SAGE researchmethods cases

Magical Reference Management Software

Abstract

While conducting research for my doctoral thesis entitled "Learners With Special Educational Needs Reflecting on Their First Year at University," I explored the historical background, recent developments, and issues of concern for students with special educational needs and disabilities studying at university in Singapore. Documentary evidence included the collection of historical and present-day local policy documents, parliamentary debates taken from Hansard (the traditional name given to transcriptions of parliamentary debates), and information from university websites.

This case study focuses on the use of reference management software (RMS) used to store and manage texts collected to provide background information, an overview of the literature, and historical data. Different from a reference generator, RMS allows the reader to search across their personal library as well as within documents, annotate, and take notes. The magic is the ability to create in-text citations and lists of references with a click of a button, while the reference style can be easily changed.

Learning Outcomes

By the end of this case, students should be able to:

- Explain the difference between using a reference generator and RMS.
- Articulate the benefits of using RMS.
- Demonstrate how RMS can be used effectively.
- Anticipate any limitations of using RMS.

Project Overview and The Need for a Systematic Approach of Organization

As a qualitative study exploring the historical background and lived experiences of the participants, I used modified methods of grounded theory to complete the data analysis. The central aim was to develop an explanatory theory about provisions for and access to education for students with special educational needs and disabilities (SEND) at university in Singapore based on reflections of their first year of study. Analysis of the historical background through parliamentary debates, policy documents, and relevant university webpages provided a contextual framework within which to develop theory.

The extensive collection of documentary data necessitated the need for a systematic approach to organization. The RMS provided the platform to manage documental research that was private and secure as the personal library grew. As a cloud-based platform, my personal account could be accessed from different devices, rather than taking up storage space on my laptop and confining it to one device.

Most of the document research was conducted online, either through the University website or governmental and institutional organizations. To gain a greater understanding of the background, I searched for research articles into the support of students with SEND at the postsecondary level as well as articles that helped provide a contextual understanding of societal attitudes and practices toward the disabled in Asia. To set the historical context, I selected relevant local parliamentary debates from Hansard, policy documents, and education acts related to the education of students with SEND in Singapore. Comparative analysis was completed using global policy documents, such as the United Nations Convention on the Rights of Persons with Disabilities, and laws and standards practiced in Australia, the UK, and the United States.

Section Summary

- Qualitative methods were used for the doctoral thesis in order to create an explanatory theory.
- Data collection included document selection and semi-structured interviews with selected participants.

Constructing Theory Frames and Managing Libraries of Texts

Research, whether it is quantitative or qualitative, entails "systematic investigation […] to establish facts and reach new conclusions" (Oxford Languages and Google, 2021). Reading academic texts and past research is vital to understanding the context, past and present theories, previous research, and to use these data as a benchmark and discover gaps in the literature (Creswell, 2014).

The overview of the relevant literature allowed me to construct *theory frames* built on past research (Rueschemeyer, 2009). The use of theory frames ensured that I considered the context as I formed and revised hypotheses. Analytic induction, therefore, was the interplay of theory frames, empirical research, and the development of theory and propositions with the hope of informing future research, policy, and practice.

Reference management systems have been in existence for decades, if not centuries. As a child growing up in the UK during the 1960s and 1970s, I have a distinct memory of a beautiful wooden set of shallow drawers with dividers that my mother had used during her doctoral studies in the 1950s to index research papers using palm-sized cards. Luckily, software packages have been available since the 1980s (Nilashi et al., 2019) allowing this process to be digitized and making it much easier for researchers to manage their personal library of texts by using RMS.

Research indicates software needs to be perceived as easy to use for there to be regular uptake in the application (Nilashi et al., 2019; Speare, 2018; le Roux & Breshears, 2016). When I started my Master's program in 2015, I tried using RMS but gave up before I started as I found it difficult to manage and not very intuitive to use. However, when I started my Doctor of Education (EdD) in 2018, a chance conversation with one of my cohorts encouraged me to revisit the use of RMS.

What Is RMS?

There are many online reference generators available such as www.citethisforme, www.scribbr.com, and wwwbibmeorg. In general, these will allow you to input key information such as a URL, an ISBN, or author name to search online for details that will allow you to create a bibliographic reference and in-text citation. A reference generator is often sufficient at the undergraduate level before the start of a dissertation. These platforms can create references in different styles such as APA, MLA, and Chicago. Missing information may need to be added manually to complete the reference. Unless you subscribe and create an account, often requiring payment, your references will not be stored on the platform you choose, or if you need to use an alternative citation style you may need to start the reference generation process from the beginning.

However, once work starts on a dissertation, a researcher may collect many texts, including journal articles, notes taken from book chapters, and web references. There are a number of choices of RMS, but the three most commonly used platforms are EndNote, Zotero, and Mendeley (Nitsos et al., 2021; Speare, 2018). The advantage of using RMS is that it provides much more than a reference generator. It becomes your personal library where you store PDFs on a cloud that can be accessed from multiple devices. You can organize reading materials into categories by using tags, helping you to find texts more easily. Usually embedded is a powerful search engine, which you can use for keyword searches across your library or within a text. The RMS comes with highlighter and annotation tools so that you can bookmark relevant sections or take notes. If a document has a Digital Object Identifier (DOI), metadata is automatically captured which is used for creating references and in-text citations, allowing you to change the citation style when necessary.

Section Summary

- Reading previous research and theories is vital in shaping your own research project.
- Cloud-based RMS can help you organize large quantities of reading material that is easily accessible across different platforms.
- Other advantages to using RMS include search tools, annotation, and the creation of bibliographic references.

My Introduction to RMS

Exploring options to continue my academic qualifications, I decided to pursue an EdD rather than a PhD as it is designed for practitioners wishing to pursue educational leadership roles. I also decided it was important for me to be part of a physical cohort of students, knowing it would be a lonely journey, and was fortunate to be accepted on the program based in Singapore offered by the University of Western Australia. The first 9 months of the course (pre-COVID 19) entailed four face-to-face sessions lasting four days each covering research methods, ethics, and development of the research questions. It was during one of the initial meetings that I had a chance conversation with a peer who introduced me to the RMS, Mendeley.

Having the opportunity to complete a Master's Degree fairly late in life, I used manual methods to store and

organize research papers and book chapters; printing texts, using a highlighter, and storing notes in ring binders. This would not be practical at the doctoral level, realizing I needed to get to grips with using RMS. The following section describes my experiences of using Mendeley, although, as previously explained, there are other RMS that you may wish to explore.

Section Summary

- Decide what is important to you when exploring educational options and courses.
- Take the time to learn how to use tools that will help you with the organization of your reading materials.

RMS in Action: Practicalities of Using Mendeley

Having spoken to peers and colleagues who have lost reading materials due to laptop failure or corruption of USB sticks, I have become ultracautious about safeguarding files. Alongside storing files on an external hard drive and Google drive, using Mendeley as a cloud-based platform for my reading materials added an extra layer of security.

During 2019–2021, the developers moved from Mendeley desktop to a web-based desktop app, which has brought enhanced benefits, notably greater stability. Users can provide feedback so that the development team can continuously work to resolve issues.

The Magic of RMS

There are many features that I like about Mendeley. The system has an easy to use interface which is intuitive, while the support community is very active. The features I find most useful are:

- Automatically extracting metadata from PDFs that have a DOI so that you avoid wasting time manually inputting information needed to create reference lists.
- Ability to organize documents by adding multiple tags rather than using folders.
- Filters that allow you to search for documents by author or tags.
- Ability to use keyword searches across the library that can find words not only in titles but also in the main document.
- Ability to check for and merge duplicate documents.
- Option to filter PDFs added within the previous 2 weeks.
- Highlighter and annotation tools that can also act as a bookmark within a document.
- Ability to have several documents open at once.
- The web importer that can be added to Google chrome so that web sources can be added to your Mendeley library.
- The plugin, Mendeley Cite for Microsoft Word that allows you to add citations and automatically create the list of references within your working document.

- When creating citations in a Word document, you can suppress the author, add page numbers, prefixes, and suffixes. This is useful when, for example, you have already mentioned the name of the author in the main body of the text, are using direct quotations, or need to add a prefix to indicate you have used a secondary source.

There are additional features that I have not used but have been highlighted as useful by the developers. It acts as a social network, meaning you can share papers with others in your social group, and work collaboratively on research projects.

Considerations of Using RMS

As with any software, there is always room for improvement. For example:

- Documents have to be in PDF format for uploading to the RMS.
- The need to double-check the metadata is correct and in the correct format.
- Keyword searches do not function on documents of scanned copies such as a scanned copy of a page from a book.
- The search bar does not pick up words that you have added as an annotation or in the notebook.
- The Mendeley Cite does not work with other word processing software such as Pages and Google Docs.
- If you work on a collaborative project, such as a co-authored article, you may need to ensure you use the same RMS.

Section Summary

- There are many benefits to using RMS, such as storing reading materials, searching your library, highlighting and annotating texts, and automatically creating in-text citations and lists of references.
- There are some challenges to using RMS. For example, the citation plug-in only works on Microsoft Word.

Practical Lessons Learned

From the start, I have found Mendeley intuitive to use as it is easy to create an account and set up with plenty of short helpful tutorials available online. Although it has moved from being entirely free as an open-source entity to a commercial platform, owned by Elsevier, the free version provides you 2 Mb of storage space and offers all the same capabilities as the paid subscription.

As with any software, training is important to allow students and researchers to make full use of RMS (Speare, 2018; le Roux & Breshears, 2016). As I became more proficient in using Mendeley, I started offering workshops to staff and students at my workplace. I then became aware of the opportunity to become an advisor. This brings benefits as the developers organize quarterly meetings to introduce updates and answer questions as well as provide more free storage of 7.5 Mb, meaning I have as yet to run out of space.

The Web Importer that can be added as an extension to Google Chrome is very useful because you can automatically add websites and accompanying PDFs to your library. However, often there is no PDF attached. As someone who likes to keep a copy of everything, especially since web pages are dynamic and frequently updated, I have developed the habit of creating a PDF of web pages by choosing File, Print, and saving as a PDF.

On the topic of PDFs, if you take notes from a book or article, remember to convert the document to a PDF before adding it to your library. If you fail to do this, the document will download to your device rather than open for you to read when accessing it from the RMS.

Here is another useful tip if you need to add a list of references to your presentation slides for a conference. You can create your bibliographic list in Microsoft Word by adding in-text citations and then choosing *Insert bibliography*. You can then copy and paste the list of references into your presentation slides.

Challenges of Using RMS

It may seem rather laborious, but it is important to take the time to double-check the metadata that has been captured that you will use for your list of references. Partway through writing my thesis, my supervisor pointed out that book and article titles should be lowercase except the first word of the title, first word after a colon, or proper nouns. I had not checked this detail, so I had to go through all my references to change titles to sentence case.

When adding PDFs and reviewing the captured metadata, the choice of sources is not very extensive. This is hardly surprising since there are over 9000 reference styles available on Mendeley. However, this means you may have to tweak and play around with the information stored to meet the reference style for the source. Since I used a lot of data taken from parliamentary debates, I had to experiment with the different fields to achieve the correct format for the bibliographic references.

A further challenge highlighted in research is the inability of RMS to deal with sources written in different languages, especially those that use non-Romanic scripts such as Chinese characters or Arabic scripts (Lisbon, 2018). As the internet has opened up access to research from all corners of the world, Lisbon suggests that multilingual researchers could be better supported by software companies and advocates for tools "designed with a baseline expectation that they are compatible with the research that happens across borders and languages" (2018, p. 65).

Section Summary

- Choose RMS that is easy to use and offers training.
- Be aware of storage options.
- Although RMS collects metadata that you can use for your list of references, you may need to manipulate information to achieve the correct format.

Conclusion

Taking the time to explore different RMS and speaking to peers and colleagues about their preferences is well worth the effort. Learning to use RMS will save you time when creating bibliographic references as well as having an easy-to-use secure platform to store your PDFs. As research indicates, attending training is essential to the uptake of the use of the software. You might want to consider becoming a Mendeley advisor which offers benefits such as extra free storage space and a community of practice to find out about and provide feedback on upcoming enhancements. Using RMS does not come without its problems, but the benefits definitely outweigh any shortcomings.

Classroom Discussion Questions

1. What are the benefits of learning to use RMS?
2. What are the considerations for choosing which RMS to use?
3. What do I need to be mindful of if I decide to use RMS?

Further Reading

Carlisle, D. (2020). *Learners with special educational needs reflecting on their first year at university: A study of the historical background, recent developments, and issues of concern for students in Singapore*. [Doctoral dissertation, University of Western Australia]. 10.26182/kwsd-a320

Web Resources

Mendeley: https://www.mendeley.com/reference-management/reference-manager

Zotero: https://www.zotero.org/

EndNote: https://endnote.com/

Comparing EndNote, Mendeley and Zotero: https://www.youtube.com/watch?v=KCqKW51vtKQ

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