International Journal of Advanced Research in Education and Society
e-ISSN: 2682-8138 | Vol. 7, No. 6, 796-804, 2025
https://asianscholarsnetwork.com/asnet-journals

The Usefulness and Usability of Mendeley: A Study on Reference Management Practices among Postgraduate Students

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Received: 25 October 2025 | Accepted: 19 December 2025 | Published: 31 December 2025

DOI: https://doi.org/10.55057/ijares.2025.7.6.64

Abstract: *Academic writing at the postgraduate level demands accuracy, integrity, and effective management of scholarly sources. Referencing and citation are core practices in ensuring academic honesty and research credibility. Despite this, many postgraduate students face persistent challenges in mastering citation styles and integrating references effectively. Reference management tools such as Mendeley have emerged as key solutions, offering features that enhance accuracy, efficiency, and collaboration. This conceptual paper, guided by the Technology Acceptance Model (TAM) and supported by Diffusion of Innovation Theory (DIT), explores how postgraduate students perceive the usefulness and usability of Mendeley in academic writing. The discussion highlights three main constructs awareness, perceived usefulness, and perceived ease of use as determinants of Mendeley adoption. Drawing from prior literature, the paper examines challenges in referencing, the role of digital literacy, and the institutional support required to enhance postgraduate students' adoption of reference management tools. The implications underscore the importance of structured training, policy support, and digital literacy development in higher education. This paper contributes to the understanding of how reference management tools can strengthen academic writing practices and integrity among postgraduate students.*

Keywords: Academic Integrity; Mendeley; Reference Management

1. Introduction

Academic writing is a fundamental skill that underpins scholarly communication, enabling the structuring of ideas, analysis of evidence, and dissemination of knowledge. In postgraduate education, students are expected to not only master their field but also to produce original, credible, and ethically sound research. A critical component of this process is the practice of citation and referencing, which demonstrates engagement with existing literature, acknowledges intellectual contributions, and upholds academic honesty (Pears & Shields, 2019; Neville, 2010). Proper citation is essential for avoiding plagiarism, ensuring transparency, and allowing readers to trace sources, thereby strengthening the credibility of academic arguments (Harris, 2019).

Despite the undeniable importance of referencing, many postgraduate students encounter significant challenges in accurately citing sources, mastering various citation styles (such as APA, MLA, or Chicago), and consistently integrating references into their work. These difficulties are often intensified by the ever-increasing volume of information that students

must manage and their limited familiarity with citation standards and digital referencing technologies (Ajayi, 2020; Nguyen, Tran, & Le, 2024). These challenges highlight a foundational gap in academic writing instruction and digital literacy that frequently leads to errors, incorrect application of referencing styles, and even accidental plagiarism (Ali & Gul, 2021).

In response to these pervasive issues, reference management tools (RMTs) such as Mendeley, Zotero, and EndNote have become increasingly vital. These tools are designed to streamline the process of organizing bibliographic data, managing digital documents, and automatically generating citations in various styles (Lamptey & Atta-Obeng, 2013; Sari & Adam, 2021). Mendeley, in particular, has gained widespread popularity due to its user-friendly interface, cloud synchronization, PDF annotation capabilities, and seamless integration with word processors like Microsoft Word (Ali & Gul, 2021; Sengupta & Das, 2023).

However, despite the availability and rich features of such tools, the adoption and effective utilization of Mendeley among postgraduate students remain inconsistent. Many students may be unaware of its full capabilities, or they might use it inefficiently or incorrectly, resulting in persistent citation errors and inconsistencies (Ajayi, 2020; Lamptey & Atta-Obeng, 2013). This underutilization or misuse often stems from insufficient training, limited digital literacy, or misconceptions about the tools' purpose (Nguyen et al., 2024; Warda & Habibah, 2024). Given these concerns, it is crucial to investigate how postgraduate students perceive and utilize Mendeley in the context of their academic writing, particularly within Malaysian higher education institutions where empirical studies on this topic are limited. Understanding their level of awareness, perceived usefulness, and perceived ease of use of Mendeley can offer valuable insights for improving reference management practices and enhancing the overall quality and integrity of academic work (Ali & Gul, 2021; Sari & Adam, 2021).

2. Materials and Method

This study employs a quantitative survey research design to investigate postgraduate students' use of Mendeley as a reference management tool. The design is specifically chosen to collect structured data from a substantial sample, allowing for the analysis of relationships between key variables such as awareness, perceived usefulness, and perceived ease of use, and their influence on Mendeley adoption. This approach is well-aligned with the Technology Acceptance Model (TAM) which underpins the study's conceptual framework.

The aim of this research is to investigate how postgraduate students utilize Mendeley for citation and reference management in their academic work, assessing its adoption and effectiveness in meeting their referencing needs. To achieve this, three specific objectives have been formulated:

i. To determine the level of awareness of Mendeley among postgraduate students.
ii. To assess postgraduate students' perceived usefulness of Mendeley.
iii. To evaluate postgraduate students' perceived ease of use of Mendeley's features and interface.

Based on these objectives, the following research questions guide the study:

i. What is the level of awareness of Mendeley among postgraduate students?
ii. How do postgraduate students perceive the usefulness of Mendeley in their citation and referencing tasks?
iii. How do postgraduate students perceive the ease of use of Mendeley's features and interface?

The conceptual framework for this study is grounded in the Technology Acceptance Model (TAM) proposed by Davis (1989), integrated with aspects of the Diffusion of Innovation Theory (DIT). TAM explains user acceptance of technology based on Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). In this framework, Awareness (drawn from DIT), Perceived Usefulness, and Perceived Ease of Use are the primary independent variables influencing the dependent variable, which is the use of Mendeley for citation and referencing among postgraduate students.

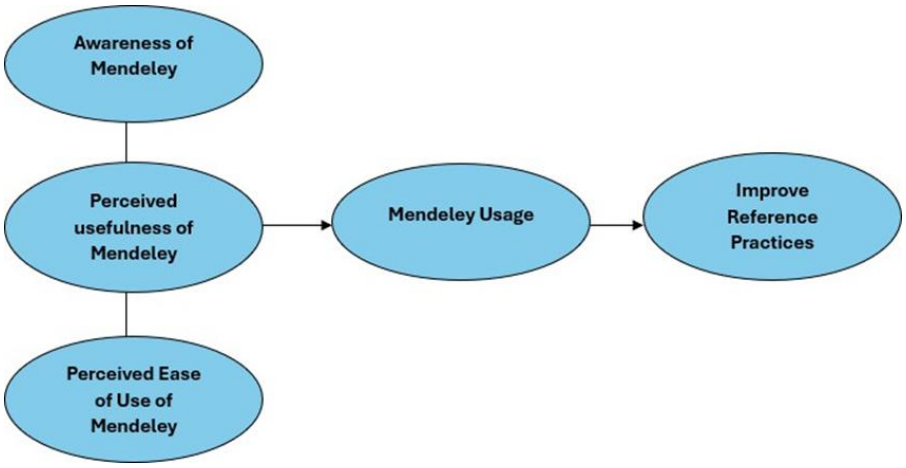

Figure 1: Conceptual Framework

The scope of the research is confined to exploring the utilization of Mendeley as a reference management tool among postgraduate students in the context of citation and referencing tasks. Specifically, it examines students' awareness of Mendeley, their perceptions of its usefulness (e.g., in improving accuracy, saving time, enhancing academic writing), and their perceptions of its ease of use (e.g., navigating the interface, importing references, generating citations). The study is conducted within Malaysian higher education, limited to postgraduate students from selected institutions, and does not include undergraduates or comparisons with other reference tools. Data are collected through a structured questionnaire, focusing on self-reported experiences and perceptions related to the TAM and DIT constructs.

Key terms are defined operationally for clarity and consistency. Awareness refers to the extent to which postgraduate students are familiar with Mendeley, including having heard of it, understanding its basic purpose, and exposure to its functions. Perceived usefulness is the degree to which a student believes Mendeley enhances their academic writing by managing references, saving time, and improving citation accuracy. Perceived ease of use refers to how simple and user-friendly a student finds Mendeley to operate, including navigating its interface, importing citations, generating reference lists, and integrating with word processors.

The target population consists of Master's and PhD candidates enrolled at SEGi University and College in Malaysia, selected for their active engagement in academic research and writing. A purposive sampling method was adopted, selecting 250 postgraduate students who had participated in a Mendeley training workshop. This method ensures respondents have some exposure to Mendeley, allowing them to reflect meaningfully on its usage. While this sample size is adequate for descriptive statistics and exploring variable associations, findings may not be generalizable to all postgraduate students, particularly those without training, and recent workshop exposure might positively influence responses (Hawthorne effect).

A structured questionnaire serves as the primary data collection instrument, designed to gather quantitative data on students' awareness, perceived usefulness, and perceived ease of use of Mendeley. The questionnaire is divided into four sections:

- Section A: Demographic Information collects basic background data (gender, age, level of study, faculty, prior Mendeley workshop attendance).
- Section B: Awareness of Mendeley assesses familiarity with Mendeley, including prior knowledge, usage, and understanding of basic functions like citation generation.
- Section C: Perceived Usefulness of Mendeley measures perceptions of Mendeley's benefits, such as enhancing efficiency, improving writing quality, saving time, and supporting document organization.
- Section D: Perceived Ease of Use of Mendeley captures students' perceptions of Mendeley's user-friendliness, ease of learning, mental effort required, and navigation of citation functionality. Each item is measured using a 5-point Likert scale. The questionnaire items were adapted from previous validated TAM-based instruments. Content validity was ensured through expert review, and a pilot test with a small sample led to minor revisions for clarity and reliability.

Data analysis will be conducted using SPSS (Statistical Package for the Social Sciences) version 15. Descriptive statistics (frequencies, means, standard deviations) will summarize demographic information and responses for each construct. Inferential statistics, including Pearson correlation and multiple regression analysis, will examine relationships between variables within the TAM framework, identifying the influence of awareness, perceived usefulness, and perceived ease of use on Mendeley usage. Reliability of the instrument was assessed using Cronbach's Alpha, with a coefficient of $\alpha \geq 0.7$ considered acceptable for internal consistency, which was demonstrated across all constructs. Content validity was achieved through expert review, and construct validity was supported by adapting validated TAM-based questionnaires

3. Results and Discussion

3.1 Objective 1: Awareness of Mendeley

The findings indicate that postgraduate students had mixed levels of awareness regarding Mendeley. While a majority had heard of the tool during postgraduate workshops and training sessions, a significant number were only exposed to it after enrolling in postgraduate programs. Many students reported that Mendeley was not introduced during their undergraduate studies, which contributed to delayed adoption. This gap reflects a broader issue of insufficient exposure to digital reference management tools at earlier stages of higher education.

These results are consistent with Ajayi (2020), who found that postgraduate students often lacked early exposure to reference management software, leading to reliance on manual

referencing methods. Similarly, Lamptey and Atta-Obeng (2013) emphasized that mere awareness of tools like Mendeley does not automatically lead to adoption, as students often fail to explore the software beyond its basic functions. This suggests that awareness, while essential, must be supported with hands-on training and integration into academic curricula to ensure effective usage.

3.2 Objective 2: Perceived Usefulness of Mendeley

The results show that postgraduate students generally perceived Mendeley as highly useful for their academic work. Respondents highlighted features such as automatic citation generation, reference list formatting, PDF storage, and annotation as significantly improving their writing efficiency. Students also noted that Mendeley helped reduce citation errors, saved time compared to manual referencing, and contributed to maintaining academic integrity by minimizing the risk of plagiarism.

These findings reinforce the Technology Acceptance Model (TAM), which identifies perceived usefulness as a key determinant of technology adoption (Davis, 1989). Ali and Gul (2021) also reported that postgraduate students found Mendeley beneficial in improving writing quality and managing bibliographic information. Furthermore, Sari and Adam (2021) argued that Mendeley's usefulness lies in its ability to support plagiarism prevention, as it ensures accurate referencing. The alignment between this study and previous literature underscores the importance of perceived usefulness as a strong motivator for students to adopt reference management tools in academic writing.

3.3 Objective 3: Perceived Ease of Use of Mendeley

Perceptions of Mendeley's ease of use varied among postgraduate students. Many respondents found the interface intuitive, particularly the Word plug-in for citation insertion and the drag-and-drop function for importing references. Students also appreciated the software's cloud synchronization feature, which enabled access to their libraries across multiple devices.

However, several students reported challenges during installation, synchronization errors, and difficulties with managing imported references, such as incorrect metadata or incomplete bibliographic details. These challenges often required manual corrections, which some students found frustrating. Such findings are consistent with Sengupta and Das (2023), who noted that the ease of use of reference management tools is closely linked to students' digital literacy levels. Similarly, Nguyen et al. (2024) emphasized that insufficient training can make students perceive these tools as complex, even when they are designed to be user-friendly. According to TAM, perceived ease of use shapes intention to adopt technology, and in this study, students who perceived Mendeley as easy to learn and operate were more likely to continue using it.

4. Conclusion

This study aims to provide a comprehensive understanding of how Mendeley can significantly support postgraduate students in managing citations and improving their academic writing quality. Through the conceptual framework grounded in the Technology Acceptance Model (TAM), the study demonstrates that perceived usefulness, perceived ease of use, and awareness are key independent variables that shape students' attitudes toward Mendeley, which in turn influence their intention and actual usage of the tool. Students are

more likely to adopt Mendeley if they perceive it as helpful, easy to use, and are aware of its features and benefits.

Mendeley utilization directly contributes to referencing accuracy, particularly in proper citation formatting, generating bibliographies, and avoiding plagiarism, elements crucial for meeting scholarly standards. Integrating digital tools like Mendeley not only improves efficiency but also reduces unintentional citation errors, which are common among postgraduate students. However, the literature also highlights existing challenges such as limited student familiarity with all Mendeley's features, a lack of formal training, and difficulties in adapting to different referencing styles. Without adequate support, many students fail to maximize the tool's potential, impacting the accuracy and consistency of their references.

In summary, this study contributes to the growth of literature on digital tools in higher education by exploring how the proper use of Mendeley can bridge the gap between technical referencing skills and academic writing competence, especially within the underexplored Malaysian context. It offers practical implications for educators, universities, and students, suggesting that investing in digital literacy and support infrastructure is essential for academic success at the postgraduate level. The methodological framework, guided by TAM and employing a quantitative survey design, provides a systematic foundation for collecting and analyzing data from postgraduate students who have received Mendeley training, ensuring the validity, reliability, and relevance of the research findings.

Acknowledgement

The authors would like to express their sincere appreciation to Universiti Kebangsaan Malaysia (UKM) for the continuous support and resources provided throughout this research project. The authors also acknowledge the valuable guidance and encouragement received from faculty members and colleagues, which greatly contributed to the successful completion of this study.

Conflict of Interest Statement

The authors declare that there is no conflict of interest regarding the publication of this study.

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