



# Evaluation of the Mendeley Utilization Training for Academic Writing through Usability Approach

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## ABSTRACT

Mendeley is one of the best reference managers that has been used by many academic writers around the world. In Indonesia, Mendeley became the first place application for references management. Several training programs had been implemented in order to improve the capability of users in using Mendeley for academic writing. However, the evaluation is still limited to the normative approaches. This community engagement used an online method to convey the Mendeley course to participants from various academic background. Mendeley online training was only given in one session of training. This method was chosen due to the COVID-19 pandemic situation. Evaluation of training used the USE questionnaire to evaluate the usability score of this application. Our findings showed, however, the online training could give a positive impact but there was an ease of learning variable that was not equal to the others perceived by participants. Future training programs need to address this challenge to achieve the highest possible outcome.

## 1. INTRODUCTION

Since academic writing needs to draw on the collection many literary sources, researchers and authors must ensure their references are properly managed. In one article for example, authors will use various references and must review the references more than once to make sure that the content of the article is on the right track with those topic and references. Gathering references if not supported by a good system will be time consuming and exhausting for writers. To solve this problem, some developers launched reference manager applications, including Mendeley. Mendeley has become the major reference manager application in Indonesia. But, the usage of this application is still challenging for some people, particularly for new authors and people who are not familiar with the technology (Ramadhan et al., 2021).

In academic writing, Mendeley utilization shows an increase every year. To accommodate the trend of using Mendeley and solve its challenges, capacity-building programs have become an urgent issue. The requirement for effective methods have to be developed in this COVID-19 pandemic. In previous studies about Mendeley training, some differences in delivery methods and evaluation strategies occurred but those have a similarity that the evaluation focuses on the knowledge or the practicality of this application (Hermelia et al., 2021; Windarto et al., 2018). It remains a big

question of how users can be evaluated in relation human to technology and vice versa?

One of system tests that quite often used is evaluating the perception of usability system among users. User usability evaluation is mostly implemented to evaluate the information systems or mobile apps in many settings (Krawiec & Dudycz, 2019; Tuena et al., 2020; Yuniarto et al., 2019). Usability evaluation plays a pivotal role in determining whether a system can be adopted and gives maximum benefit to user tasks or not. User experience is the primary data source to depict usefulness, ease of use, and learning the application. Together, these variables will represent the user satisfaction of the application to achieve their needs (Hertzum, 2020).

Usability assessment for reference manager application is rarely investigated. Users' experience of the Mendeley application can be created through daily use of application or training programs (Garrett, 2011). The Mendeley training development during COVID-19 pandemic mainly used online methods to convey the topics. This strategy is the best way to conduct training and prevent the COVID-19 spread by face-to-face interactions. Online training also has some benefits such as being able to solve geographic differences issues, time and cost effectiveness, and increase the ability of trainees in using the information technology and communication media indirectly (Kirkpatrick & Kirkpatrick, 2011). Through this online Mendeley training, trainees will improve their skill in utilizing the Mendeley application for academic writing activities.

**2. METODE**

This community engagement was an online training program to deliver the topic using Mendeley for academic writing and reference manager. The trainees came from various healthcare professional programs and level of education. We announced the Mendeley online training through a couple platforms which were WhatsApp Broadcast and Instagram. This training was held in a single session on November 20, 2021 by Zoom Meeting. Trainees who take part this program must fill out the registration form first and then enter to the WhatsApp group as a medium for information sharing between trainees and trainers and vice versa. Through this training program, trainers gave some courses such as Mendeley basic information and installation, Mendeley usage, and practical sessions.

The trainers also lead a discussion session for trainees if they have questions or problems with the Mendeley installation or practice. After receiving the courses, trainees must fill out an online Usability System Evaluation (USE) questionnaire to identify how useful this application was. Moreover, the USE questionnaire has a tendency to be implemented to evaluate how interface and performance of information systems or applications from pragmatic point of view (Schrepp, 2020). This collecting data was only done after the training. The purpose of this evaluation was to determine the impact of Mendeley on user satisfaction after training course. The USE questionnaire was chosen because of its capability to capture users' usability perceptions and has a good validity and reliability score (Rahman & Vitalocca, 2018).

If users are satisfied with the application, it means that the Mendeley training program is able to convey the topic of using Mendeley to the trainees and can be applied to academic writing activities. The USE result can be interpreted according to the ranges that had been developed previously.

Table 1. The USE Questionnaire Interpretation

Range	Interpretation
<20	very unworthy
21-40	unworthy
41-60	enough
61-80	worthy
81-100	very worthy

**3. RESULTS**

In our training strategy, registered trainees must attend a Zoom Meeting that has been provided by the team. One hundred and five participants attended this training session. The demographic distribution of the training participants can be seen in Table 2. Most of the participants were dominated by women as many as 96 (91.42%) participants while the two highest education participants came from trade/vocational/technical and undergraduate with a percentage of 44.76% and 38.09%, respectively.

By using the Zoom meeting, trainers delivered Mendeley basic courses. Mendeley courses divided into several sub-topics, namely introduction; Mendeley overview; Mendeley setting; reference management; document highlighting and annotation; how to use citations; and creating a collaboration group on Mendeley. After

explaining the Mendeley topic, trainers gave a demonstration of Mendeley usage while trainees also practiced independently at the same time.

Some participants asked some questions regarding to the Mendeley installation and some menus in Mendeley. Some participants have used Mendeley to manage their references but still had some technical issues due to Mendeley features.

Table 2. Demographic Characteristics of the Mendeley Training Participants (n=105)

Variables	Freq (n)	(%)
<b>Gender</b>		
Male	9	8.57
Female	96	91.42
<b>Background</b>		
Trade/vocational/technical	47	44.76
cal	40	38.09
Bachelors	13	12.38
Masters	1	0.95
Doctorals	4	3.80
Other		

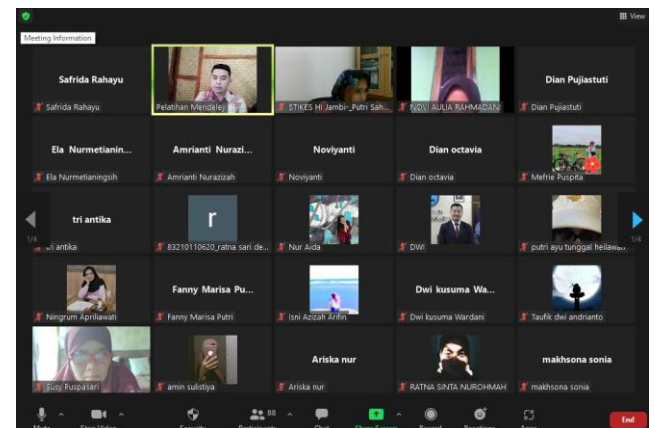


Figure 1. The Mendeley Online Training by Zoom Meeting

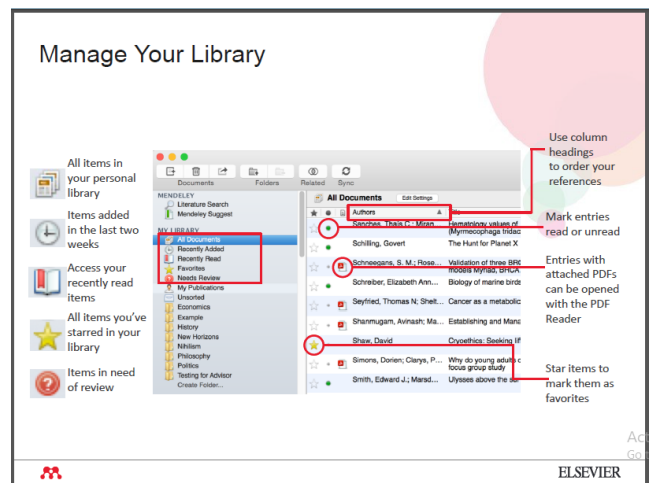


Figure 2. Example of Mendeley Topic Presentation

Only 84 participants filled out the USE questionnaire completely. The result of the USE questionnaire showed that participants consider the Mendeley application was appropriate to use as reference manager for academic writing with the USE score was

81.05%. When we break downed the USE score into 4 variables namely usefulness, ease of use, ease of learning, and satisfaction, we found that the ease of learning variable had the lowest score compared to the other variables. The ease of learning score was 76.84% or on the appropriate level. The information about the USE result shown in Table 3.

Table 3. The Usability Score for Mendeley Application

Variables	Gained Score	Max Score	(%)
Usefulness	2,856	3,360	85.0
Ease of use	3,535	4,620	95.64
Ease of learning	1,291	1,680	76.84
Satisfaction	2,409	2,940	81.93
Overall	10,091	12,600	81.05

The highest variable score was the ease of use dimension with a score of 95.64%. Although another 2 variables had lower scores than the ease of use variable, both were still on the same level.

#### 4. DISCUSSION

The Mendeley training program was not a new intervention to improve the capability of users to utilize this application. In our training program, participant's interest in following the course was good enough. However, when the training was over, the retention of participants to the training process was lower. Trainees who completed the evaluation were remarkably 20% lower than all participants who took part in the training program. This finding proves that the online training method is not as effective as face-to-face method. Attrition of participants is still a challenge that needs to be solved for the online method training.

Our findings also suggest that evaluation of the Mendeley training needs to explore more than just a knowledge or practice dimension. Despite the usability assessment showed that overall score was good towards Mendeley application for academic writing, guidance is still becoming an important necessity for users. Dimension of ease of learning the Mendeley application remains lower than the others even though it was on the appropriate level. This finding is possibly affected by the distribution of participants which was dominated by students. So, it is not surprising to us that the overall USE score was close to a very appropriate lower limit. According to this finding, we suggest the Mendeley training must be held routinely, particularly for new users and people who are not familiar with the technology.

Training using online method requires a comprehensive process from preparation, implementation, and evaluation. It is similar to the information systems capacity-building strategy which must include several approaches to ensure the program can achieve maximum outcomes (Passmore & Velez, 2015). The evaluation of technology training will illuminate undiscovered problems if considered by various dimensions. We suggest that reference manager utilization training must be carried out with a comprehensive approach based on existing training frameworks. For example, Kirkpatrick proposed 4-level step for evaluating training programs where every level consists of several variables that can be indicators to evaluate trainee outcomes (Kirkpatrick & Kirkpatrick, 2011). However, this model is quite old enough to be used (Cahapay, 2021; Reio et al., 2017).

Human-technology interactions evaluated by usability assessment can illustrate how humans perceive possible benefit of the application (Asnawi, 2018). Training should also consider different evaluations rather than replicating previous evaluation methods. Thus, the results will not normatively represent training evaluations (Dehnavieh et al., 2019).

In our community engagement has limitations in the participants' desire to keep following the training program. Our participants also had various academic level backgrounds which makes our findings was not presentable for a specific group. To the next Mendeley online training is important to evaluate the trainer's performance as well. When trainer can provide a good presence and deliver topic appropriately, gives proper feedbacks, and create the training atmosphere to be more interesting, the participants' engagement will be better.

#### 5. CONCLUSIONS

Mendeley training can be done online. This method provides several advantages, especially in terms of time and cost effectiveness. Our findings suggest that the usability of the Mendeley app is very feasible. Although some challenges should be highlighted by researchers or trainers. Online training methods require a comprehensive strategy and evaluation. In addition, we emphasize that evaluation may use other methods and combine multiple variables rather than a single outcome or normative approach.

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