Reference Management Software Training for Educators

¹Ansar Suherman, ²Harry Fajar Maulana, ³Wa Ode Murmainah, ⁴Reza Maulana

1,2,3 Universitas Muhammadiyah Buton
email: ¹ansar.suherman@umbuton.ac.id

Article Info

Keywords: *Reference management software, Educators, Scientific papers*

Abstract

Teachers in schools not only have to be good at teaching in the classroom, but, like lecturers in higher education, have an obligation to be able to conduct research and compile scientific articles. So it is important for teachers to have mastery in organizing references or literature properly. The use of reference management software is something that teachers must know and be able to use. In general, teachers at SMA 1 Muhammadiyah Baubau do not have the knowledge and skills to use the reference management system, so this community service activity is carried out with the aim of providing knowledge and skills for teachers at SMA 1 Muhammadiyah Baubau regarding reference management software. The applications provided are Zotero, and EndNote, and Mendeley. The activity was held for two days, starting with a survey of participant knowledge and continued with training on reference management software, and ending with a post-test for participants to measure the level of participant mastery. The survey results showed that most of the training participants did not have a good understanding of reference management software including its operation. After the training, 90% of the trainees stated that the Zotero application is quite easy to use when compared to the End-Note application. 54% of participants stated that the Zotero application is easier to operate, while 43% stated that the EndNote application is easier to use, meaning that the two applications are almost as easy to operate. Another finding was that the training participants expressed their satisfaction with the speaker 's mastery of the material including the presentation of the material that was interesting and easily understood by the participants.

1. INTRODUCTION

In the education system, teachers are the most important component in determining whether or not the quality of student graduates is good. The higher the quality of teachers, the better the quality of the graduates produced. A quality teacher certainly produces quality learning too. Quality learning will produce graduates who are smart, competitive, productive, innovative and of character (Karwan, Hariri, and Rini 2017).

The large role of teachers in the progress of a nation has made the government carry out a number of policies to increase the professional development of teachers. One form of teacher professional development is the development of teachers' abilities to make scientific papers (Noorjannah 2014).

Writing scientific papers for teachers is a very important activity. One of the obligations to raise a position is to write scientific papers. Therefore, a teacher should be willing, able, and accustomed to doing scientific work (Kalb et al. 2015; Ambrose, 2018; Niess, 2005). The role of the teacher is not only for teaching, but must be able to write scientific articles with the aim of observing, developing, and innovating in the learning process (Peschl et al. 2014).

Writing scientific papers certainly requires writing a reference source. Writing a reference source takes a lot of time because it needs to match existing authors in the content of scientific papers and reference lists. In addition, we need to adjust certain reference writing formats such as the format of the American Psychological Association (APA), American Sociological Association, IEEE, Harvard, and others. -other.

Reference Management Software is an application that can make it easier to write references by forming a reference database. In addition, the Reference Management Software can also change the reference format according to the format we want. Some of the other features offered by the Reference Management Software are that they can be used as a platform for collaboration in writing using anetwork virtual web collaboration, such as academic social bookmarking (Francese, nd). Examples of Reference Management Software (RMS) are End Note, Zotero, Mendeley, Citavi, Colwiz, Jabref, Paperpile, and Refworks.

As previously known, the use of reference management software is very helpful in solving reference problems. With the reference management software, it is hoped that it will make it easier for teachers and education personnel to make referrals much easier. Study results (Mendes, Pereira Silveira, and Galvão 2019) show that RMS can make references and citations more accurate than manual systems.

RMS can function to store, organize and format references in a scientific paper text and make it easier for researchers to track scientific literature that has been obtained, then read and use it in writing bibliographies of scientific papers. There are many benefits that can be taken from using RMS in writing scientific papers (Mendes et al. 2019).

The purpose of this community service activity is to improve the ability of teachers and education personnel at SMA 1 Muhammadiyah Baubau in operating the reference management software End Note and Zotero, so that teachers are expected to be more motivated to write scientific papers after knowing the ease of writing citations correctly and quickly using End Notes and Zotero. So that it is that, hopedwith the dedication of this reference management software, teachers and education staff at SMA 1 Muhammadiyah Baubau will be more helpful and practical in finding, citing and managing them in writing scientific papers.

Zotero and End Note are one of the most popular software that have the ability to automatically create citations and bibliography with a variety of different citation styles or it is also called reference management software (Watkins 2013). Reference mangamenet software is very useful for writers because it can automatically quickly generate quotations and bibliography from the writings made and of course avoid errors in citation. Zotero is a digital research tool that assists users in collecting, formatting and annotating from shared sources (Winslow, Skripsky, and Kelly 2020). Zotero is open source software that can be used easily by authors and is integrated by websites, online databases and repositories (Ray 2017).

2. METHOD

Data presented in this article were collected using an on-line survey. Total respondents obtained were 20 peoples. Respondents involved were all training participants in the use of reference management software, namely teachers involved in managing journals of SMA 1 Muhammadiyah Baubau and other teachers of SMA 1 Muhammadiyah Baubau who were interested in increasing their knowledge about

reference management software Zotero and End-note. Data were analyzed using descriptive statistics. The questionnaire used in the on-line survey can be classified into two. The first part of the questionnaire is filled out by respondents before the training begins. This survey aims to determine the training participants' initial perceptions of the existence of reference management software. The second part of the questionnaire is filled out by respondents at the end of the training activity. This survey aims to determine respondents' perceptions of the implementation of training activities.

The first part of the questionnaire consists of five questions, of which two are in the form of open questions. The first question is related to the respondent's profile. The second question is related to the respondent's initial knowledge of reference management software. The next three questions are in the form of closed questions to find out whether the respondent has ever used reference management software end-note, zotero, or mendeley.

The second questionnaire was carried out after the implementation of the training. The second questionnaire consisted of two parts. The first part deals with respondents' perceptions of reference management software and consists of four questions (1 open question and 3 closed questions). The second part consists of four closed questions relating to the respondent's assessment of matters relating to the implementation of the training.

3. RESULT AND DISCUSSION

The results of the initial survey are shown in Table 1.

The results in Table 1 indicate that the majority of respondents do not know the benefits of reference management software and its operation. However, there are 10% of respondents who already know the benefits of reference management software in detail. These results indicate that the majority of training participants do not yet have basic skills in operating the reference management software.

The results in Figure 1, Figure 2, and Figure 3 support the results obtained in Table 1, namely that the majority of participants have never operated the reference management software, either Zotero or End Note. Only 10% of participants have ever operated Zotero or End Note. This indicates that training should be provided starting from the basic concept of operating Zotero and End Note.

Table 1. Initial Knowledge of the Reference Management Software.

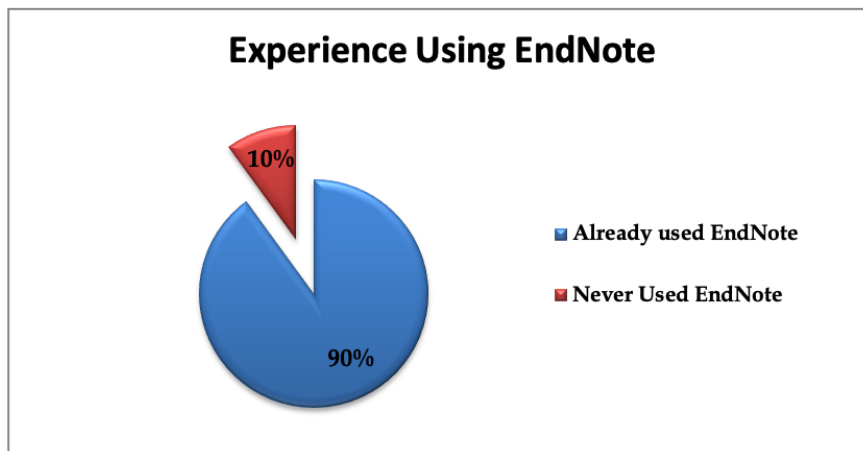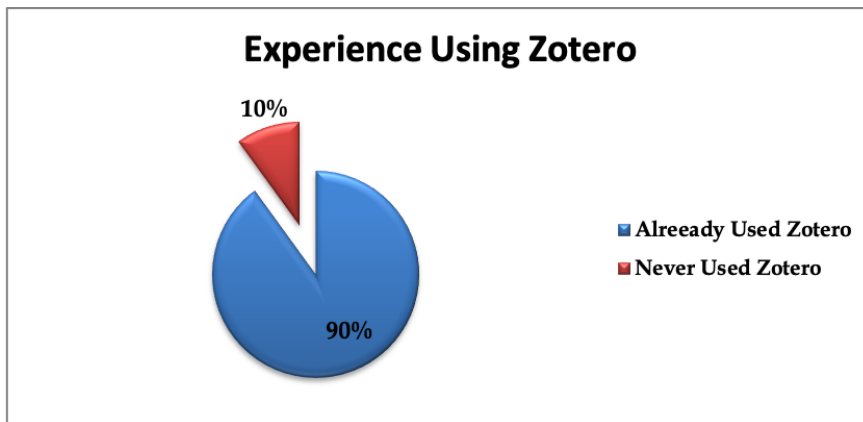| Response	Percentage (%)
No/Don't Know	80
Little to Know	10
Know in detail the definition of reference management software	10
Total	**100**

Figure 1. Experience using End-Note.
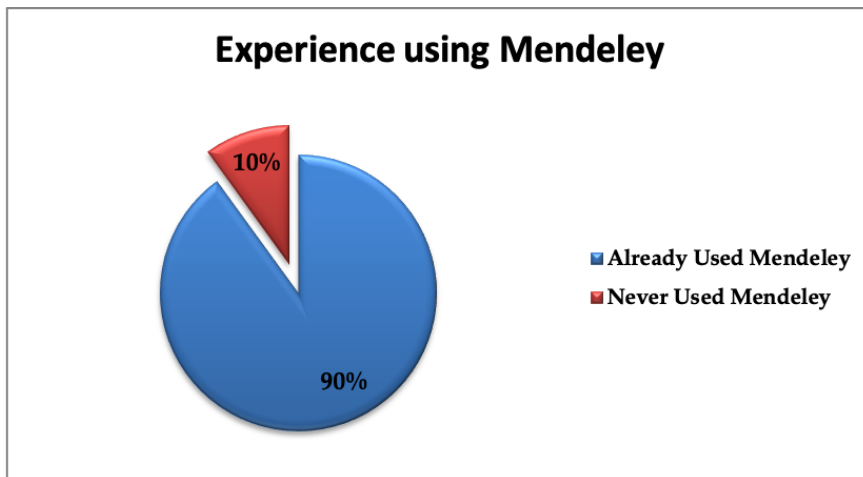
Figure 2. Experience using Zotero.

Figure 3 Experience using Mendeley.

Table 2 shows that after participating in the training, there was an increase in the training participants' understanding of reference management from the previous percentage of trainees who understood reference management software to only 10%, after training it increased to 95%. However, there are still 5% of training participants who still do not know the use of reference management software.

Figure 4 and Figure 5 show that the majority of training participants stated that the reference management software, both End-Note and Zotero, was easy to use. Reference management software (RMS) is very helpful in managing references used in writing scientific papers. RMS helps write bibliography or helps write citations according to style the requiredin fast time.

Table 2. Understanding of Reference Management Software.

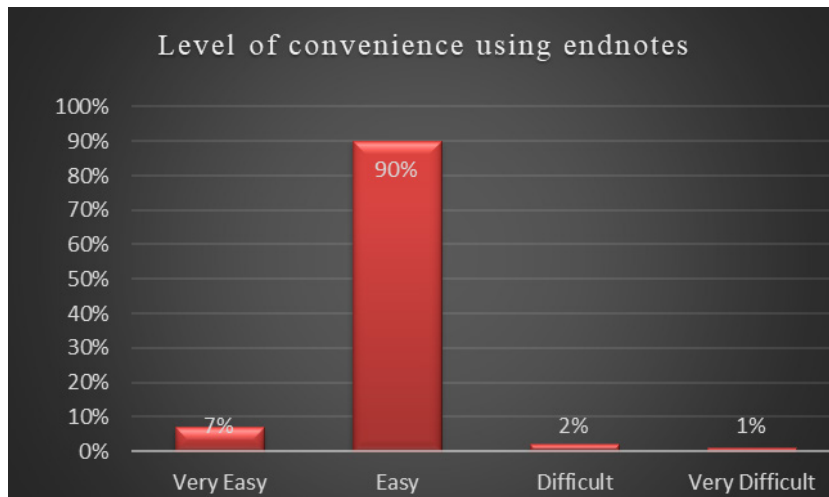| Response	Percentage (%)
No/Don't Know	5
Software to facilitate citations	30
Software to compile reference lists	35
Software to facilitate citations and link them to reference lists	20
Software to save references	10
Total	**100**

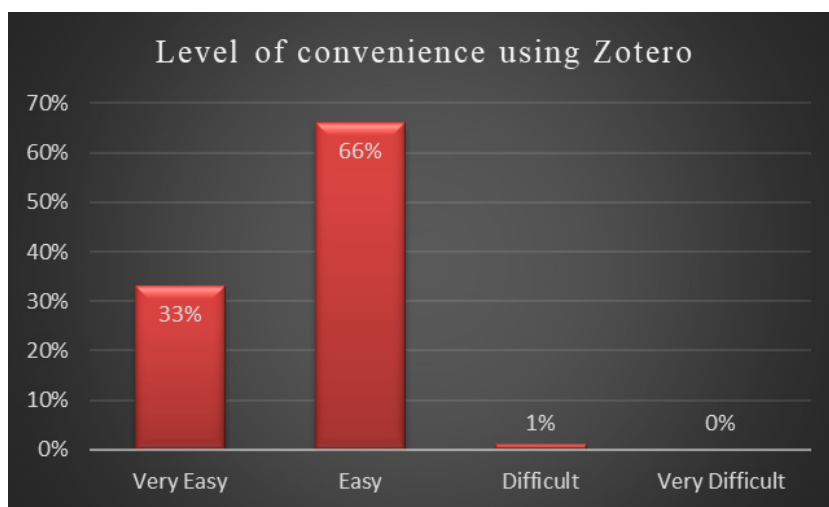Figure 4. Level of Ease of using End-Note as Reference Management Software.

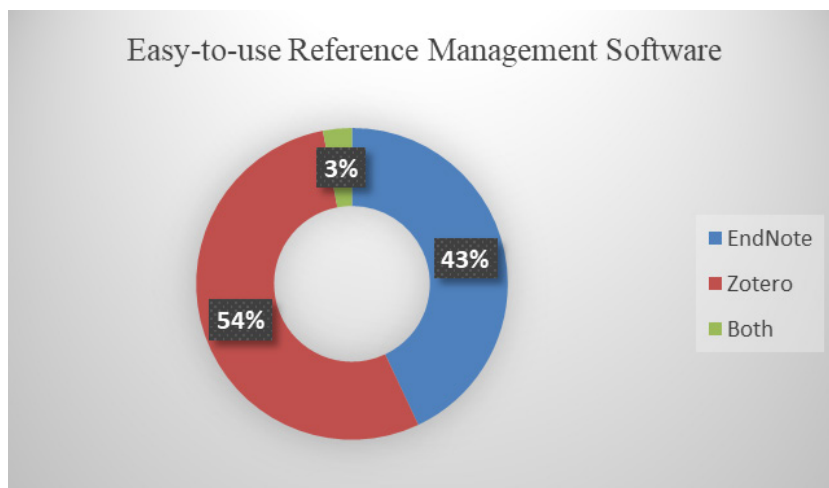Figure 5. Ease of use of Zotero as Reference Management Software.

Figure 6. Reference Management Software that is Easier to Operate.

Figure 6 shows that the majority of trainees think that Zotero is easier to use than End-Note. This is because End-Note has more complete features so for beginners using more features causes more confusion.

The results in Figure 6 are in line with the study presented by Ray (2017) which states that Zotero is widely used because of the various advantages it offers, including: 1) Zotero offers various options for exporting data into software, for example by using URL, link, ISBNs , DOIs (Digital Object Identifier), PMIDs, arXiv IDs or if the document you want to insert has been downloaded, then the user can just drag and drop the document file into the zotero software and the document file will automatically be saved in the zotero repository; 2) Zotero offers a variety offormats style that can support the citation style as desired by the author; 3) Zotero has the ability to allow users to retrieve citation information from online and enter it in a private database; 4) Zotero will automatically collect metadata such as title, author, year published; 5) The information contained in the metadata that has been stored in zotero can be changed according to the wishes of the user; 6) Users can create folders and subfolders in order to make it easier to find document files according to the desired information. In addition, Kratochvíl (2017) also states that Zotero produces fewer errors than other RM software in terms of bibliographic references.

However, as shown in Figure 6, 20% of the trainees preferred the End-Note. This is because these participants have more ability to take advantage of the features available in End-Note. End Note is one of the software that manyuse researchers makes it easier to make citations and bibliographies in their writings. As noted by Basak (2015), EndNote is used by millions of researchers to search and download text articles from selected references, or reference groups and it (EndNote) has more than 5000 styles for its bibliographies. Some of the advantages provided by End note according to some experts, are: a) End note has a very good combination of features, is easy to use, and saves time (Sujit K Basak 2015); b) Users can search for information material and document it in the form of citations into documents only by using EndNote (Fitzgibbons and Meert 2010); and c) EndNote provides 6750 styles that can be used in citation so that it can facilitate the selection according to the wishes of the author, and styles will continue to be upgraded by administrators (Kratochvíl 2017). In addition, based on research by Kratochvíl (2017), for health journals such as the National Library of Medicine (NLM), EndNote is very profitable because it has the least amount of errors than zotero in citing using the NLM style.

Figure 7 shows that the material prepared by the presenter is easy for participants to understand and is able to improve the participants' ability to operate the reference management software.

Figure 8 shows that most of the participants suggested that the presenter mastered the presented material. However, there were still 10% of participants who stated that the presenter did not master the material. This becomes feedback for the presenter to improve mastery of the material before providing training on community service activities.
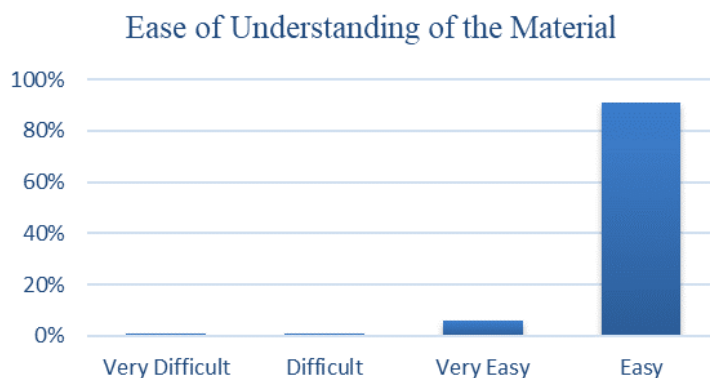

Figure 7. Ease of Understanding of the Training Materials.
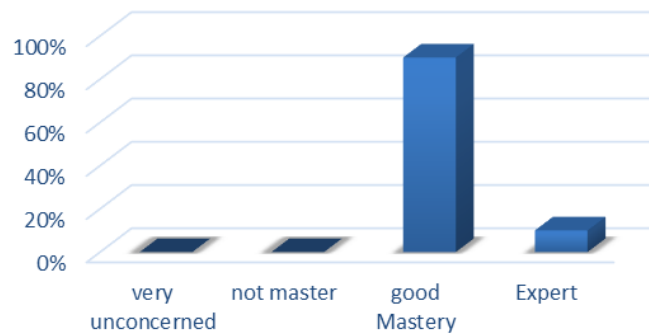
Presenter Material Mastery Level

Figure 8. Level of Mastery of Presenter Material.
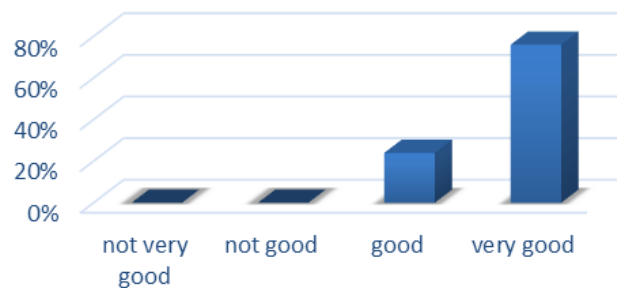
Presenters and Participants Interaction Ability.

Figure 9. Presenters and Participants Interaction Ability.

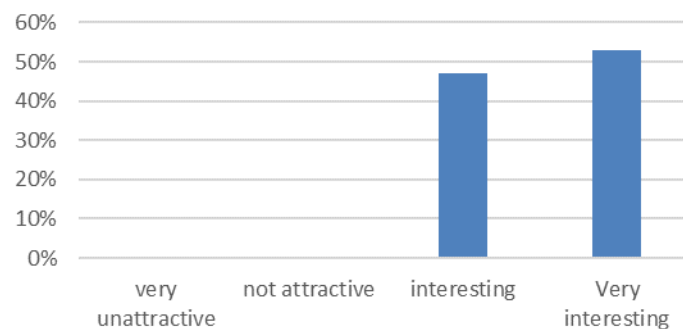The level of attractiveness of material presentation

Figure 10. The level of attractiveness of the presentation of the material.

Figure 9 indicates that the percentage of participants reported that the interaction during the training between the presenter and participants was great. However, 10% of participants still stated that the interaction was not good. Therefore, for future training activities, presenters need to maintain eye contact and interaction with participants throughout the training.

Figure 10 shows that there are still 20% of training participants who stated that the

presentation of the material was not attractive. This can be due to poor interaction between the presenter and participants, so that the training participants feel the presentation of the material is not attractive. This can be an input for presenters to improve the appearance of the presentation, gesture to deliver interesting material and also provide more interactive examples.

As one of the most widely used software as a reference management software, every software has its advantages and disadvantages. The disadvantages of Zotero include: it only provides 300 Mb of free space for users, Zotero cannot prevent and delete duplicate items automatically, but it is done manually, Zotero hasoptions style fewerwhen compared to End-Note, editing and styling is quite difficult to do so, and so far, the quick search bar can search for references in a single library group but not in all library groups simultaneously (Courraud, 2014; Kratochvíl, 2017; Ray, 2017).

On the other hand, the weaknesses of End-Note include: The error rate in citation is higher than that of zotero (Kratochvíl 2017), and theeearch interface contained in EndNote sometimes does not provide journal documents that match the keywords written (Fitzgibbons and Meert 2010).

4. CONCLUSSION

Based on the findings of the study, it can be inferred that the majority of training participants did not recognize the advantages of reference management software before the training was held and how to use it. They consider Zotero to be easier to use compared to End-Note, according to most of the trainees after the training. In writing citations and bibliography, the two reference management program taught according to the majority of training participants is easy to use. The results of the study also showed that most of the training participants reported that the degree of subject mastery was good and that the material presentation was interesting and the interaction between the presenter and the participants was great. The use of reference management software can eliminate errors in writing bibliography both in terms of quantity and style writing, makes it easier to trace references used in scientific works, and manages reference storage for use in writing other scientific papers.

5. ACKNOWLEDGEMENT

REFERENCE

Ambrose, Susan A. (2018). *Seven Research-Based Principles for Smart Teaching*.

Basak, S K. (2015). A Comparison of Three Reference Management Software: Jabref, Zotero, and Endnote. *International Journal of Research in Information Technology* 3(4):223–31.

Basak, Sujit K. (2015). Analysis of the Impact of NVivo and EndNote on Academic Research Productivity. *International Journal of Educational and Pedagogical Sciences* 9(9):3237–42.

Courraud, Julie. (2014). Zotero: A Free and Open-Source Reference Manager. *Medical Writing* 23(1):46–48.

Fitzgibbons, Megan, and Deborah Meert. (2010). Are Bibliographic Management Software Search Interfaces Reliable?: A Comparison between Search Results Obtained Using Database Interfaces and the EndNote Online Search Function. *The Journal of Academic Librarianship* 36(2):144–50.

Kalb, Kathleen A., Susan K. O'Conner-Von, Christine Brockway, Cindy L. Rierson, and Sue Sendelbach. (2015). Evidence-Based Teaching Practice in Nursing Education: Faculty Perspectives and Practices. *Nursing Education Perspectives* 36(4):212–19.

Karwan, Dedy Hermanto, Hasan Hariri, and Riswanti Rini. (2017). Membangun Budaya Guru Pembelajar melalui Kepemimpinan Visioner. *Jurnal Pendidikan Progresif* 7(2):77–87.

Kratochvíl, Jiří. (2017). Comparison of the Accuracy of Bibliographical References Generated for Medical Citation Styles by EndNote, Mendeley, RefWorks and Zotero. *The Journal of Academic Librarianship* 43(1):57–66.

Mendes, Karina Dal Sasso, Renata Cristina de Campos Pereira Silveira, and Cristina Maria Galvão. (2019). Use of the Bibliographic Reference Manager in the Selection of Primary Studies in Integrative Reviews. *Texto e Contexto Enfermagem* 28:1–13.

Niess, M. L. (2005). Preparing Teachers to Teach Science and Mathematics with Technology: Developing a Technology Pedagogical Content Knowledge. *Teaching and Teacher Education* 21(5):509–23.

Noorjannah, L. (2014). Pengembangan Profesionalisme Guru Melalui Penulisan Karya Tulis Ilmiah Bagi Guru Profesional Di Sma Negeri 1 Kauman Kabupaten Tulungagung. *Jurnal Humanity* 10(1):11406.

Peschl, Markus F., Gloria Bottaro, Martina Hartner-Tiefenthaler, and Katharina Rötzer. (2014). *Learning How to Innovate as a Socio-Epistemological Process of Co-Creation: Towards a Constructivist Teaching Strategy for Innovation*. Vol. 9.

Ray, Aswini Kumar. (2017). Zotero: Open Source Citation Management Tool for Researchers. *International Journal of Library and Information Studies* 7(3):238–45.

Watkins, Alexander. (2013). Zotero for Personal Image Management. *Art Documentation: Journal of the Art Libraries Society of North America* 32(2):301–13.

Winslow, Rachel Rains, Sarah L. Skripsky, and Savannah L. Kelly. (2020). Not Just for Citations: Assessing Zotero While Reassessing Research. 287–304 in *Information Literacy: Research and Collaboration across Disciplines*. University Press of Colorado.