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Examining the Reference Management Practices of Humanities and Social Science Postgraduate Students and Academics

Anne Melles[a]* and Kathryn Unsworth[b]

[a]*Monash University Library, Monash University, Clayton, Australia;* [b]*Australian National Data Service (ANDS), ANDS Office, Monash University, Caulfield East, Australia*

An examination of Library and Information Studies literature about scholarly communication reveals that less attention has been paid to the outcomes of reference management instruction in academic libraries than on comparisons and evaluations of reference management software (RMS) and surveys of levels of its use. While there are studies examining the reference management practices of academics and students, the practices of those not using RMS have remained largely unexplored. This article reports on the findings of a small-scale applied research project aimed at understanding the reference management practices of postgraduate students and academics in the Arts Faculty at Monash University. A questionnaire was completed by 81 students and semi-structured interviews were conducted with 8 students and 13 academics in the Faculty. Analysis shows that the reference management practices detailed in this study are individual and personal, and do not always involve the use of RMS. The reasons for adopting these practices are informed by a wide range of institutional and personal factors. RMS use itself is also varied, with few of the interviewees utilising all the core features of the software. A broader approach to reference management instruction and support would increase the relevance of library instruction.

Keywords: EndNote; reference management software; citation management software; academic libraries; humanities; postgraduate students; researchers; practices; social sciences

Introduction

Reference management, the storage, organisation, and use of references, is an important aspect of scholarly communication. It is the 'foundation for scholars to begin collecting, managing, and archiving their research findings as well as their own scholarly output' (Childress, 2011, p. 150). As an integral aspect of the ethical use of information (Kessler & Van Ullen, 2005, p. 310) it is a component of frameworks such as the Australian and New Zealand Information Literacy Framework (Bundy, 2004) and the Research Skills Development Framework (Willison & O'Regan, 2007).

Since the development of reference management software (RMS), librarians have maintained a keen interest in its potential and in communicating this to the academic community. This role has continued to expand as RMS has evolved, offering more than just the ability to create reference lists and insert references, including collaborative features and identification of trends (Fourie, 2011, p. 390). There is a significant body of writing in library and information science (LIS) literature, however, there has been

*Corresponding author. Email: anne.melles@monash.edu

limited in-depth examination of the reference management practices of students and academics beyond investigations of their use or non-use of RMS.

EndNote workshops at Monash University are conducted at all campuses for postgraduate students and are broadly aimed at particular faculty groups but often attended by students from a number of faculties. Sessions for specific schools or cohorts are also provided, such as for Music and Theatre Studies students. A comprehensive EndNote Library Guide provides basic and advanced support for students. Library staff collaborate to solve student and staff queries about EndNote use and regular EndNote teaching workshops are held for library staff to ensure consistent and accurate training sessions.

This research initially arose from questions about if and how EndNote was used by students who had attended the Library's EndNote sessions. It subsequently developed into a broader investigation of the reference management practices of postgraduate students and academics in the Faculty of Arts at Monash University. This article details some of the findings of the study which asked the following research questions: How are references being managed?; How do people decide which reference management system to use?; and What sort of attitudes do people hold about reference management? The focus of this article is the reference management practices of postgraduate students and academics, and the implication of these practices for reference management instruction in academic libraries.

Literature review

RMS evaluation and instruction

LIS literature reflects academic librarians' keen interest in RMS evaluation and instruction. A significant proportion of the literature is devoted to the functionality of RMS (Francese, 2013, p. 147). Comparisons of the growing number of RMS products abound, for example by Hensley (2011), Zhang (2012) and Steeleworthy and Dewan (2013). Aspects of RMS performance have been evaluated and compared, including comparisons between references created using web-based tools and EndNote (Kessler & Van Ullen, 2005), and between searches performed in RMS and those made in databases (Fitzgibbons & Meert, 2010). There is similar, but less copious, output on these topics in the literature of other disciplines, particularly in medical and public health sciences (for example, Lackey et al., 2014; Lorenzetti & Ghali, 2013; Steele, 2008; Zaugg, West, Tateishi, & Randall, 2011).

Some writers have suggested frameworks for the evaluation and support of RMS. Marino provides an overview of strategies for comparing tools and, noting the wide range of tools available, recommends understanding users' needs and investigating reference styles and RMS use across faculties (2012, pp. 301–302). Similarly, Fernandez notes the obligation of libraries to choose a RMS that meets patrons' needs by 'evaluating software within the context of library values' and calls for a reconceptualisation of decision-making about technology in libraries (2012, p. 9).

The role of RMS instruction and support by librarians as a means of outreach is also explored in LIS literature, for example Duong's experience of using Zotero as a means of increasing his 'visibility' in a new role (2010, p. 321) and MacMillan's experience with Mendeley instruction (2012, p. 563). Harrison, Summerton and Peters report on EndNote training for academics and students at the Manchester Metropolitan University Library and note that it provided 'rare opportunities to engage with users within the natural flow of their working practices and, in so doing, to meet a need that users themselves have identified as key to their academic success' (2005, p. 39).

Some of the practicalities of this work are addressed by Childress (2011) in her report on the development of best practices for reference queries and instruction in RMS at Pennsylvania State University Library. A survey of the experience levels of public services staff at the Library indicated low levels of familiarity with and use of RMS (p. 146). Despite this, 69% of the respondents had recommended using a reference manager to a library user. Childress situates reference management as part of the learning and research process (p. 143) and links it to broader areas of academic integrity and scholarly publication (2011, p. 206). However, she notes there is limited research about both the role of libraries in reference management and the place of reference management in the learning and research process (p. 144). Childress therefore suggests that librarians endeavour to learn more about RMS use by researchers (p. 148), a call echoed by others (Fourie, 2011, p. 390, MacMillan 2012, p. 563).

Postgraduates' use of RMS

RMS use by postgraduate students has been examined as part of broader investigations into information or scholarly communication practices. Most of these report low levels of RMS use. Most of the biology doctoral students at the University of Parma interviewed by Vezzosi about their information behaviour did not use RMS, but 'nearly all' felt their management of references needed improvement (2009, p. 71). As part of a larger study of scholarly communication, Niu et al. (2010) surveyed researchers in the natural sciences, engineering and medical science faculties from five United States research universities about their methods for storing citations and articles; finding that only half of the respondents used RMS (p. 876). Of the 18 graduate students across three faculties at a Taiwanese university who were interviewed by Wu and Chen about their perceptions and use of electronic resources, including RMS, 12 reported using EndNote in the past but only seven were still using the software (2012, p. 648).

RMS use is also investigated in a 3-year study of the 'information-seeking and research behaviour' of 'Gen Y' doctoral students at 72 higher education institutions in the United Kingdom (Carpenter et al., 2012, p. 11). The authors note that managing sources and references was 'a continual challenge in the cohort' (p. 23). The importance placed by the students on this aspect of research is reflected in the popularity of RMS training sessions, which were one of the four most widely attended sessions (p. 54). More than 75% of the participants reported using social media tools for referencing – 'Reference management applications (such as bookmarking, sharing and organising references)' (p. 37), however no details are provided about the software used, or the frequency and manner of its use. Of the technologies supported by the students' institutions, RMS was 'overwhelmingly' the most frequently used with 58% of the students reporting its use (p. 34). However, this figure may not be as significant as the authors suggest as the other tools the students listed have specialised application, such as 3D technology and visualisation tools, or are not directly related to research, for example, e-portfolios. What is particularly interesting, but receives no comments in the report, is that almost a quarter of the students were not using any RMS (Carpenter et al., 2012, p. 37).

Management of references by academics

RMS use and reference management by academics and researchers has also been studied as a component of broader studies. Ollé and Borrego (2010) surveyed academic

researchers at Catalan universities to examine the impact of electronic journals on their scholarly information behaviour. When questioned about management of articles and references, half the respondents reported using folders on their computers to save articles and storing references in Word documents or Excel spreadsheets with links to the full-text of the article (p. 226). A quarter of the respondents used RMS, and the remaining quarter reported that they did not use a reference management system at all. Reasons for not using RMS included a lack of awareness that such software existed, and the feeling that the software was too time-consuming or difficult to use.

Fourie and Bakker's (2013) investigation into the information needs of researchers and clinicians at a cancer research library found varied reference management practices, including a secretary or colleague managing a researcher's references, use of word-processing software, and use of a number of different reference management products at the same time. The authors' findings lead them to suggest that 'personal habits and tradition' figure prominently when decisions are made about how to manage references (p. 657).

Reference management was investigated in an ethnographic exploration of the 'digital workflows' of academics in the sciences, humanities and social sciences at Penn State University (Antonijević & Cahoy, 2014, p. 288). The authors note that levels of software use for reference management were lower than for software use at other stages in the academics' workflows, and the use of software to insert citations was often perceived as a 'hurdle' (p. 302). The lower levels of uptake and satisfaction with the software occur despite a long-standing programme of support, which leads the authors to suggest that such programmes should focus more on 'the effective integration of those tools into scholarly practice' (p. 302). The study also reveals that choices about whether to use RMS do not happen in isolation but are closely tied to existing research practices and compatibility with other software being used (p. 296).

Emanuel (2013) surveyed postgraduate students and academics at the University of Illinois about the types of RMS used, reasons for its use and the type of support expected from the library (p. 645). EndNote was used by 38% of the respondents, RefWorks by 19%, Mendeley by 13% and Zotero by 8% (p. 647). RMS was reported to be *essential or very important* to their research by 85% of the respondents, while only 8% rated the software as *not important* to their work (pp. 647–648). This does not necessarily indicate high levels of RMS use at the University because the survey was more likely to be completed by RMS users (p. 646). When respondents were asked to identify the features they sought in the software, they were: ease of use (69%), insertion of references into writing (58%), reasonable cost (41%) and a usable interface (35%) (p. 647). The two most popular uses of the software were the creation of reference lists for publications (84%), and the storage and organisation of references (82%) (p. 648). Only 55% of the respondents used RMS for the storage and organisation of PDFs. Responses to an open-ended question revealed use of more than one RMS, strong opinions about the value of a particular product or a feature of a product, and a reluctance to experiment or change to another product (p. 649).

Awareness and use of RMS amongst staff across all disciplines at Torino University was investigated by Francese (2013). Findings from a survey reveal that 49% of the respondents used EndNote, with the only other significant usage being of BibTeX (11%) and Mendeley (9%). RMS was not used by 24% of the respondents (p. 153). The two most frequently cited reasons for the use of the software were: a suggestion by colleagues (41%); and that it was provided by the University (33%). Francese investigated use in relation to age and found that non-use was higher in older respondents (42% for people over 55 years of age) and very low among 26–35-year-old range.

A number of Francese's findings are similar to those of Emanuel (2013), discussed above. The core features of RMS, managing references and insertion of references into a document, were the most frequently used features with only a small number of academics using the software to share references (Francese, 2013, p. 154). Only 13% of respondents used the software for sharing research and none reported using the software for connecting with colleagues (pp. 154–155). The interviewees rarely experimented with more than the basic features of the software and were reluctant to change software products or even to upgrade software currently used and preferred software that was easy to use and that functioned efficiently and speedily (p. 159).

The results of Francese's study may have limited relevance to many Australian universities where institutional licenses are held, as the University of Torino purchased only 347 licenses for EndNote in 2007 and these were not renewed in 2010 due to funding and compatibility issues. It is unclear what type of access the responding EndNote users had but it would appear that individuals and faculty departments purchased licenses and that there was some use of unlicensed copies (pp. 147, 160). Interestingly, despite the absence of an EndNote license, free products such as Mendeley and Zotero were not used by many researchers (pp. 152–153).

The use of Mendeley at the University of Colorado (Hicks & Sinkinson, 2015) was examined using a survey and interviews. The authors' focus was use of Mendeley within postgraduates' and academics' practices (2015, p. 537). They found use of only a limited number of features of the software, and use of the software in conjunction with other RMS (2015, p. 540). None of the interviewees used the citation plug-in feature to insert citations into their writing (2015, p. 543). Of particular interest are the changes to Mendeley instruction as a result of the study. The focus of instruction moved from Mendeley to the research processes into which the software will fit (2015, p. 546). Attendees are encouraged to think in terms of their workflows and there is an emphasis on evaluation.

The research reviewed above provides intriguing glimpses of academics' and postgraduate students' management of references. However some of it poses more questions than it answers, illustrating the limitations of RMS usage statistics as a means of understanding reference management practices. The studies that provide details in relation to practices demonstrate the diverse nature of researchers' reference management systems and the need for a greater understanding of these. Despite indications that significant numbers of postgraduates and academics do not use RMS, the practices of this group have received little attention. They are generally only noted as the non-use of RMS rather than of interest as an object of study in their own right.

Method

Although the initial aim of this study was to investigate whether and how students who had attended Library training sessions continued to use Endnote during the research design stage it became obvious that an examination of reference management practices would provide richer data and a deeper understanding of the role of EndNote instruction.

The study comprised two research phases. The first phase was a web-based survey using Monash University's enterprise survey tool Qualtrics, which was conducted during November and December 2013 (Appendix 1). The survey consisted of 18 questions, including queries about course enrolment, reference management methods, features that influenced choice of method, and likes and dislikes about the software. The survey used a mix of purposeful and opportunity sampling (Williamson & Johanson, 2013, p. 345).

Participants were recruited from registrations for Arts Faculty Library EndNote sessions from 2010 to 2013 resulting in an email list of approximately 800 addresses. Advertisements were also placed on the Institute of Graduate Research and the Postgraduate Association's websites. In all, 81 postgraduate Arts students participated in the survey. Course types included Honours ($n = 7$, 9%), Postgraduate Diploma ($n = 6$, 7.7%), Masters by coursework ($n = 23$, 29.5%), Masters by research ($n = 2$, 2.6%) and Doctorate ($n = 40$, 51.3%). Unless respondents volunteered their contact information, all survey responses were anonymous. The data were analysed and refined using the report filtering functionality in Qualtrics, then downloaded into Microsoft Excel 2010 for further analysis and categorisation, data presentation and visualisation. The survey was intended to be exploratory, providing an overall view of the use of and attitudes towards RMS by postgraduate students.

The interviews were designed to explore reference management practices (Appendix 2). Interviewee recruitment was based on convenience sampling (Williamson & Johanson, 2013, pp. 343–344) of postgraduate students who participated in the survey, and through approaches to academics by subject librarians. A total of 21 people volunteered to participate in the interviews, 13 academics and 8 postgraduates. The interviews took place between December 2013 and February 2014. They were semi-structured and usually lasted 45 min. All interviews were audio-recorded and then transcribed. The transcripts were first coded into broad categories and further focused coding enabled relevant patterns, themes and topics to emerge.

The academics interviewed were from the discipline areas of History, Linguistics, Communications and Media Studies, Archaeology, Film and Television Studies, German Studies, Psychology and Music. The doctoral students interviewed were from the following disciplines, Criminology, Indigenous Studies, Literary Studies and French Studies. In this article, the interview results are presented anonymously, and some interview quotations have been edited for clarity and length. Responses from the survey are labelled 'PG' (postgraduate), while responses from the interviews are labelled 'STU' (student) or 'AR' (academic researcher) with a number allocated to each interviewee.

Questionnaire findings

RMS use

RMS was the most frequent means of managing references, with 71.4% ($n = 55$) of the students reporting its use. EndNote was the most widely used RMS, with use of Zotero and Mendeley very low (Table 1). There was a correlation between reports of EndNote use and attendance at Library EndNote sessions. Of the respondents who had attended an EndNote session, 71.2% ($n = 47$) reported using EndNote and of those who had not

Table 1. RMS used to manage references.

RMS	*n*	%
EndNote	52	67.53
None	22	28.57
Other	5	6.49
Mendeley	1	1.30
Zotero	1	1.30
RefWorks	0	.00
Total	81	100.00

Table 2. Importance of RMS features.

RMS features	Very	Somewhat	Not very	Haven't tried it	Response (*n*)
Creating a reference list	50	4	1	–	55
Saving and organising citations	49	5	–	1	55
Inserting citations into a thesis or assignment	38	10	6	1	55
Storing and managing research data	23	14	5	13	55
Storing and organising PDFs	18	17	4	14	53
Publishing bibliographies and/or reading lists	18	12	5	20	55
Searching databases or library catalogues	16	13	10	14	53
Creating groups	15	20	8	12	55
Annotating and tagging PDFs, docs, etc.	9	14	9	22	54
Sharing research	4	11	11	28	54
Networking with other researchers	2	9	14	29	54

attended an EndNote session, only 45% ($n = 5$) were using the software. EndNote use was high amongst doctoral students writing a thesis with 82% ($n = 32$) of doctoral candidates and 71.4% ($n = 5$) of Honours students using the software.

Respondents were asked to rate the importance of certain features of the software (Table 2). The most important feature identified as 'very useful' was *creating a reference list* (91%, $n = 50$), with the related function *inserting references into a thesis or assignment* (69%, $n = 38$), ranked third in importance. The second most important feature was *saving and organising PDFs* (89%, $n = 49$). It is interesting to note the low number of students (27%, $n = 15$) who identified *creating groups* as 'very useful', particularly as this feature is part of EndNote training at the university.

Management of references without RMS

A significant number of students, 29% ($n = 22$), stated that they did not use any RMS at all (Table 1). When these students were asked to describe how they managed references, 11 used the terms 'manual' or 'manually', often without further explanation. Of those who gave fuller explanations, two used the reference feature in Word, and the remainder either copied or pasted reference details from articles or databases, or created the references and reference lists themselves. Very few of the responses described storage of references. One student saved references consulted in a publication's reference list and, on completion, deleted those not used, while another kept 'hard copy notes' (PG).

Deciding how to manage references

Students were asked to identify the reasons they chose their reference management system (Table 3). The two most popular choices were, *only one I know about* 49% ($n = 36$) and *Monash supported software* 48% ($n = 35$). *Recommended by lecturer* was of moderate importance and only a very small number of respondents (7%, $n = 5$), identified *suits my workflows* as a reason for their choice of a reference management system.

Table 3. Deciding factors for choice of RMS.

Deciding factor	Bar	*n*	%
It is the only one I know about		36	49.32
It is Monash supported software		35	47.95
Integrates with Word		34	46.58
It is easy to use		24	32.88
My lecturer/supervisor recommended it		22	30.14
I had used it before		15	20.55
Can't work out how to use the software		14	19.18
A friend recommended it		8	10.96

Note: Multiple responses allowed.

The option, *can't work out how to use the software,* was selected by 19% ($n = 14$) of the participants. The perception that RMS was difficult to use was reflected in a comment in the accompanying open-ended responses, 'EndNote is so complex and requires hours of learning to use it' (PG).

Choosing a reference management system was a prominent theme when students were asked what advice they would give new postgraduates. The most common themes were early organisation and making informed decisions about reference management. Adopting a system that would withstand the rigours of research, and learning that system thoroughly were mentioned frequently. As one student wrote, 'Review all of your options (different programs) at the beginning of your candidature and aim to stick to a method that suits your research style, before you get bogged down in deep research' (PG).

Attending a library EndNote session was also recommended as a first step. Some students suggested attending more than one session and also emphasised the importance of becoming competent users of the software:

> The main piece of advice would be to spend a couple of hours to go to a library workshop, make sure you learn the basics from that, then while you are doing your work, play with it, interact with it and throughout the semester, take the little bit of extra time to organize the references you compile in it. (PG)

Some students explicitly and enthusiastically endorsed their preferred reference management system, including both 'manual' and EndNote, while warning against using alternatives.

Attitudes to RMS

The survey contained two open-ended questions designed to capture students' attitudes to RMS. The first question was, *What features do you love about the RMS you currently use?* (Table 4). The three most popular features were *downloading references* ($n = 24$), *creating a reference list* ($n = 18$) and *inserting references* ($n = 15$). Features related to managing the research process, sharing research and networking with other researchers received little attention. This may reflect the large percentage of respondents who used EndNote as this software has limited capability in this area. It may also indicate the focus of a large percentage of students on conducting research and writing a thesis.

Table 4. What do you 'love' about the RMS software?

What do you love	*n*
Downloading/storing citations	24
Reference list	18
In-text	15
Storing PDFs	10
Easy to use	7
Searching fields	6
Reference style	6
Organisation	4
Groups	3

Table 5. What annoys you about the RMS software?

What annoys you about the software?	*n*
Cite While You Write	15
Restrictions due to formatting	11
Technical issues	11
Time consuming	8
Software is too complex	8
Insufficient training	8
Downloading citations	2

In responses to the second question, *What features annoy you about the RMS you currently use?* (Table 5), Cite While You Write (CWYW) was directly and indirectly identified as an annoyance by a large number of students ($n = 15$). A related feature, *formatting styles*, also rated strongly as an annoyance ($n = 11$). The technical issues which students identified ranged from relatively simple, 'Style output can be irritatingly wrong' (PG), to complex, for example, 'I am operating with a corrupted copy of endnote [*sic*] so the list of things that annoy me is too long to articulate' (PG). The impact of these issues is evident in the students' responses.

A number of questions in the survey provided space for comments. Respondents used this opportunity to express their feelings about RMS. In their responses, concerns about the reliability of RMS were expressed, 'I also feel it is necessary to keep my own files in case the EndNote files for some reason become corrupted or inaccessible' (PG). A student who had previously lost references was '… reluctant to trust my work to these complex programs, where there is much potential for things to go wrong' (PG).

Interview findings

RMS use

Of the doctoral students interviewed, 75% ($n = 6$) were using RMS, with 66% ($n = 4$) of these using EndNote. RMS use was substantially higher amongst doctoral students than amongst the academic researchers, with only 31% ($n = 4$) using software. There was considerable variation in the way the software was used by these interviewees. Some interviewees were enthusiastic users, for example an academic who had used EndNote since working on a doctorate in the mid-1990s, kept a library of over 4000 records and preferred searching databases using EndNote connection files. Significantly, use of

features central to the software varied significantly. Only three of the six students (50%) and three of the four academics using RMS used exported citations from databases. CWYW or Zotero Add reference plugin were used by 66% ($n = 4$) of students and 75% ($n = 3$) of academics. The only feature used by all the students was the storage of PDFs, but this was only used by half of the academics. Only two interviewees, a student and an academic researcher, were using all of these three functions of the software.

Some students and academics deliberately chose to not use a particular function, sometimes because it did not suit their needs. One student, a competent and confident user of EndNote, no longer used CWYW and created a Works Cited List by copying references from the preview function in EndNote:

> I tried to do it for an essay once and it took a ridiculously long time and I use MLA which is very, very malleable … you can change the bibliography to any order you like. You can highlight editor or a translator in a bibliography and I haven't worked out a way [in EndNote] to being able to be as flexible as I want it to be. (STU6)

In some cases, interviewees were not using a feature because they were unaware it existed. Two doctoral students, both using CWYW, had forgotten that they could export references from a database into EndNote. In both cases there had been a lengthy period, three years for one of them, between attending a Library session and using EndNote, 'Before I used it, I'd done the training but then I didn't use it for ages afterwards so then I was kind of making it up' (STU1).

Management of references without RMS

Two doctoral students (25%) and nine academics (69%) did not use RMS to manage their references (Table 6), although four of the academics had previously used EndNote. Within this group a wide range of methods were employed to store references. Not all interviewees stored references separately, as one academic explained, 'I usually jot them down on paper … [because] the reference is there, with the PDF' (AR5). Using a combination of technologies was evident amongst both students and academics. For example, the PDF's reference management practices of a student included PDF storage in DropBox, capture of the reference information using a snipping tool, and insertion of this information into a comment box in a Word document. This student also used 'Reading list' in MacBook to bookmark future reading, and typed in-text references and reference lists into the thesis.

Deciding how to manage references

Although interviewees were not directly questioned about the reasons they managed their references in a particular manner, many spoke at length about this when describing their practices. In the analysis of the data, a number of themes emerged and prominent amongst these was the time required to learn a new system or change from one to another:

> I just look at [other software] and think, I've spent all these hundreds of hours and money on EndNote and I'll have to start again and learn Zotero. I've looked at Mendeley, and they all promise the world and then when you go to work them, it's not as easy. (STU3)

Table 6. Reference and PDF storage of interviewees not using RMS.

	Storage of references	Storage of PDFs
AR3	'I usually write it down on the nearest piece of paper'	Saved in documents folder
AR4	Not saved, '… because I'm not sure I'm going to use the article'	Saved in folders on computer according to projects
AR5	'I usually jot them down on paper'	Saved in folders on computer according to projects
AR6	In Word documents for each project, divided into primary and secondary sources. These were further divided into sources already read and those yet to be read	Not known
AR7	Saved in notebooks, along with notes about the source and where found	Saved on computer in university drive. Also mails a copy to self
AR9	Not saved	Saved in files on computer
AR10	Saved on a Word document for each project, kept on external drive	Saved on computer
AR11	Uses Gmail – emails article link to self – could be newspaper article, blog post, etc. (anything online that holds interest)	Has print version and link to online version – doesn't store PDFs
AR12	If able to, downloads article and/or details to desktop. If not able to, writes details in an 'old fashioned desk diary'	Prefers to work with hard copies
STU5	Captured in Word along with the link	Placed in DropBox or Reading list on the MacBook
STU8	Notebook for capturing bibliographic details of articles, books, etc. that will be used further	Saved on computer

The experience of others indicates that this concern was not without justification. 'It took me ages to go backwards and make sure I'd put all the references I'd used on my documents into EndNote' (STU1).

RMS was identified as useful for certain tasks, in particular writing a thesis. As one student explained:

> I hadn't used it previously and then I was trying to put together my confirmation document and … I was thinking, 'If I've got to do lots of these chapters, it's going to be a lot easier to have the references in one spot rather than inputting them all the time'. (STU1)

Conversely, a number of academic researchers noted that writing in their discipline did not always require this kind of software,

> … I looked at EndNote several years ago, and to be quite honest I thought, yes, if you do day-to-day heavy duty writing with lots of references, something like that would be very useful, but for me [who] primarily produces original music, I can go with my footnote system…. (AR12)

Others, even those involved in writing longer pieces considered that the length of an article did not warrant the use of RMS.

Seven of the ten academics no longer using Endnote had either attended Library sessions or tried the software before, many during their doctoral studies. They had ceased to use it because it did not offer the functionality they required or did not fit into their research workflows. The subjective nature of these decisions was evident in much

of the interview data. For example, an academic cited incompatibility with foreign language capitalisation conventions as a reason for not using EndNote:

> … I work, particularly for my primary documents, essentially entirely in French, and EndNote automatically capitalises and French titles don't capitalise. And I … tried EndNote and found it so incredibly frustrating because I would have to go back and manually change everything. I gave up on it. (AR6)

Interestingly, a student also using French language material did not comment on capitalisation as a problem.

Similarly, CWYW was identified by some participants as a reason for no longer using EndNote:

> I have wasted more time inserting it [citation] and then there's an error in it or there's something in it and then you've got to wait three minutes. I've timed it. Three minutes to undo it. Then you've got to fix it up in EndNote, then you've got to insert it again. That's another three or five minutes. You could've typed up your own. (STU3)

However, the same feature was indispensable to others, 'Insert references manually? Oh no, I haven't done that ever since I found out about the wonders of EndNote … No, definitely not. I wouldn't even think about doing it now' (STU7).

Two academics expressed ideological reasons for not using RMS, linking it to a gratuitous use of references in writing. One of them copied references from the bibliographies of previous work into a new bibliography. References were only deleted from this provisional bibliography when thought had been given to their usefulness:

> I'm thinking, 'Well, why wouldn't I use that as part of the argument?' … And you don't get that in EndNote … it's sort of a way of cross-checking what you've done in terms of inter-textuality, kind of rigorous because each time you're deleting something you're thinking, 'Well, yeah, this is something totally different, new, that isn't related to that'. (AR4)

An interview question about the advice academics offered students provided insight into the decisions students made about reference management systems. Their responses indicated a range from no advice provided to discussions of management software options. The only academics that discussed reference management options were the two who used Zotero, perhaps reflecting their confidence in this area and experience with multiple software. One of them explained the advice given to students in the Master's programme:

> I'll say to people, 'You really need to think about this. For some of you any kind of reference software isn't actually going to be a time saver because of the amount of time … you'll need to invest in the learning process is going to be more than what you'd spend on just formatting the thing by hand.' (AR2)

However, for students who were considering a research degree the academic advised the use of RMS:

> I say, 'You need to be using some form of this because it's going to help you a lot to keep track of things. And particularly once you start publishing, the first time you have something rejected from one journal and then send it to somewhere else, that has completely different reference requirements, you will love this stuff!' (AR2)

Some academics sent students to the Library to get advice and training either because they used another RMS or did not use any RMS. Competent EndNote users recommended its use, 'When I have Honours students, and Masters and doctoral students I tell them if they want to save time, even if they don't care about their time, this is some of the very basic things they must have' (AR8). However, those with negative experiences were more cautious, 'I think I talked about this only once and said, "Look, you may find this useful … I find this very, very annoying, but use whatever you do"' (AR7). One academic expressed the option that current postgraduate students did not require help in this area:

> I think in the early days when EN was introduced, I used to make a point of bringing it to their attention even though I've never actually ever used it myself. More recently I haven't actually done that. I guess I'm assuming that they know about it and would set it up themselves if they were interested. (AR9)

Attitudes to RMS

The interviews revealed a wide range of attitudes to people managing references. Many expressed satisfaction with their own system, 'I set up a system in my PhD research that works for me, I'm happy with, and maybe I'm a bit of a Luddite, but I've just kept going that way' (AR6). Satisfied EndNote users were incredulous that others were not using the software, 'I don't know how they manage. Without EndNote reference system, writing academic papers and books is an impossibility for me. But it is so surprising for me to see that there are still people like that very much' (AR8). Academics with a long career of working in their discipline behind them had developed reference management systems with which they were comfortable and were reluctant to change, 'I suppose I had a way of working that I didn't necessarily think needed to be modified at that point and I've just continued with those for better or worse' (AR9). Some interviewees were interested in experimentation with software, 'In an ideal world I guess I'd be multilingual in RMS' (AR13) while others were reluctance to experiment:

> I'm actually really disinterested in experimenting and technology. It's a bit like driving, I don't know how the car operates either. Electricity, I flick that switch and the light goes on, that's what I want from technology. I do not want to spend my time … calculating wattage. (AR3)

Discussion

Managing references

Our research indicates that academics and students use a range of personal and individual systems, which may involve RMS, other software, or a mix of digital and non-digital technologies. In addition it reveals that what is reported as RMS use is neither uniform nor predictable. Many interviewees did not use all the features, even those that would be considered core functions of the software. These findings are similar to those of other researchers (Antonijević & Cahoy, 2014; Francese, 2013; Hicks & Sinkinson, 2015). The term 'RMS use' therefore cannot be assumed to imply a particular set of practices or the use of particular software features. Categorising reference management in terms of use or non-use of RMS fails to convey the diversity of reference management practices that exist and implies a false dichotomy.

An extension of this dichotomy is the tendency of some LIS writers to treat 'non-use of RMS' as the last pocket of resistance to the inevitable dominance of RMS.

For example, Emanuel notes, 'Gone are the days where researchers develop personal systems for keeping track of reference information. The options for organizing and utilizing reference information are increasingly dependent on dedicated tools' (2013, p. 639). However, as this research indicates, the opportunities afforded by RMS software do not necessarily equate with their use by or usefulness to researchers.

A similar assumption of the superiority of RMS can be detected in the apologetic manner in which students and academics who did not use RMS undervalued their practices, 'I don't have a system' (AR7), or described themselves as 'Luddites' (AR7) and their systems as 'old fashioned' (AR10). That this may be a widespread assumption is indicated by Ollé and Borrego's identification of the use of similar language by researchers to describe their practices, for example, 'primitive' and 'rudimentary' (2010, p. 225). In the survey, postgraduates not using RMS overwhelmingly described their practices as 'manual', implying non-digital. However, while they were not using RMS to manage their references, most were using some form of digital technology (Table 6).

The lack of interest in reference management practices which do not use RMS, and the assumption that RMS is the preferred way to manage references which appears to dominate much LIS literature may indicate a wider inability to learn from our users. Other studies of librarians' perceptions point to this missed opportunity. In her study of librarians' and doctoral students' perceptions of the literature review process, Green (2010) identified a lack of attention to users' practices. She found a mismatch between the well-meaning but prescriptive attitudes of librarians to doctoral students, and the actual practices of the students who were 'knowing and strategic learners' keen to navigate the research process on their own terms (pp. 317–318).

Making choices about reference management

The reasons that a particular reference management system is adopted to provide valuable insight into practices and can inform reference management instruction in academic libraries. The literature indicates a wide range of factors, institutional and personal (Childress, 2011, pp. 147–148; Fourie & Bakker, 2013, p. 657), technical (Zaugg et al., 2011, p. 36), or ideological (Francese, 2013, p. 160) and the findings of this study confirm these. Students and academics choose between different systems, software, and software features to suit their particular needs and the type of work they are involved in. Adopting a particular system usually involves some form of compromise between the perceived benefits and limitations of a system., '… because of the foreign language, in one sense EndNote saved me time but in another it created more work. So this just means that I do my own checks and I have control' (AR6).

Functionality also plays a significant role in whether RMS is used or not. Problems with RMS sometimes lead to abandoning the software completely and, conversely, a feature that works well might mean that other less satisfactory ones are tolerated. However, as Ollé and Borrego found, some of these decisions are based on incorrect perceptions and incomplete knowledge of the software (2010, p. 226). Similarly, students and academics who had used and then abandoned EndNote were sometimes locked into a negative perception of the software based on problems they had experienced with past versions, even though many of these had been subsequently resolved.

Ultimately, the value of a software feature for an individual is subjective and cannot be measured merely in terms of its popularity. Despite the low use and appreciation of the groups feature in RMS evident in the survey, it was used by one participant to an advanced level, '… so in EndNote I can just have one PDF that's got five tags on it, so

if I type in "queer theory" or "feminist theory", I can find them all, I can group them all. That's really, really helpful' (STU6).

Institutional provision of RMS is a key factor for students and academics when deciding how to manage citations. The choice for most students and academics at the University is between EndNote and a system of their own devising. Only a minority of students and academics used, or had contemplated using, other RMS. As one student noted, 'It's the only software for which I found a library workshop to book into' (PG). This was also the reason some academics suggested EndNote to students, 'Monash [University] Library has EndNote and that's what they've got the best resources for it and that's something that I think has a lot of value' (AR2). However, there is a responsibility attached to a university's provision of a particular software. As Fitzgibbons and Meert note, this 'lends tacit approval to the effectiveness of the software' (2010, p. 144).

This responsibility is complicated by the diverse range of RMS available. Emanuel notes that it has led to uncertainty about which software academic libraries should support, and also the amount and level of support required (2013, p. 645). One of the interviewees captured some of the issues:

> I think it's a fast moving area now … [Zotero] certainly does the job for me but you know then people start talking about Mendeley and I think, 'Well I know nothing about Mendeley.' I don't know how realistic it is to expect that as a community we stay open, have people doing different things … I know that the university is invested in EndNote to some extent so that's what the library is going to be giving support for but it's not necessarily the best solution for everybody. (AR13)

Innovative approaches are required to make sense of this busy landscape whilst working within the limitations placed by reduced budgets and staffing restrictions. Emanuel suggests a flexible approach by libraries, including a broad awareness of a range of software with support and services reflecting the needs of individual campuses (2013, p. 646) accompanied by more ethnographic research into software use and its integration into research practices (p. 653).

Emanuel's call is timely; before academic libraries can begin to design for the future they must investigate current practices (Favaro & Hoadley, 2014, p. 32). The findings of this research suggest that all reference management practices, whether they involve the use of RMS or not, merit investigation. Investigations should focus on what students and academics are trying to achieve, rather than how they do it. As one student noted, 'It's not the system but the accuracy and validation that counts most' (PG). This sentiment was echoed by an academic, 'I notice that some of my colleagues have cards but everyone seems to have developed a system' (AR6). Applied research into the practices of students and academics is an opportunity for librarians to re-examine the implicit and explicit assumptions they hold about their work (Gibbons, 2013, p. 164). The understanding of users gained from this research is neither 'overly difficult nor costly to obtain' (p. 165). However, its power as a 'wake-up call' is acknowledged by those whose projects have encountered opinions and needs amongst students and academics sometimes differing significantly from the their own preconceptions (Cunningham, Carr, & Brasley, 2011, p. 470; Foster & Gibbons, 2007, p. 59). The next step at Monash will be to discuss the implications of the findings from this research for our practice.

Sustainable support and instruction

What are the implications of these findings for reference management instruction in academic libraries? The results support the findings of other studies, such as Carpenter et al. (2012, p. 23), that identify the challenges faced by beginner researchers in managing references, particularly when embarking on a thesis. As one academic commented:

> I think it is one of the more challenging aspects of research because you have to manage an extraordinary amount of data … it's one of those skills that we as researchers don't imagine that we need to develop but we do. Because you have to be extraordinarily systematic and organised in order to keep on top of managing your references. (AR6)

Some of the difficulties integrating reference management practices into research practices arise because initially students simply do not know what their research practices will entail. The challenge they face is 'finding out what they need to know' (Madden, 2014, p. 100). This may explain the low number of survey respondents who selected *suits my workflow* as a reason for adopting a particular reference management system. The literature review for this study suggests that a significant proportion of academic library RMS sessions focus on the technical capabilities of software. These are useful and have their place, however they offer limited help for new researchers struggling to develop their own research practices. In their study, Carpenter et al. (2012, p. 30) recount the experience of a young doctoral student at Oxford University who attended two RefWorks training sessions but did not use the software because he was 'unable to grasp how to practically incorporate it into his working methods'.

The findings from this study underline the importance of situating reference management within the research process, acknowledging students' existing practices and discussing options offered by RMS, individual features of RMS, and other software. In sessions about a particular RMS, this could be achieved by an approach which presents RMS not as a complete package but as a set of possible features or tools that researchers could draw on as required to meet changing needs. The importance placed by postgraduate students on early investigation of options suggests that sessions which help students make informed decisions in these early days would be well received. This type of session could also provide a forum for people who were reluctant to use RMS to assess the role such software could play in their practices.

The types of sessions detailed above would also save postgraduates time by providing an opportunity to assess and make decisions about reference management in a supported environment. However, the importance of time indicated in this study and others (for example, Alhoori & Furuta, 2011. p. 174; Hicks & Sinkinson, 2015, p. 544) means that not merely the content but also the format of reference management instruction merits re-examination. This is particularly relevant for academics who face the demands of keeping up with the multiple online systems and software required to manage research and teaching, 'we are flooded … by things we have to do, more and more administrative things' (AR7). The challenge for academic librarians is to devise sustainable and timely approaches to working with students and academics to help them devise reference management systems which suit individual research practices and are resilient enough to accommodate the demands of research and study.

Conclusion

The research reported in this article aimed at understanding the reference management practices of a group of Arts Faculty students and academics at one university. It grew from a recognition that we understood little about the daily realities of managing references experienced by researchers at our university. The findings reveal the shifting, sometimes messy, and generally effective ways in which references are managed and the varied reasons that underlie researchers' adoption of personal and individual approaches. The complexity and variety of practice is at odds with the underlying assumption in most LIS literature about reference management instruction that reference management is a reasonably straightforward problem which is solved by the use of RMS. Since 2013, when this research was initiated, there has been an increase in the number of studies focusing on the practices of researchers. It would be fruitful for the LIS community to undertake this type of research and develop a more nuanced understanding of reference management practices. In particular it is important to move beyond the categorisation of reference management merely in terms of 'use of RMS' and 'non-use of RMS'. As academic libraries face an uncertain future it is essential for them to develop a more flexible perspective of reference management as part of an approach to researchers that aims to understand their practices rather than normatively prescribe solutions. This will provide a firm basis for the development of sustainable programmes, which allow researchers to reflect on their practices and to devise systems which meet their individual needs.

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I do not have any financial interest in nor have I received any financial benefit from the direct application of this research.

Notes on contributors

Anne Melles is a subject librarian at Monash University Library. She has previously worked in TAFE and university libraries. Her research interests include the education role of librarians, the future of academic libraries and the role of technology in academic libraries.

Kathryn Unsworth is a data librarian at the Australian National Data Service (ANDS). She has previously held positions in higher education, TAFE and Victorian government education sectors. Her research interests include data management practices within the academic research domain, technological and human impacts on behaviour change and adult learning preferences.

ORCID

Anne Melles http://orcid.org/0000-0003-0479-0292
Kathryn Unsworth http://orcid.org/0000-0002-5407-9987

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Appendix 1. Survey questions

Completion of this survey will constitute your informed consent, which is much appreciated.

Consent:

1. I have read and understood the Explanatory Statement.

2. I understand that my words may be quoted (anonymously) in publications, reports, web pages, and other research outputs.

3. I understand the data that I provide during this research may be used by the researchers in future research projects.

4. I agree to continue with the survey.

- ❍ Yes (1)
- ❍ No (2)

5. Which Faculty are you enrolled in?

- ❍ Art Design & Architecture (1)
- ❍ Arts (2)
- ❍ Business and Economics (3)
- ❍ Education (4)
- ❍ Engineering (5)
- ❍ Information Technology (6)
- ❍ Law (7)
- ❍ Medicine, Nursing and Health Sciences (8)
- ❍ Science (9)

6. Which department, school or centre are you affiliated with? (where applicable)

7. What type of course are you enrolled in?

- ❍ Honours (1)
- ❍ Postgraduate Diploma (2)
- ❍ Masters (Coursework) (3)
- ❍ Masters (Research) (4)
- ❍ PhD (5)

8. Have you attended a Library EndNote session?

- ❍ Yes (1)
- ❍ No (2)

9. When did you attend the Library EndNote session?

- ❍ 2010 (1)
- ❍ 2011 (2)
- ❍ 2012 (3)
- ❍ 2013 (4)
- ❍ Not sure (5)

10. Prior to the session what experience did you have of the following? (You can select more than one option)

_____ EndNote (1)

_____ Mendeley (2)

_____ RefWorks (3)

_____ Zotero (4)

_____ Other (please specify) (5)

11. Which of the following citation management software do you currently use? (You can select more than one option)

- ❑ EndNote (1)
- ❑ Mendeley (2)
- ❑ RefWorks (3)
- ❑ Zotero (4)
- ❑ Other (please specify) (5) _____
- ❑ None (6)

12. If you are not using citation management software, how do you manage your citations?

13. How important to you are the following citation management software features?

	Haven't tried it (1)	Not very (2)	Somewhat (3)	Very (4)
Storing and organising PDFs (1)	❍	❍	❍	❍
Saving and organising citations (2)	❍	❍	❍	❍
Creating a reference list (3)	❍	❍	❍	❍
Inserting citations into a thesis or assignment (4)	❍	❍	❍	❍
Creating groups (5)	❍	❍	❍	❍
Annotating and tagging PDFs, docs, etc. (6)	❍	❍	❍	❍
Sharing research (7)	❍	❍	❍	❍
Searching databases or library catalogues (8)	❍	❍	❍	❍
Networking with other researchers (9)	❍	❍	❍	❍
Storing and managing research data (10)	❍	❍	❍	❍
Publishing	❍	❍	❍	❍

bibliographies and/or reading lists (11)				
Other (please specify) (12)	❍	❍	❍	❍

14. Please rate the effectiveness of the following citation management software. (Rate only those you have used.)

_____ EndNote (1)

_____ Mendeley (2)

_____ RefWorks (3)

_____ Zotero (4)

15. What features do you love about the citation management software you currently use?

16. What features annoy you about the citation management software you currently use?

17. What support have you accessed to help manage your citations? (Rate this support based on your l of satisfaction.)

_____ Library EndNote session (1)

_____ Advice from a librarian (2)

_____ Advice from your lecturer/superviser (3)

_____ Help from other students (4)

_____ Google search (5)

_____ EndNote.com (6)

_____ Library website (7)

_____ Other (please specify) (8)

18. Does your school/centre/department recommend a particular citation management software?

- ❍ Yes. (please provide details) (1) _____
- ❍ No (2)

19. What were the deciding factors behind your choice of a citation management method? (You can se more than one option)

- ❑ My lecturer/superviser recommended it (1)
- ❑ It is easy to use (2)
- ❑ It is the only one I know about (3)
- ❑ I had used it before (4)
- ❑ A friend recommended it (5)
- ❑ It is Monash supported software (6)
- ❑ There is plenty of help available (7)
- ❑ Integrates with Word (8)
- ❑ Can't work out how to use the software (9)
- ❑ Features accommodate my workflows (10)
- ❑ Other (please specify) (11) _____

20. Is there any advice about managing references that you would give a new postgraduate student?

21. Any other comments?

22. Are you interested in being contacted to learn more about participating in the next stage of this research? (Next stage consists of a 30 minute interview)

- ❍ Yes (1)
- ❍ No (2)

23. Thank you for offering to be part of the next stage of our research. Please supply your contact deta (for contact purposes only):

- ❑ Name (1) _____
- ❑ Email address (2) _____
- ❑ Phone (3) _____

Appendix 2. Questions guidelines for interviews

No.	Interview question
	Before we begin, do you have any additional questions about the interview process?
1	Could you describe what you do when you find an article or book that interests you?
2	How do you prefer to work with an article, report or book?
3	How do you manage the citations when you're writing an article/thesis/assignment?
4	Could you describe how you would share your own or others' research?
5	What sort of support do you use/provide for problems related to managing citations and references?
6	Thinking about the time you've been a researcher/student, and the practices you've been describing, what sort of changes can you identify in these practices?
7	Is there anything about your current practices that you would like changed/improved?
8	Is there anything else you would like to add?