managing references effectively.

Figure 7. Types of RMS tools awareness by the research scholars



** Multiple answer were permitted*

Figure 7. Shows that, MS-Word was the most aware by research scholars of Shivaji University, Kolhapur followed by Mendeley and Zotero for citation purposes during academic writing. Other software packages appear to have limited recognition.

Figure 8. Are you using RMS regularly?

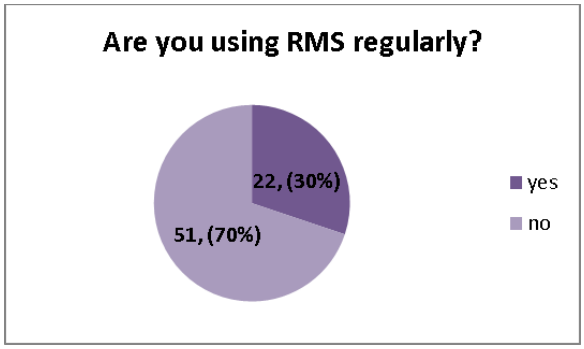


Figure 8. Shows that only 22 (30%) research scholars use Reference Management software, whereas 51 (70%) scholars did not employ such software.

Figure 9. Type of RMS using by Research Scholars

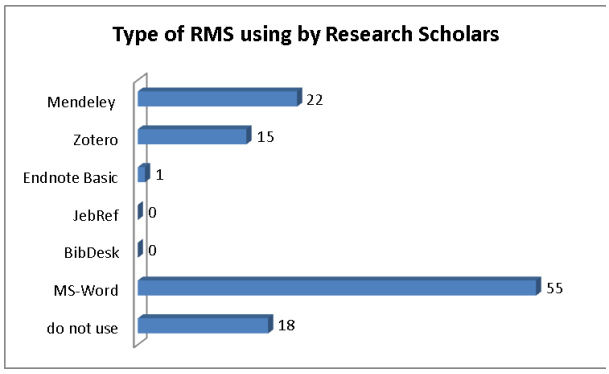


Figure 9. Shows that MS Word is most widely use tool among 55 research scholars. This is followed by Mendeley, which is used by 22 scholars and is also popular within the research community. Zotero is frequently active by 15 scholars, 18 research scholars do not utilize any of these tools.

Figure 10. Reason for selecting RMS?

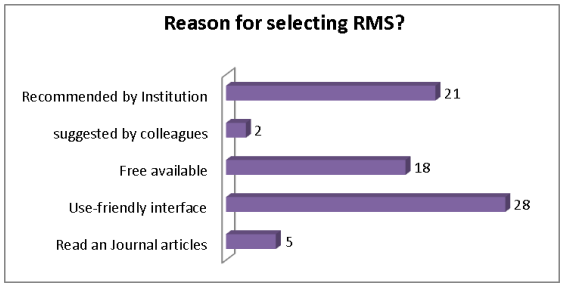


Figure 10. Indicate that the majority of research scholars, specifically 28 respondents, prioritized a user-friendly interface in their selection of reference management software. Of these, 22 respondents used the software recommended by the university. In addition, 18 respondents chose software that was freely available. Furthermore, two respondents selected the reference management software based on recommendations from their colleagues.

Figure 11. Challenges faced while using RMS

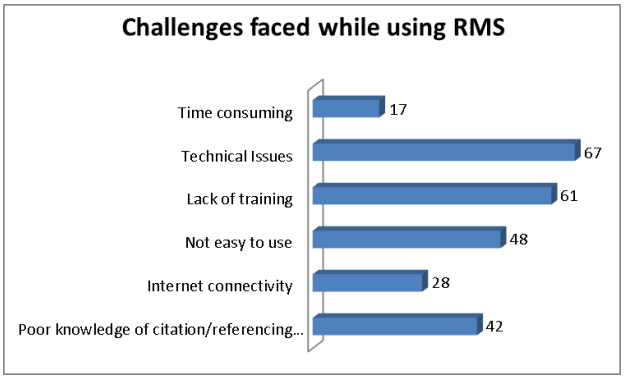


Figure 11. Shows several challenges faced by users while using RMS. Technical issues emerged as the most significant hurdle, with 67 research scholars reporting difficulty. This was closely followed by a lack of proper training, as indicated by 61 research scholars. The complexity of RMS interfaces poses another obstacle, with 48 users finding the software difficult to use. Time consumption was also a concern, though for a smaller group of 17 research scholars. Internet connectivity problems affected 28 users, potentially hindering access to cloud-based features. Notably, 42 scholars struggled with poor knowledge of citation and referencing styles.

Findings:

The findings reveal several key insights about research scholars and their use of reference management software (RMS).

1. Approximately 35.62 % of research scholars from chemistry had the highest representation.
2. Most scholars (53.42%) were in the 27-35 age group.
3. Of these, 84.57% were female and only 16.43% were male.
4. About 41 research scholars were aware of RMS, whereas 32 using them.
5. About 37 scholars were aware of RMS from university coursework, followed by 19 scholars from workshops/seminars and 16 from online resources.
6. About 28 scholars, the primary criterion for selecting the RMS was a user-friendly interface. This was followed by 22 scholars, who chose the software recommended by their institution.
7. Approximately 66% of the research scholars participated in training sessions on RMS use.
8. It was found from the study that 67 scholars faced technical issues while using RMS, followed by 61 lack of proper training, 48 users finding the software difficult to use, Time consumption was also a concern.

These findings highlight the need for enhanced RMS education, improved user interfaces, and comprehensive training programs to maximize the benefits of reference management tools in academic writing.

Conclusion:

The study provides significant insights into the awareness and utilization of Reference Management Software (RMS) among Science and Technology research scholars at Shivaji University, Kolhapur. The findings indicate that university coursework are the primary source of RMS awareness, followed by workshops and online resources. The survey also reveals that MS Word is the most recognized software, followed by Mendeley and Zotero. The choice of RMS is predominantly influenced by user-friendly interfaces, institutional recommendations, and free availability. These findings underscore the need for more comprehensive training programs, improved user interfaces, and enhanced technical support to optimize the benefits of RMS for research scholars. Furthermore efforts should be made to increase awareness and adoption of RMS tools to improve the efficiency and quality of academic research.

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