

Postgraduate Information Needs And Online Tools Awareness

Esther Dingley

June 2010



arcadia@cambridge: rethinking the role of the research library in a digital age

ARCADIA

The Arcadia Programme is a three year University Library programme generously funded by a grant from the Arcadia Fund, www.arcadiahfund.org.uk/

Contents

Executive Summary & Recommendations	3
1. Project Background	6
2. Research Methodologies.....	11
Part A – Existing Postgraduate Strategies and Experience of Support Available	
3. The Difference Between Undergraduate and Postgraduate Information Needs	15
4. When do postgraduates start thinking about writing up?	19
5. Existing Postgraduate Information Search Strategies	20
6. Existing Postgraduate Information Management Strategies	26
7. Postgraduate use of emerging online tools.....	31
8. Seeking Advice on Information Search and Management.....	44
9. Postgraduate Attendance at and Perceptions of Training Courses	47
10. Postgraduate Attitudes to Libraries and Librarians	51
Part B - Recommendations	
11. Timing of Support	60
12. Providers of Advice and Support.....	63
13. Different Methods of Delivering Support.....	66
14. Sharing practices amongst postgraduates	70
Bibliography.....	77
Appendix A. Issues raised by PhDs in their final years	78
Acknowledgements	79

Executive Summary & Recommendations

Background

This report summarises the results of the Postgraduate Information Needs and Online Tools Awareness (PINOTA) Project: a 12-week research project undertaken as part of the Arcadia Fellowship Programme. The PINOTA Project aimed to explore the information needs of postgraduates and their awareness of online tools which can be used to assist with information search and management in an increasingly digital research age.

The report focuses on the data collected through a survey of postgraduates at the University of Cambridge, which was delivered online and was completed by 19% of the current postgraduate population. This survey was followed by a series of four focus group sessions which provided a deeper insight into the information needs and existing strategies used by Cambridge postgraduates. A series of possible recommendations was further investigated in a second survey to the Cambridge postgraduate population, which was also delivered online.

Based upon this research, a number of key findings are reported below along with some recommendations made for the future support of postgraduates in a digital environment.

Key Findings

Existing Information Search and Management Characteristics

- Postgraduate information seekers must act independently to acquire and manage a much greater volume of information than undergraduates. There is an expectation that a postgraduate will sustain a high level of expertise in their subject over a long period of time.
- From the very early stages of their course most postgraduates are aware of the importance of managing information in preparation for writing up.
- Postgraduates in Arts, Humanities and Social Sciences do still rely more heavily on hardcopy sources compared to other subject areas. However, in general, postgraduates predominantly access information digitally, with Google being a common starting point for information searching.
- Most postgraduates store information using a combination of digital and hardcopy.
- Levels of satisfaction with information search strategies are higher than for information management strategies. Although postgraduates are generally satisfied with both their information search and management strategies, there is a high awareness that they could improve.
- Whilst 4 in 5 postgraduates had received advice on how to search for information, only 1 in 5 had received advice on how to manage the information sources that they were finding.
- When seeking advice on how to search and manage information postgraduates tend to receive advice from their supervisor and peers (other students and colleagues in their research group).

Existing awareness and engagement with online tools

- The majority of postgraduates are aware of and have tried using both citation / referencing tools and web bookmarking to help them manage the information sources that they find.
- Engagement with RSS feed readers, social / academic networks and discussion forums for monitoring and sharing information sources are less well developed.
- Postgraduates not engaging with online tools were either not aware of them or, if they were aware, did not feel they knew how to use them effectively or did not think they would be useful.
- The majority of postgraduates who were not aware of online tools expressed an interest in learning more about them.
- Currently, a common method of discovering online tools is chance web browsing or informal recommendations from supervisors or colleagues.

Current perceptions of training courses and libraries

- Approximately half of postgraduates have attended a training course on information search but only 1 in 5 has attended a course on information management.
- Predominant reasons for not attending courses are that they did not feel the course would benefit them or that they did not know where to find out about courses.
- Perceptions of those who did not attend training courses because they did not think they would benefit were that the courses were too basic, targeted at undergraduates and sometimes delivered by people who did not have enough understanding of the topic covered.
- Postgraduates generally find the support of their departmental or faculty libraries most useful.
- Half of postgraduates feel informed about the support on offer within the university's libraries. Whilst the two thirds of postgraduates considered librarians useful when searching for information, only a third considered librarians a useful source of advice on how to manage their information sources.

Postgraduate support preferences

- Training courses are the preferred method of support delivery, although there is also a high demand for more online resources such as guides and wikis that can be accessed at any time.
- The majority of postgraduates prefer information search and management support to be delivered as part of the induction courses.
- Support provided at a faculty or departmental level is found to be more useful than support provided centrally by a large proportion of postgraduates.
- The majority of postgraduates would have liked the opportunity to discuss information search and management with more experienced postgraduates when they started their course. The preference expressed was for these discussions to take place face-to-face and with postgraduates from the same subject discipline which was consistent with examples of

existing, successful sharing practices.

Recommendations

Based upon the outcomes of this research the following recommendations are made regarding future support of postgraduate information needs. Recommendations can be broken down into two parts.

1. Better advertising and branding of existing support

- Departments and libraries need to ensure that existing support resources, such as training course material and induction guides, contain information that postgraduates consider relevant to meeting their specific needs.
- Careful attention should be paid to the branding of these existing support resources to ensure that the benefits to the postgraduate demographic are apparent.
- There is scope to improve advertising and promotion of existing support resources. Promotion via email should focus on postgraduate-specific issues and potential benefits of the material instead of generic advertising and could be supplemented with content on university and departmental websites.

2. Possible Specific Avenues for Additional Support

- Based on the results of this research, the provision of more support resources that focus on information management strategies and the use of online tools are required.
- Based upon postgraduate preferences for Faculty-level support each department or Faculty library should consider delivering a course on how to search and manage information within the specific subject area and tailored to meet the needs of postgraduate study. These courses should be part of the induction week. If these are already being provided attention should be paid to the marketing of these courses.
- Each departmental or faculty library website should include a page on the support available to postgraduates and information on how librarians may be able to assist with or offer advice on information search and management practices. This content should be promoted in termly emails.
- In addition, a central series of online guides could be created describing the use of different online tools and the benefits for postgraduate study, particularly for searching and managing information. These guides should be linked to from departmental or faculty library websites with the possibility for postgraduates to discuss online the specific use of the tools with peers in their department or faculty.
- Each department should investigate establishing regular postgraduate forum events to facilitate discussion of best practice between postgraduates at different stages of their course. These informal offline events could be linked with the online discussion areas to allow the outcomes of discussions to be accessible online at any time.

1. Project Background

Whilst a significant body of literature has been amassed on the information skills and training requirements of undergraduate students, there has been less effort focused on identifying the needs of postgraduates. The purpose of this research project was to explore those postgraduate information needs, with a specific focus on how postgraduates are using online tools to assist with their information search and management. It is hoped that the results of this report will be particularly useful for library staff and others involved in the delivery of information search and management skills training when designing and promoting training courses for the postgraduate demographic.

Information search and management has been identified as a key requirement of postgraduate skills training by Vitae, the Researcher Career Development Organisation, in their “Joint Statement of the Research Councils Skills Training Requirements for Research Students”. The research management skills section specifically identifies the ability to acquire collate and reference information sources using appropriate resources and information technology.

Stark differences in the information needs of undergraduates and postgraduates exist due to the differing objectives and project timescales for each demographic. Undergraduate students work within very rigid timescales towards set pieces of work and examinations. The IRIS Project (2009) ‘mapped’ library inductions for and information skills of undergraduate students at the University of Cambridge; although roughly a third of respondents were postgraduates allowing a degree of comparison to be made. IRIS found that the dominant source of information for undergraduates about books and journals are reading lists and course notes from teaching staff. Undergraduate students also expressed a preference for relevant information, as compared with knowing who wrote and researched the information, reflecting the time-pressure associated with information seeking. This behaviour, which is consistent across both 1st and 3rd year undergraduate students, provides a distinctly different profile to that registered by postgraduates. In general postgraduates placed a higher value on the exact source of information rather than the relevance and tended to read more widely. Furthermore, the tendency of postgraduates to use supervisors and lecturers as sources of information was less developed than undergraduates, although they had a greater tendency to share useful information sources amongst friends and peers.

Interestingly, the IRIS project found that postgraduate uptake of the training materials provided was much higher than the equivalent undergraduate uptake. This was true for attendance at University Library inductions and faculty library tours, library information skills sessions and the library references desk. The only exception was college library tours, probably as these are normally mandatory for undergraduates.

Respondents in the IRIS survey were also asked to indicate how they found out about information sources relevant to their course. Very few undergraduate respondents (1.6%) indicated that librarians had recommended information sources to them. This figure was compared to the equivalent percentage from the 590 postgraduate students who had responded to this question. Although slightly higher, the percentage of postgraduate respondents indicating that a librarian had recommended an information source was only 4%.

In terms of online resources, the IRIS project found there were also large differences with

undergraduates showing much less awareness of online resources than postgraduates. Use of online tools for information searching including Google Scholar and Web of Knowledge was much higher for postgraduates. The proportion of postgraduate accessing online guides for information searching was also greater than for the undergraduate demographic. These results led to the desire for a more detailed exploration of postgraduates' awareness of online tools and use of those tools as part of this current research project.

However, despite all of these differences in information skills practice, the IRIS project found some similarities regarding the outcomes of those practices. For instance, both demographics were uncertain over whether they could access resources across libraries and both were dissatisfied with the level of training support regarding topics such as plagiarism and referencing techniques. The majority of libraries have not undertaken changes to communicate with students by new media, such as social networking or micro-blogging. Students expressed a desire to access basic information about the physical library, as well as electronic resources, online.

A study of postgraduate information needs must recognise the massive diversity in postgraduate study, particularly the difference between research postgraduates (PGRs) and taught postgraduates (PGTs), who one might expect to resemble the undergraduate demographic more closely.

The *Cambridge Reporter* Student Numbers 2008-09¹ gives the number of students on postgraduate courses that require the student to register as graduate students (Table 9.a). Out of a total of 6580 students registered as graduate students, 4865 (74%) are registered as PhD or Probationary PhD indicating that they are PGRs rather than PGTs.

Since PGRs make up the majority of the postgraduate demographic it is highly likely the nature of early career academic research has a large influence on their information needs. As identified by the University of Cambridge's Centre of Applied Research in Educational Technologies (CARET) in its 2009 JISC funded report "The lives and technologies of early career researchers", each early career researcher (ECR) is uniquely placed within a career stage, subject area, network and objective. However, the experiences of all ECRs share some common features. Generally their work cycle involves information seeking, data gathering, analysis, reflection, discussion and ultimately publishing. Whilst this research project focuses on the process of seeking and managing information, placing that process in the larger cycle of research and the objective of producing a unique contribution to the academic knowledge base can explain many of the differences between the needs of postgraduates and undergraduates. It is likely that it is the open-ended nature of research that promotes the use of a larger volume of material - which enhances the importance of searching for and managing information as efficiently as possible, particularly with other time demands such as teaching and administrative duties which are often present.

The CARET report specifically investigates the influence of information and computer technology (ICT) on the lives of ECRs and how uptake of technology is influenced by people and relationships, but primarily on the balance between time required to adopt a new technology and the benefit of doing so. Dominant influences in this decision making process are the desire to retain work-life balance, the culture and practices of different research groups and most importantly the number of other ECRs using the technology already. Although many ECRs are interested in new technologies, 72% do not engage with any of the Web 2.0 tools or social media to share their research, for example. Common limitations stem from social, confidence, institutional, skill and

¹ <http://www.admin.cam.ac.uk/reporter/current/special/04/>

participatory constraints.

The conflicting time-demands placed upon postgraduates were investigated by Beauchamp *et al* (2009) using Activity Theory to explore the tensions which exist within a doctoral student's experience. Doctoral students taking part in the study were asked to keep logs of their activities over a period of time. In line with the CARET report, doctoral students were shown to be undertaking a broad range of activities simultaneously which involved a number of different communities to achieve a broad range of objectives. Beauchamp *et al* describe the doctoral students as being the centre of multiple activity systems.

Therefore, the ICT landscape for postgraduates should be viewed as one in which each postgraduate chooses a set of technologies provided by a range of organisations to undertake the many tasks s/he undertakes as part of the study. With each new technology s/he will weigh the benefits of adopting that technology against the cost of doing so. This view should be borne in mind when exploring the information search and management strategies of postgraduates and the ways in which they employ ICT for these purposes.

A powerful theme that emerges from this CARET report is that the variation across different subject disciplines has a strong influence on which tools are adopted by the individual postgraduates. They refer to the idea of "niche tools for niche" environments. At face value it may seem obvious that different subject disciplines will favour different functionality; however, the reason for adoption of different tools may be deeper than this.

Online tools for information search and management are increasingly designed to involve a social element, allowing communities of researchers to share content and citations online. Professor Martin Weller and Dr. Nick Pearce have explored the concept of 'the Open Scholar' and the tools available to modern researchers. The 'Open Scholar' is one who makes their intellectual properties and processes digitally visible and invite ongoing critique of their work. They highlight that there are a large number of tools on offer and they draw attention to the high rate of attrition as tools disappear as rapidly as they are conceived with few going on to become widely adopted. They identify that different subject areas appear to have adopted the practices of digital scholarships at different rates leading to different subject disciplines concentrating on different tools since each chose the most up to date tool at the time of adoption.

Tristan Hooley, at the Digital Researcher conference hosted at the British Library (March 2010) stated that one of the key drivers in the decision of which technology to adopt is the concentration of those in the same subject area already using that technology regardless of whether that technology remains the most up to date or appropriate on offer. This reasoning is in line with Weller and Pearce's concept of the 'Open Scholar' who will naturally choose to share their work using the technology which provides them with maximum exposure amongst their subject specific peers.²

One possible explanation, therefore, for the prevalence of different online tools in different subject disciplines is related to the fact that digital scholarship has become popular at different points in time for different subjects. As the popularity of digital scholarship increases within a specific discipline it is likely that those scholars will adopt a modern tool provided it suits their needs. This early adoption period leads to a high population of scholars from that subject using one particular

² <http://www.slideshare.net/pearcen/disco-workshop>

tool. Even as time passes and new tools are introduced, it is still a logical choice for a scholar from that specific discipline to use the same tool that the majority of their peers engage with, i.e. there is inertia that prevents subject communities from updating to new online tools. But, other subject disciplines that are only just beginning to adopt digital scholarship practices will use the more modern tools, and so on.

Postgraduate perceptions of a scholarly community were investigated specifically by Pyhälto *et al* (2009). Almost one third of PhD students involved in that work did not perceive themselves to be part of any sort of scholarly community at all, which held a direct correlation with student sense of wellbeing. Postgraduates who considered terminating their studies were also those who felt no sense of community. There were also variations in the sense of community felt by postgraduates from different subject areas. Pyhälto *et al* concluded that there was an “urgent need for a more efficient means of fostering postgraduate students' active agency in scholarly communities”.

Conrad (2003) also explored postgraduate perceptions of their research environment finding a low level of community is experienced by many postgraduates and that the doctoral experience is still very isolating for many students.

These findings highlight how allowing postgraduates to share information online can provide benefits on top of improved information handling. Any tools which increase the sense of a scholarly community and reduce isolation will also increase the well-being of the postgraduate demographic. However, take-up of many online tools which are designed to include a social / information-sharing element is also hindered by the existing lack of community and therefore work must be done to ensure that postgraduates engage with these tools effectively.

“The Digital Information Seeker” report (2010) reviews the findings of 12 different user behaviour studies that investigate the use of information resources for a range of demographics, from scholars to the general public. A number of common findings emerge that are applicable to this project and support the outcomes of both the IRIS and CARET reports discussed above.

There are differences in researcher behaviour between different subject disciplines. Both the IRIS and CARET reports allude to this fact which can be attributed to the different social and academic norms which exist in different disciplines and which are propagated from generation to generation. Also, e-journals are increasingly important to the research process at all levels, with Google and other search engines becoming dominant for locating this content on the web. This finding is directly supported by the statistic revealed in the IRIS report which showed that more than 95% of Cambridge University postgraduates responding to the IRIS survey reported that they used Google to find information sources (n=488).

The Digital Information Seeker report also states that the speed and convenience of information search is important to all users, with desktop access to scholarly content being appreciated.

A key question which has to be addressed is the role of libraries in this evolving information searching environment which is specially addressed in the Digital Information Seeker report. In general people still view libraries as a collection of books, a finding that is directly supported by respondents to the IRIS report. Identification of areas where libraries should focus their attention included providing ‘seamless’ access to resources and providing more digital content and modifying library search engines to behave more like popular web services such as Google and Amazon.

A key suggestion for libraries that arose from the Digital Information Seeker report is that they must advertise their brand, value and resources better within the community they serve. Almost unanimously the studies under review recommended a stronger sense of “brand identity” for the library among its community, or showed evidence of that brand’s weakening. The plethora of emerging formats and services offered by modern libraries do have demonstrable value but the problem becomes for a library to demonstrate that clearly and unambiguously. In one study, students appeared confused by content in journal abstract databases, not understanding that the content they accessed was actually provided (at great cost) by the library. Users by and large still trust the library as an institution and therefore the library must continue to promote and broadcast the message of all it has to offer.

Overcoming this uncertainty in the roles and resources which modern libraries provide is very important. In the Second Annual Arcadia Lecture (May 2010), Professor Dan Cohen argued that it was increasingly important that libraries and scholars communicate more effectively to ensure the efficient use of institutional resources. He stated that he specifically took a role on the library committee so that he could take an active role on the library resource allocation.

Research Focus

Based on the perceived lack of information regarding the information skills and training requirements of postgraduates discussed above, despite the reported differences between the undergraduate and postgraduate demographic, the purpose of this project was to explore the specific information needs of current postgraduate students. In addition to exploring postgraduate perceptions of existing support, based on the discussion above regarding the increasing importance of digital scholarship and in line with the aims of the Arcadia project, one of the central aims of this work has been to investigate postgraduate awareness of online tools which can be used to assist with meeting their information search and management needs in an increasingly digital age.

About the Author

Esther Dingley graduated with a BA Economics from the University of Oxford and an MA in Educational Research Methods from the University of Durham. Recognising the need during her Master’s degree, in May 2008 Esther co-founded Graduate Junction (www.GraduateJunction.net), the largest online community for postgraduates, which currently has more than 15,000 registered participants. Graduate Junction, a researcher-led initiative, is a peer support community which facilitates connections and discussions amongst postgraduates and early career researchers. Graduate Junction has won a number of awards, been featured in national media, presented at national researcher development conferences, and has been met with an overwhelming positive response from both researchers and the academic community. From her experiences of founding Graduate Junction, Esther has become especially interested in understanding and supporting the needs of postgraduates, which was the motivation behind this project.

2. Research Methodologies

The PINOTA project adopted a mixed methods approach, collecting both quantitative and qualitative data sets. Initially an online survey was used to identify issues that were important to postgraduates in relation to information searching, information management and the support and advice that is available to assist with these research skills. Furthermore, in line with the emergence of digital scholarship and the objectives of the Arcadia programme, special attention was paid to the level of awareness regarding online tools to assist with information search and management.

Following this online survey a series of four focus group sessions was used to explore the issues identified in greater depth. These sessions provided more information regarding possible changes to existing support provision and new avenues that may be useful to postgraduates.

Following these sessions, a second, follow-up online survey was designed. The purpose of undertaking this follow-up survey was to explore some possible recommendations across a much larger sample in more detail.

Initial Online Survey

A web-based survey, self-built and hosted on Graduate Junction (www.GraduateJunction.net), was used to collect data from postgraduates at the University of Cambridge.

The survey featured questions on a range of issues under three broad themes:

- o Information Search
- o Information Management
- o Awareness of online tools useful for information search and/or management

None of the questions, or sub-questions, required an answer and consequently response numbers for questions will vary. The number of respondents is shown as (n) in the discussion of results.

The use of an online survey allowed for extensive data collection within a restricted time period. A pilot version was pre-tested for two days and received 35 responses. Following some small modifications, the final survey was live for 2½ weeks. This was deemed a suitable collection tool as the target population was known to have internet access (e.g. CARET Learning Landscape report). The subject matter of the questions was deemed not to be highly sensitive and no participants expressed concerns about the online survey format, which allowed for anonymous participation. All survey participants who provided a valid Cambridge University e-mail address were entered into an independently-verified prize draw, providing an incentive to complete the survey.

The online survey was publicised through a number of channels. The Graduate Union, PdOC Society, CUSU and the majority of the college MCRs included the information in their bulletins. College and faculty librarians, Graduate Faculty Representatives and Faculty Directors of Graduate Studies were also contacted and asked to disseminate information about the survey to their postgraduates.

In total, 1435 survey responses were received. Of these, 35 were responses to the pilot survey, which were not included in data analysis but entered into the prize draw. A further 78 responses were removed as the participants did not provide answers beyond the demographic questions. Accordingly, 1322 responses were retained for data analysis.

Of these 1322 responses, 1318 respondents specified their course. 31.9% of respondents were undertaking a Masters (n=421), 61.8% a PhD or equivalent (i.e. DBA, DEd) (n=814) and 6.3% post-doctoral research (n=83). From the PhD or equivalent survey population, 22.3% were in their first year (n=294), 15.4% were in their second year (n=203), 11.9% were in their third year (n=157), and 10.5% were in their fourth year (n=139) and 1.6% (n=21) in their fifth year or more.

Of the 1322 responses, 1317 respondents specified which Faculty they belonged to. Respondents were spread across 44 different Faculties covering all six Schools within the university. A breakdown across the six Schools is given in the table below:

School	Respondents	Percentage
Humanities and Social Sciences	417	31.5%
Technology	266	20.1%
Arts and Humanities	235	17.8%
Physical Sciences	187	14.1%
Biological Sciences, including Veterinary Medicine	137	10.4%
Clinical Medicine	71	5.4%
Independent Institutions	4	0.3%

Focus Groups

Following the initial online survey, four focus group sessions were organised to explore the trends from within the quantitative data collected via the online survey in greater depth and to gain a richer understanding of the context behind the responses to the survey. The focus group sessions were split into two types of groups: two sessions were organised for Masters and first year PhD researchers and two sessions were organised for third, fourth, fifth year PhD researchers and recently graduated post-doctoral researchers. This distinction allowed common experiences resulting from being at a similar stage of their postgraduate study to be discussed. As second-year PhD researchers were anticipated to be able to share experiences with both groups, those second years who participated were divided and attended either one of each of the two groups.

All participants were self-selecting, and each had expressed an interest in participating via the online survey. Participants were told in advance that the topics for discussion during the meetings would explore the areas investigated by the survey in greater depth. Each focus group lasted between 55 and 65 minutes, and the number of participants involved in each session ranged from 6 to 9. Discussions were sound recorded and fully transcribed with the consent of the participants. Free refreshments were provided throughout each focus group, and participants received an Amazon gift voucher for their time.

Follow-up Online Survey

A follow up online survey was implemented following the analysis of the focus group sessions. In particular the survey was designed to collect a large quantitative data set regarding the recommendations which had been proposed by the focus group participants. Due to time constraints, the second web-based survey used to collect data from postgraduates at Cambridge University was built and hosted by Survey Monkey (www.SurveyMonkey.com).

The survey featured questions that tested possible recommendations under the themes that had been identified during the first online survey and focus group sessions:

- Different methods of support delivery
- Different providers of support
- Timing of support delivery
- Postgraduate attitudes to libraries and librarians
- Postgraduate sharing practices

None of the questions, or sub-questions, required an answer and consequently response numbers for questions will vary. The number of respondents is shown as (n) in the discussion of results.

The use of an online survey allowed for extensive data collection within a restricted time period, providing greater support for the recommendations of this project. A pilot version was pre-tested for two days and received 15 responses. Following some small modifications, the final survey was live for 2 weeks. Once again, all survey participants providing a valid Cambridge University e-mail were entered into an independently verified prize draw, providing an incentive to complete the survey.

The online survey was publicised through the same channels as the first survey. There was deemed to be sufficient time (1 month) between publicising the two surveys to avoid significant de-sensitivity.

In total, 748 survey responses were received. Of these, 15 were responses to the pilot survey, which were not included in data analysis but entered into the prize draw. A further 28 responses were removed as the participants did not provide answers beyond the demographic questions. Accordingly, 705 responses were retained for data analysis.

Of these 705 responses, all respondents specified their course. 30.0% of respondents were undertaking a Masters (n=217), 67.5% a PhD or equivalent (i.e. DBA, DEd) (n=477) and 2.2% post-doctoral research (n=11). From the PhD or equivalent survey population, 38.6% were in their first year (n=184), 25.0% were in their second year (n=119), 19.9% were in their third year (n=95), 14.1% were in their fourth year (n=67) and 2.2% (n=12) in their fifth year or more.

Survey respondents were representative of more than 90% of faculties within the university spread across all six schools. A breakdown of respondents by Schools is given in the table below. The breakdown of respondent schools is similar to the breakdown by schools from the first online survey.

School	Respondents	Percentage
Humanities and Social Sciences	232	32.90%
Technology	95	13.50%
Arts and Humanities	138	19.60%
Physical Sciences	95	13.50%
Biological Sciences, including Veterinary Medicine	85	12.00%
Clinical Medicine	59	8.40%
Independent Institutions	1	0.14%

Response rates to the online surveys

Based on a full-time graduate student population for 2008-09 of 6580 the first online survey achieved an overall response rate of 18.81% and the follow-up online survey achieved a response rate of 10.54%³

Reasons for a lower response rate for the follow-up survey in comparison to the first survey could have been that the survey was promoted at a different time of year. The first survey was open during a quieter period around Easter whilst the follow-up survey was open during the final term. Although postgraduates are not affected by examinations in the same way that undergraduates are, it is known a large number of Cambridge postgraduates do have undergraduate teaching responsibilities which could have placed constraints on their time. In addition, it must be remembered that the follow-up survey data was captured using a different survey provider and some comments were received that the initial self built survey had been slightly more visually attractive. Finally, there is also a possibility that the target group had been slightly desensitised due to the earlier promotion of the first online survey.

Terminology and Notation

Throughout this report, any reference to 'early-stage' postgraduates refers to current Masters students, or PhD students in the first or second year of their projects. The term 'late-stage' postgraduate refers to PhD students in the third year or later of their projects, or to postdoctoral researchers.

Comments made during focus groups that are quoted in this survey are labelled with the faculty and year of study of the participant that made the comment. In the event that more than one participant across the groups had similar personal characteristics, the two participants are distinguished by placing an asterisk (*) at the end of one participant label.

All comments included in this report were received via the online surveys or in the focus group interviews.

³ This figure for the graduate student population has been taken from the Cambridge Reporter Student Numbers 2008-09 (Table 9.a). The survey response rates quoted here have been calculated excluding those respondents who indicated that they were postdoctoral, i.e. n=1238 for the first online survey and n=694 for the follow-up survey. Postdoctoral respondents were not directly targeted as part of the marketing of these surveys but recent PhD graduates would have been captured by their continued inclusion on internal mailing lists and listservs etc.

Part A – Existing Postgraduate Strategies and Experience of Support Available

3. The Difference Between Undergraduate and Postgraduate Information Needs

The importance of understanding the differences between postgraduate and undergraduate information needs was stressed in the project background. Focus group participants were asked to comment on their own experience of their changing information needs upon transition from undergraduate to postgraduate study. The limited comments from the focus groups included in this report are illustrative of many other comments of similar nature.

Increased volume of information

The difference that was emphasised by most participants was that postgraduates had to locate and manage significantly more sources of information than undergraduates had to. This increase in the volume of information was attributed to the expectation of creating and maintaining a comprehensive knowledge of one's entire subject discipline at all times combined with a lack of guidance on where to begin.

"I think one of the main differences as a postgraduate compared to an undergraduate is just the massive number of sources that you have, you know your undergraduate essay you might reference 10 to 15 sources, but in a thesis it's an awful lot more."

Criminology PhD Year 2

This caused the most anxiety amongst participants, with many expressing that they felt "overwhelmed" by the increased volume of information. In addition to the increased volume of information due to the nature of postgraduate study, increases in availability of information had further increased the expectation to access and manage more information.

"I think that there's much more pressure to be comprehensive in your subject because it's more specialised There's so much information, but you're also expected to have a handle on it"

English Literature PhD Year 2

Increased levels of independence

The transition to postgraduate study had also involved a step change in the level of independence required to identify relevant literature sources. As undergraduates, participants had been supplied with defined reading lists but had received little or no guidance since becoming a postgraduate.

"... during the undergrad period we still had more or less defined reading lists, and you sort of go through a reading list. Now you have sort of a jungle in front of you and you should go and try to find your way through this vast amount of information."

Politics PhD Year 2

"I found that instead of looking for specific resources that I'd been directed to it was trying to work out what there actually even was here to start with, and I know there's so much but it's finding which catalogues and which people to talk to."

Classics PhD Year 3

Increased depth and specificity requirements

Participants indicated that they felt they had to focus a lot more on the details in the information sources they were using compared to when they accessed information sources as part of their undergraduate study.

"In postgraduate studies we are looking for specific information on a specialised topic which is different from what we are looking for in undergraduate studies."

Physics PhD Year 2

"Definitely the depth of information you have the main stuff and then if you want to have more than just very the surface you need to get very, very particular journals, because they [results] don't get published in books often times."

Archaeology Masters

Increased length of study

Some participants also highlighted how an increased length of study, which necessarily contributes to the increase in the volume of information, also means that information had to be managed differently.

"It's not only the amount of referencing you do in it, in the same amount of paperwork, it's also the fact that you are doing a 3-year thesis, so you need to manage that information not only on a term basis, but on a three-year basis so that's a clear difference."

English PhD Year 1

A requirement to read across disciplines

A key point that emerged from the focus groups was the increasing expectation that postgraduates should have knowledge that extends beyond their specific subject area and so providing them with greater context of where their work sits relative to other fields.

"Whereas PhD or Master's work you tend to go from the boundaries of your discipline, so that makes the whole search for information and for bibliography much harder, because you don't have any knowledge to start from because you are not really part of that discipline."

Engineering PhD Year 1

A focus on different types of information sources

Some participants said that they had not had to deal with research papers and articles during their undergraduate study but that these had since become their primary source of information and that the change had taken some time to get used to.

"I didn't really look at any articles per se at undergrad. It was almost entirely focused upon textbooks and things like that."

Philosophy Year 3

Other participants also discussed how they were now accessing other resource types that they had never had to use during their undergraduate such as micro films, manuscripts and newspapers.

Working at the cutting edge of research

Some participants highlighted how the availability of relevant information had decreased since they were now working at the forefront of their field and so, necessarily, there was often little or no easy to find information sources that covered their specific area of interest.

"I just think that information was more widely available when I was doing undergraduate. Because of the topics I was looking at, it was kind of like people had already done research on this, so you can find it fairly easily, but then for my PhD the information I'm looking for is much harder to find, and in some cases not available at all. I'm the one doing research from this right, so nobody else has done this before right, so I can't find anything."

Physics PhD Year 3

Moving to a new library

The majority of respondents of this study (79.7%, 1053) read for their undergraduate degree at a different institution to Cambridge University. Many focus group participants said that they had different experiences of information search and management compared to their undergraduate study due simply to differing library protocols and library search engines at Cambridge University which they took some time to become familiar with. Some of these differences were sources of frustration, such as having to register at each library separately.

"I don't know how the system works here, as I'm used to a different system.....I don't understand why I need to go and register to each individual library separately, for example the Gordon Moore library, the Central library, I mean come on, I registered in one place, I have the same student card, I should be able to go any library and pickup a book."

Engineering PhD Year 1*

Other issues

College level support was also mentioned by some participants who felt that colleges paid more attention to undergraduates.

"I don't know if it's only my perception, but I mean my college library is mainly an undergraduate library but graduates are of course also welcome to work there, but the books and everything is laid out maybe for undergraduates."

Research Centre for English and Applied Linguistics, PhD Year 4

A returning and part-time postgraduate also highlighted that they had been away from academia for some time and that the level of computer literacy required to search for information had changed significantly.

"I did my undergraduate degree over 20 years ago. It was completely different then. We didn't have computers....."

Education Masters (part-time)

Summary

The information needs of postgraduates differ markedly from undergraduate students. Postgraduates are expected to acquire and maintain a broad but also highly detailed knowledge of their subject and related disciplines. This expectation means that postgraduates are required to identify and handle a much greater volume of information than undergraduates and over a longer period of time. In addition, they often receive little guidance of which sources and catalogues they should focus on to acquire this knowledge. Unlike undergraduates who are usually provided with a reading list and well-defined question to answer, the open-ended nature of postgraduate study makes such detailed guidance impossible. Therefore, the responsibility to identify and manage the most relevant information sources lies with the postgraduate themselves.

4. When do postgraduates start thinking about writing up?

For academics, the process of searching for and managing information sources is an ongoing one. Acquiring knowledge of a subject area is an important part of deciding where to focus new research efforts, justifying assumptions made and validating one's own findings. Furthermore this background information must be summarised in any academic report, paper or presentation in the form of a referenced bibliography. Therefore, although searching for and managing information is ongoing, it is often when reporting academic findings that the quality of information search and management strategies becomes most important.

The common reporting process for almost all postgraduates is the production of their final thesis. 'Writing-up' is the time when all of the information sources that have been used during the course of postgraduate study will be reported and therefore the quality of information search and management strategies will be highlighted. As an indicator of when information search and management becomes an important part of postgraduate study, focus group participants were asked when they first started to think about writing up.

All focus group participants, including those in the early stages of their postgraduate study, indicated that they began thinking about writing-up *"from quite early on"*. For the majority this early awareness was due to the perception that a PhD was structured in such a way that *"the first year was focused on literature review"* and the requirement to complete a first year report.

"First year report essentially consists of literature review, so day one your supervisor tells you get that in order"

Engineering PhD*, Year 1

Despite the first year report being a compulsory requirement, postgraduates also recognised that *"the first year report is going to add in the end to the (final) thesis as well"*. Many participants indicated that they were trying to writing up continually so to provide them with structure for organisation of information sources and further information gathering:

"I have to obviously produce stuff for a first year review, but I've been trying to write up quite a bit as I go along because otherwise I'll completely forget which sources had what in and what you have".

History PhD, Year 2

"... whenever I can I jot down information so that eventually it will be easier for me to write the thesis."

Physics PhD Year 2

The picture that emerges from these focus groups is that, in general, there is a well developed awareness amongst postgraduates of the importance of accurate management of information sources and that this awareness is present from very early in the study process.

5. Existing Postgraduate Information Search Strategies

To evaluate the predominant information search strategies of postgraduates in Cambridge University, a series of online survey questions were followed up with focus group questions regarding information search strategies. These responses are reported below. Where appropriate, the responses are broken down further using the personal characteristics data collected as part of the survey.

5.1 Resource access

In line with objectives of the Arcadia Programme, the prevalence of digital resources was explored with the following online survey question:

The majority of the information sources I use are digital or digitally available

Survey respondents were offered Likert scale answers which are displayed in Table 1. n=1318 is used to calculate the percentages shown. More than 70% of postgraduates agreed or strongly agreed that their resources were digital or digitally available. A breakdown of these responses by subject discipline (proxy Schools) is shown in Figure 1.

Response	Number of responses	Percentage
Strongly agree	544	41.3%
Agree	414	31.4%
Neither agree or disagree	132	10.0%
Disagree	194	14.7%
Strongly disagree	34	2.6%

Table 1: "The majority of the information sources I use are digital or digitally available".

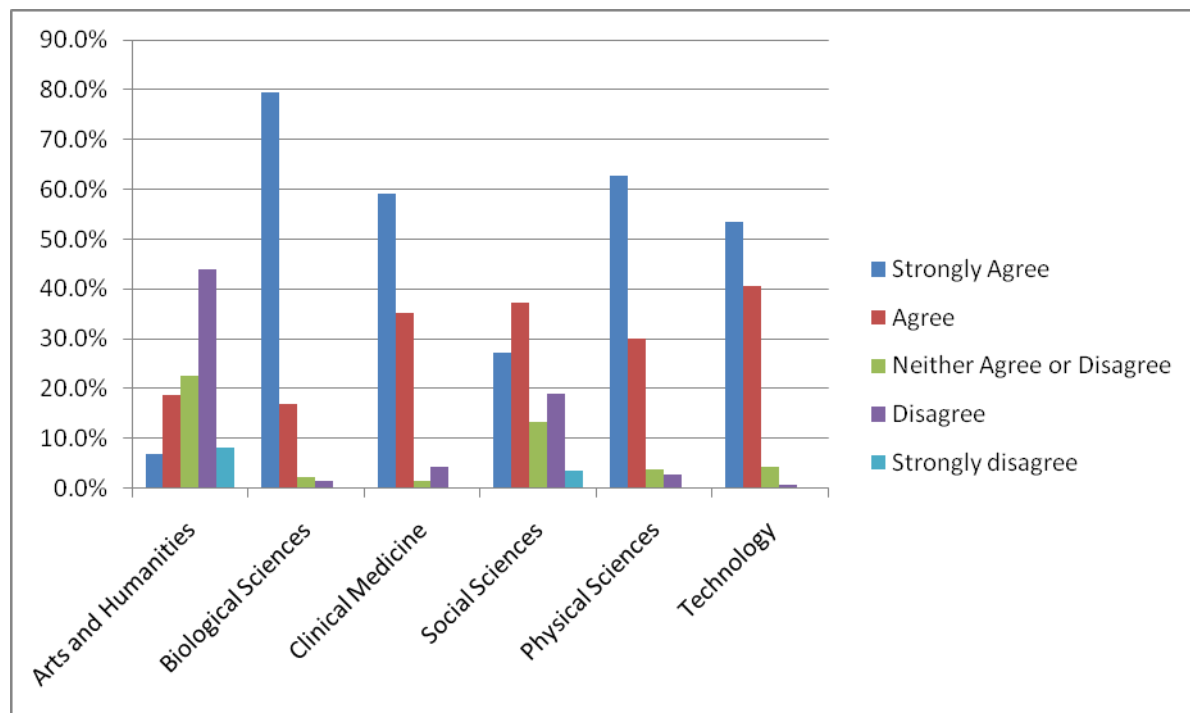


Figure 1: "The majority of information sources I use are digital or digitally available" broken down by School.

Figure 1 shows that there are differences between the Schools. In Biological Sciences, Clinical Medicine, Physical Sciences and Technology, greater than 93% of respondents from those Schools agreed or strongly agreed that their resources were digital or digitally available. However, in comparison this figure falls to 64% for Social Sciences and just 26% in Arts and Humanities.

This finding was confirmed during focus group discussions. Postgraduates in certain subject disciplines indicated that because of their interest area, they are expected to access older sources including manuscripts, newspapers, micro films etc and therefore digital access is not always an option.

"I mostly use printed books, journals online, and even many of the papers I need to check in journals, they are not available online because they are very old journals, and of course manuscripts are not online"

Asian and Middle Eastern Studies, PhD Year 3

To explore the importance of digital resource access to postgraduates in more detail focus group participants were asked to elaborate on why they choose to access information sources digitally. Unsurprisingly participants indicated that it is the ease of access that makes them favour digital resources. However, rather than simply indicating a preference for digital access, some focus group participants indicated that the increasing prevalence of digital resources actually guided their information searching behaviour. Due to the high proportion of information sources which are now digitally available, some postgraduates do not visit the library, even if a more appropriate source may be available compared to what they have accessed digitally.

"I think like most who are here, I'm biased pretty much towards electronic databases. So if I can search online, I do it online. If I can get articles online, I do it online. There's always a preference towards like online sources. And I kind of neglect the articles where I would have to go to the university library and search for the hard copy and actually copy it myself."

Education PhD Year 1

Participants also gave the first indications that they were engaging with some online tools to assist with the monitoring of digital information sources.

"I have subscribed to a lot of journals via RSS on Google reader, so when a new edition gets published basically I just subscribed to their table of contents, so then I just click through really quickly and see I often spot many articles which I probably would have missed, because I am not in the habit, I could go down to the library and I have a flick through the hard copies with the journals but I don't, I prefer to search from my computer ..."

Criminology PhD Year 2

There also seemed to be a sense of frustration that as more and more sources are made available online, it makes it difficult when things are not (or not yet) available online:

"... but a lot of work was done in early 1930s and 40s. So for me to find information back to 1930s and '40s, there's a slight problem because not many of the journals are available online. Recent work I can still find online, but that's an issue."

Physics Year 2

5.2. How do postgraduates search for information sources?

Focus group participants were also asked to comment on *how* they search for information sources. Google Scholar, Google Books and JSTOR were very prevalent, being mentioned by almost all focus group participants. Other search engines or databases that were popular included ISI Web of Knowledge and PubMed.

In agreement with the IRIS report, which found that more than 95% of respondents (both undergraduate and postgraduate) used Google to search for information related to their course, many participants said that they would often start their search for information using Google or particularly Google Scholar (*"I just Google first"* was frequently mentioned across all focus groups). There were two common reasons for the preference towards Google. One was the more detailed indexing of content which yields more results compared to dedicated online academic resource libraries. The second common reason was the ability to search all possible content at the same time rather than individual catalogues.

"Yes. I find it [Google Scholar] extremely useful because it covers a number of different locations."

Physics PhD Year 4

"As a biologist, I usually use PubMed. Unless I'm looking for something which I'm pretty sure wouldn't be in the name or in the keywords then I use Google Scholar because it goes into the papers and can pick up the one graph which is somewhere in there."

Biology PhD Year 2

However, participants also expressed that they frequently consult more than one search engine or database, reflecting their endeavours for a comprehensive search of the literature.

"I don't know of one place where I could just do my search over all journals"

Archaeology, Masters

In addition to using the search tools available within Cambridge University such as Newton and other library catalogues, additional searches were performed using other universities' website and databases, often the previous university of the postgraduate due to the familiarity they had with the software and preference for using it. Unsurprisingly, many of the participants also said that they would look at the references or bibliography of journals and books they were using to lead them to other relevant information sources, which often avoided problems with obscure keyword tagging.

"When I have books or journal articles – and probably you all do it, because it actually makes sense is actually looking at the references. And that gives me often relevant articles which don't have the search words I thought which are relevant because sometimes academics just come up with weird title."

Education PhD Year 1

Even using this method, Google was again mentioned several times again as being a useful way to access resources online:

"And even for that [finding a paper I already know of] Google Scholar is quite good"

because if it's a paper behind a pay wall - we don't seem to have access to all the things – Google will often find it somewhere else; maybe on the author's personal web page, so that's quite useful."

Physics PhD Year 4

Focus group participants expressed having to be very adaptive and resource with their approach which searching for information. For example;

"Actually it [using subject headings to search] came up with a lot of stuff I wasn't aware of and as it turned out it was really, really useful. I hadn't really thought of doing that until I'd put the keywords in and not really found anything. So I thought 'Right, okay, different approach'."

History PhD Year 2

Overall, the responses from focus group participants were consistent with many of the findings of the IRIS report, expressing a preference for internet search engines rather than library catalogues and academic holdings, although they seem relatively well informed using a range of search tools. For example, the IRIS report found fewer than 20% of undergraduate respondents and 50% of postgraduate respondents indicated that they used Web of Knowledge, compared to the 95% usage of Google reported above.

5.3 Where do postgraduates seek advice about how to search for information sources?

To explore where postgraduates seek advice about information search strategies, online survey participants were asked,

Who has advised you how to search for information sources? (tick all that apply)

A total of 1315 postgraduates supplied at least one answer to this question from the 13 options they were offered. 21.8% (287) respondents, equivalent to greater than 1 in 5 postgraduates, indicated that they had not been advised about information searching and ticked no other option. Of the 1028 respondents who ticked at least one answer to this question, the breakdown of their responses is shown in Table 2. All percentages calculated in the table are calculated using n=1028.

Response	Number of responses	Percentage
My Supervisor	697	67.80%
Other students	655	63.72%
Colleagues in my group	584	56.81%
Librarian	539	52.43%
Online Information	508	49.42%
I learnt by observing others	436	42.41%
Other academics	408	39.69%
Training Course	324	31.52%
Friends or family	287	15.37%
Online Network or discussion forum	158	10.89%
Departmental Advisor	112	7.39%
College Tutor	76	2.53%

Table 2: Where postgraduates seek advice on how to search for information?

Amongst those respondents who had received advice regarding how to search for information, the most common sources of advice were supervisors (67.8%), other students (63.7%), group colleagues (56.8%) and librarians (52.4%). The use of online information for advice is also quite popular being selected by almost half of the respondents in this group. Departmental advisors and college tutors were the least selected answers amongst this group.

5.4 Are postgraduates satisfied with their information search strategies?

Having investigated how postgraduates search for information and where they have received advice from, it was felt important to ask whether postgraduates are satisfied with their current information search strategies. Online survey respondents were asked to respond to the statement,

I am satisfied with the way I currently search for information sources

using the Likert scale answers which are displayed in Table 3. n=1317 is used to calculate the percentages shown.

Response	Number of responses	Percentage
Strongly agree	181	13.7%
Agree	758	57.6%
Neither agree or disagree	247	18.8%
Disagree	121	9.2%
Strongly disagree	10	0.8%

Table 3: I am satisfied with the way I currently search for information.

More than 70% of respondents agreed or agreed strongly that they were satisfied with their current information search strategies. However, since this study sought to investigate the information needs of postgraduates it is also important to test whether the respondents felt that they could improve on their current information searching strategies which may indicate a requirement for additional support provision. Survey respondents were also asked to respond to the statement.

I think that I could search for information sources more efficiently

Again, survey respondents were offered Likert scale answers which are displayed in Table 4. n=1317 is used to calculate the percentages shown.

Response	Number of responses	Percentage
Strongly agree	240	18.2%
Agree	648	49.0%
Neither agree or disagree	281	21.3%
Disagree	132	10.0%
Strongly disagree	16	1.2%

Table 4: Do postgraduates think that they could search for information sources more efficiently

What is striking about the responses to these two questions is that although more than 70% of respondents indicated that they are satisfied with the way they search for information, almost an

identical proportion thought that they could be more efficient. These results suggest that there is a degree of uncertainty amongst postgraduates regarding whether the information searching strategies they are currently adopting, despite being satisfactory, are in fact the most efficient strategies to meet their needs.

During the focus groups, potential reasons for this uncertainty regarding information search strategies were suggested. A number of participants expressed that they were confused by the multiple search possibilities and that this made them unsure if their current method of searching was providing them with all the information that they needed. Although postgraduates are generally satisfied with their current strategies, they do not know if there better tools available which makes them uncertain.

“There might be like 10 or 20’s search engines are available online, I don’t know which to use which will be much more relevant to my work or probably the things that I am using currently, I do want to mention I feel that I think I am getting almost everything, but it may not be so.”

Physics and Chemistry PhD Year 1

“I always felt like I needed another thing. It [search engine] was missing out a lot of references and I need something else to use to search for information, but I didn’t really know what the best thing was.”

Biology, PhD Year 4*

Summary

It appears that many postgraduates access information sources digitally and that they use a range of tools to do so, although some subject areas, particularly within the School of Arts and Humanities, currently have less digital resource availability.

The most common source of advice regarding information searching are supervisors, colleagues or other students. Although the majority of postgraduates are generally satisfied with their existing strategies, there was some uncertainty as to whether current methods could be improved which could be as a result of the large number of search tools available and doubts over which are the best tools in terms of reliability in returning comprehensive search results.

6. Existing Postgraduate Information Management Strategies

6.1 Storage of information sources

Given the differences highlighted between undergraduate and postgraduate study, in particular the increased volume of information over a longer period of time, managing information sources is a very important aspect of postgraduate study. It is therefore important to explore not only how information sources are found but how postgraduates are storing the large number of information sources that they locate. Online survey respondents were asked,

How do you store the majority of your information sources and notes that you make?

A total of 1312 respondents answered this question by selecting from 3 options which are shown in Table 5. All percentages in the table are calculated using n=1312.

Response	Number of responses	Percentage
Both Digital and Hardcopy	641	48.5%
Digitally	526	39.8%
In Hardcopy	145	11.0%

Table 5: How postgraduates store information sources and notes they make.

A breakdown of these responses by personal characteristics is shown in Figure 2. For all schools mixed methods storage is the most prevalent answer, accounting for roughly half of postgraduates, with hardcopy only storage being the least popular. Based upon the availability of digital resources expressed in the previous section, is it unsurprising that the Arts & Humanities and Humanities & Social Sciences schools have a slightly higher response rate for 'Hardcopy' storage.

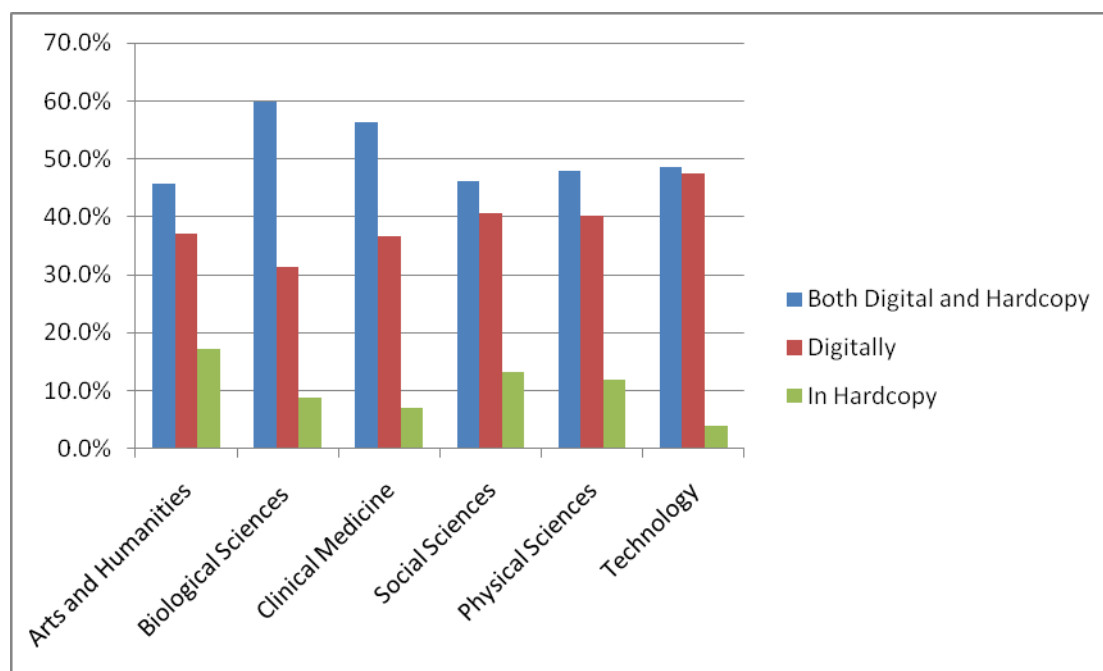


Figure 2: How postgraduates store their information sources broken down by personal characteristics.

During the focus groups, the reason that most participants gave for keeping both digital and hardcopy formats of references was related to a preference for reading printed materials.

"I will save the papers I need on my hard drive and I only print out what I want to read in detail."

Mathematics Masters

6.2 Information Management Strategies

Information management strategies were explored further during the focus group sessions. There was a relatively equal split of focus group participants that relied on manual ways of storing, organising and referencing their information sources compared to those who were using reference management software.

Those using manual ways of storing and organising folders generally saved digital information sources such as articles they had downloaded to their computer using a self-devised filing system. The majority using a manual system to organise and store their information sources were also using manual methods to save and insert quotations and incorporate citations manually into their work.

"Mostly whatever I want I just open a word document put in quotations, copy, paste quotation in and store it like this."

Politics PhD Year 2

Many did recognise the benefits of having papers available from different computers and those not using online reference management software to make this possible, were using their e-mail inbox or external memory devices.

"I kept them [PDF copies of papers or scanned books] on my computer and sometimes I store them in my email box just to have them accessible from other computers"

Politics PhD Year 2

The most common reason for not trying reference management software was not fully understanding the benefits and not feeling they had the time to learn how to do so.

"Primitive, very primitive just open up folders and put the paper where it has to go... Time was a constraint."

Mathematics Masters

"I keep it on my computer and hardcopy as well. I would like use for bibliography and referencing, but I am still not aware of using them properly and efficiently."

Physics and Chemistry PhD Year 1

"I am aware that I need to at one point transfer to Zotero and I think the later I do it the more difficult it will be, so I think I'm still writing out everything manually."

English PhD Year 1

Despite the finding in the previous section, that many respondents primarily searched for information online and accessed information in a digital format, many still also rely heavily on

hardcopy storage or manual management of information sources.

6.3 Where do postgraduates seek advice about how to manage their information sources?

To explore how postgraduates receive advice regarding the management of their information sources, online survey participants were asked,

Who has advised you how to manage (organise, store, reference) your sources? (tick all that apply)

A total of 1311 postgraduates supplied at least one answer to this question from the 13 options they were offered. 48.3% (633) respondents indicated that they had not been advised about information management and ticked no other option. This was the most frequently selected option. Of the 678 respondents who ticked at least one answer to this question, the breakdown is shown in Table 6. All percentages calculated in the table are calculated using n=678.

Response	Number of responses	Percentage
Other students	403	59.44%
My Supervisor	328	48.38%
Colleagues in my group	310	45.72%
I learnt by observing others	267	39.38%
Other academics	214	31.56%
Friends or family	154	22.71%
Training Course	136	20.06%
Online Information	133	19.62%
Librarian	71	10.47%
Departmental Advisor	34	5.01%
Online Network or discussion forum	32	4.72%
College Tutor	21	3.10%

Table 6: Who postgraduates received advice from about how to manage information sources.

It is important to note that the proportion of respondents indicating that they have received no advice regarding information management (48.3%) is more than double the percentage who indicated receiving no advice regarding information search reported in section 5 above (21.8%).

The most popular selections amongst those indicating that they had received advice were other students (59.4%), supervisors (48.3%) and group colleagues (45.7%) which was also true for advice related to information searching (see Table 2). However, it is important to note that whilst more than 40% of people indicate that librarians have given them advice on information searching, only 10% of respondents indicated that a librarian has advised them on how to manage information.

6.4 Are postgraduates satisfied with their information management strategies?

Having explored how postgraduates currently manage information and where they have received advice from about how to manage information, the online survey also investigated whether postgraduates were satisfied with their current strategies. Participants were asked to respond to the statement,

I am satisfied with the way I currently manage my information sources

using the Likert scale answers which are displayed in Table 7. n=1317 is used to calculate the percentages shown.

Response	Number of responses	Percentage
Strongly agree	127	9.6%
Agree	602	45.7%
Neither agree or disagree	331	25.1%
Disagree	246	18.7%
Strongly disagree	11	0.8%

Table 7: Are postgraduates satisfied with their information management strategies.

The data in Table 7 implies that postgraduates are less satisfied with their information management strategies than with their information search strategies. Although more than 70% of respondents indicated that they were satisfied with their information search strategies (Table 3), only 55% were satisfied with their information management strategies.

Survey respondents were also asked to respond to the statement;

I think that I could manage my information sources more efficiently

Participants were offered Likert scale answers which are displayed in Table 8. n=1317 is used to calculate the percentages shown.

Response	Number of responses	Percentage
Strongly agree	283	21.6%
Agree	687	52.3%
Neither agree or disagree	218	16.6%
Disagree	115	8.8%
Strongly disagree	10	0.8%

Table 8: Do postgraduates think they could manage information more efficiently.

As with information search, more than 70% of postgraduates feel that they could manage information more efficiently.

Focus group participants demonstrated clear feelings of frustration regarding their information management strategies which were caused by not having one consistent system.

“It’s a bit of a mess. When I don’t know the articles I usually save them, and I had different filing systems and I started a new hard drive filing system now just for articles in 2010, but it’s kind of like all over the place.”

Education PhD Year 1

“I started by just saving them in folders, folders with names, and there’s no ... Initially you don’t know what’s a sensible sort of way to save it and what sort of names to use, so you go back later and you think “Oh, I haven’t got this paper” so you save it again with a different name, and you end up with multiple copies.”

Physics PhD Year 4

Whilst using online referencing tools is discussed in greater detail in the following section, it is

interesting to note that when discussing possible tools for assisting with managing information, there were some concerns raised about the amount of time that was required to keep the software up to date and whether that would be considered the best use of limited time.

“I haven’t actually used [EndNote] for a few months to be honest because I’m not very good at keeping my bibliography up to date because it doesn’t feel like you’re doing work. It feels like you’re lazing around.”

Classics PhD Year 3

It is also important to note that there may be subject differences which affect the type of resources used which in turn affect the use of referencing tools.

“It’s just one of the things that really did concern me was how I was going to integrate a load of really quite obscure and bizarre archive sources that aren’t necessarily catalogued particularly well into any information management system.”

History PhD Year 2

6.5 Summary

Although this study indicates that postgraduates at the University of Cambridge prefer to find and access information sources online, there was no clear preference for how information sources are stored and managed. Postgraduates tend to use a mixture of electronic and hardcopy storage and referencing methods.

Although other students, supervisors and colleagues are again the most common source of advice regarding information management, only just over half of respondents indicated that they had sought advice about information management strategies. Interestingly, only 10% of respondents who have received advice about information management have received advice from librarians.

Postgraduate satisfaction levels with their current information management strategies were found to be lower than the satisfaction levels towards their current information search strategies, with sources of frustration cited including using multiple storage and filing systems simultaneously.

7. Postgraduate use of emerging online tools

In an increasingly digital age a large number of online tools are emerging that facilitate search, management and sharing of information sources. For example, RSS feed readers make it easier to track a large number of information streams simultaneously, whilst online networks and forums make it easier for postgraduates to share information with others. Likewise, blogs and micro-blogging services, such as Twitter, provide additional routes to both disseminate and find information on the internet. In addition to these relatively new means of searching for (and sharing) information, new tools that enable reference management and sharing online are becoming more prevalent.

A large part of this research has been devoted to exploring whether postgraduates are engaging with new online tools such as these, how they are learning about these tools and possible reasons why they might not be using them.

In a general discussion regarding 'online tools', focus group participants gave a mixed reaction regarding their awareness of online tools for information search and management and whether they actually provided postgraduates with additional benefits. Some researchers felt there had been a progressive change over the last couple of years that made it possible to access information in new ways, but they felt overwhelmed:

"Although I find it very helpful in some ways, sometimes you can just find you get tonnes of messages and it's quite overwhelming to sift through the information. So I think the problem I find is to filter out what's good and what's relevant and what isn't."

English PhD Year 1

"I'm signed up to some H-net listservs and they all come into my inbox. I mean they're useful but they're not specific enough for what I'm doing. So, yes, I don't know, I feel quite overwhelmed by it and I don't know how valuable it is to what I'm doing. I think I could spend my time better elsewhere."

English Literature PhD Year 2

These feelings of being overwhelmed were particularly related to the large number of tools which are available, each providing relevant sources, but without one clear central point to search.

"I think one of the problems is – one of the dangers is that there could be too many sources out there and so many databases which potentially could come up with relevant sources, and so if there's let's say Camtools, or an academic network or Facebook or listserv or whatever, if it's too much spread around it's hard to kind of, as mentioned before, to keep track of those. So I think that's one of those inhibiting factors. "

Education PhD Year 1

Some participants discussed how different tools were more beneficial at different stages of their postgraduate study, with blog tools being useful for dissemination, but not during the entire period of study.

“But possibly at the end of my research when I want to disseminate it and network more, I would use blogging and RSS, and right now more citation alerts and things like that, and ListSers from established fields.”

Earth Sciences PhD Year 1

In addition to feeling overwhelmed, the most common reason for not engaging with online tools for information search and management was not having enough time or that they perceived themselves to have a low ability to learn how to use them effectively.

“...it is something that I would definitely like to do and probably should be doing, to be perfectly honest..... [but] It's time combined with not being particularly technologically literate really.”

History PhD Year 2

Some participants also highlighted potential subject discipline differences, expressing that they thought that new technology was outside the scope of their field and that unless others were using it, the benefit would not be sufficient to justify the time.

“I don't get the impression [these types of tools are being used much in my field]. I've not heard about it from people. I think in discipline terms, we tends to be not that IT savvy really, so I think email lists is probably as advanced as it gets.”

Classics PhD, Year 3

7.1 Awareness of online tools to assist with research

In order to investigate which tools postgraduates were engaging with to assist with their research, a series of questions was included in the online survey which probed postgraduate awareness and use of different categories of tools.

Online survey respondents were asked to rate their awareness of different categories of online tools which can be used to search for and/or manage information on the internet using the following question,

Do you use or are you aware of any of the following online tools to help you search or manage information sources?

The categories of tools that respondents were asked to rate were:

- RSS feed readers and aggregators
- Web bookmarking tools
- Citation / referencing tools
- Social / academic networks and discussion forums
- Micro-blogging

The reason for providing this list of tool 'categories' rather than a definitive list of specific tools is because, based upon early-stage online investigation, it was apparent that a list of all online tools would not be practical. A definitive list containing all of the online technologies that postgraduates may choose to engage would take a very long time to compile and would be too long for respondents to peruse within the limitations of an online survey. This is especially true due to fact

that often different specific tools are adopted in different fields. It was felt more appropriate to ascertain the awareness of different categories of tools, giving respondents the opportunity to later specify which technology they were using. The categorisation selected above has been devised based on the categorisation used at the Vitae Digital Researcher conference (March 2010).

For each category of tool, respondents were asked to select one of 3 options which are given in Table 9 along with a breakdown of the responses for each category of tool. This data is plotted in Figure 3.

Response	Types of online tools				
	RSS	Bookmarking	Citation	Networks	Microblogs
Aware and actively use	216 (16.7%)	760(58.6%)	713(54.9%)	402(31.0%)	55(4.3%)
Aware but do not use	584 (45.1%)	349(26.9%)	430(33.1%)	658(50.7%)	487(37.7%)
Not aware of these tools	495 (38.2%)	188(14.5%)	155(11.9%)	238(18.3%)	750(58%)
Total Responses	1295	1297	1298	1298	1292

Table 9: Postgraduate awareness of different categories of online tools

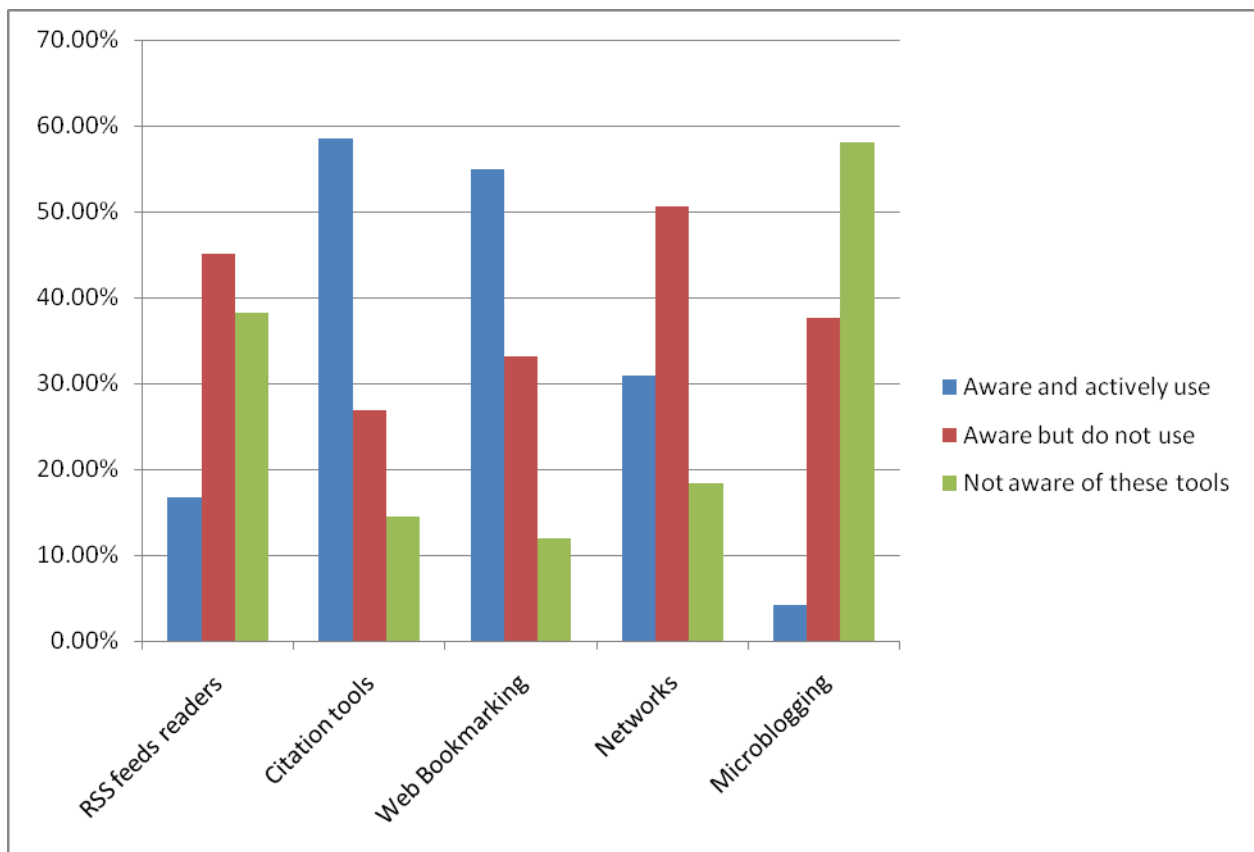


Figure 3: Postgraduate awareness of different categories of online tools.

It appears from these responses that postgraduates currently have different levels of awareness and engagement with different categories of online tools. More than half of respondents were aware and actively used a citation / referencing tool and the same is true for web bookmarking tools. However, more than half of respondents were not aware of any micro blogging tools.

In order to explore this awareness and engagement further, online survey respondents were each asked a logic question for each of the five types of tool based upon their corresponding awareness level.

7.1.1 RSS feed readers and aggregators

RSS feed readers⁴ make it easier to monitor a large number of information sources in one aggregated information stream. Online survey respondents who claimed that they were “Aware and actively use” RSS feed readers and aggregators were asked to specify which tools they were using in a free form text field.

Analysis of the answers provided revealed 38 different responses from the 216 people who answered this question, mostly of frequency 1 or 2. The most frequent answer provided was the Google reader (86, 40%). The large number of tools being used is a reflection of the wide range of RSS feed readers available online and the wide range of formats through which RSS can be viewed.

Respondents who claimed that they were “Aware but do not actively use” RSS feed readers and aggregators were asked,

Why don't you use RSS feeds and aggregators to help you search or manage information sources even though you are aware of them?

Respondents were asked to select one of 7 options which are shown in Table 10 along with the numbers of respondents choosing each option. A total of 559 respondents answered this question (out of 584 who were offered it) and n=559 is used to calculate the percentages shown.

Response	Number of responses	Percentage
I'm unsure how to use it effectively	200	35.78%
I don't think it would benefit me	128	22.90%
I'm happy with my current strategies	120	21.47%
I'm too busy to investigate	98	17.53%
None of my colleagues use it	7	1.25%
I am not confident using online technology	3	0.54%
My supervisor would not approve	3	0.54%

Table 10: Why postgraduates who are aware of RSS feed readers and aggregators don't use them.

The most common reason selected by participants for why they did not engage with RSS feeds and aggregators is a lack of awareness of how to use the tool effectively.

Finally, respondents who said that they were “Not aware of these tools” were asked whether they would like to learn more about them. Of the 495 people offered this question, 478 answered, with

⁴ RSS is usually expanded as Really Simple Syndication. An RSS document is often called a "feed" and is a piece of text output in a simple computer format. RSS documents are published by a wide variety of sources on the internet and are used to push out information on a regular basis. People who want to monitor specific publishers of this content can subscribe to their feeds. RSS feeds can be read using software called an "RSS reader", "feed reader", or "aggregator", which can be web-based, desktop-based, or mobile-device-based.

355 (74.2%) indicating that they would like to learn more about RSS feed readers and aggregators.

The use of RSS readers and aggregators was also explored further in the focus groups. Of those participants who had tried using RSS, there was a mixture reaction as to its usefulness. Positive reactions included reference to the time saving made compared to having to check multiple websites for updates since information is collated automatically by the aggregator and can be checked when convenient. Negative reactions tended to highlight that RSS could provide too much information which was not possible to process.

"I have subscribed to a lot of journals via RSS on google reader, so when a new edition gets published basically I just subscribed to their table of contents, so then I just click through really quickly and see. I often spot many articles which I probably would have missed.... You can choose when to check your RSS feeds, but it's like with emails you can kind of feel bombarded."

Criminology PhD Year 2

"I'm using RSS with Google reader in order to try to stay ahead of what's published in the newspapers about school inspection. But I don't know. It's okay, but I'm not 100% happy with that, so I just like leave it running and see if anything interesting pops up."

Education PhD Year 1

"I have found RSS is a very good idea in the beginning but then it didn't really work out for me, mostly because I was getting more information than I wanted, and then I ended up discarding it that it didn't work for me."

Physics PhD Year 3

There were also some differences between subjects that emerged during the focus groups. Some researchers said that RSS was well established in their field, allowing people all over the country and the world to share information whilst in other subjects this was just not seen as useful.

"In our field and our community of research RSS is not really useful because it produces a lot of text and it will just flood our browsers, our readers."

Asian and Middle Eastern Studies, Year 3*

However, as expected based upon the online survey, many focus group participants also responded with answers such as "RSS feed, I don't really know what it is" and "I'm not aware of efficient use of those tools in our area".

7.1.2 Web bookmarking tools

Web bookmarking tools make it easier to manage large numbers of information sources by making it possible to record the origin of information online in the form of 'bookmarks'. Many web browsers have built-in 'bookmark' or 'favourites' functionality although this will remain specific to and therefore only accessible on an individual computer. There are some more advanced online tools which allow bookmarks to be recorded in a remote repository so that they can be accessed from any computer and which can also be shared between different people.

Online survey respondents who claimed that they were "Aware and actively use" web bookmarking tools were asked to specify which tools they were using. A large number of survey respondents had indicated that they used web bookmarking tools (58.6%). Of the 760 people who

were offered this question 599 gave an answer. Although there were 20 distinct tools specified, the most popular was the built in browser 'favourites' functionality which was indicated by 429 people (71.6%). The next most prevalent answers included Google Bookmarking (32) and Delicious (29).

Respondents who claimed that they were "Aware but do not actively use" web bookmarking tools were asked,

Why don't you use web bookmarking tools to help you search or manage information sources even though you are aware of them?

Respondents were asked to select one of 7 options which are shown in Table 11 along with the numbers of respondents choosing each option. A total of 337 respondents answered this question (out of 349 who were offered it) therefore n=337 is used to calculate the percentages shown.

Response	Number of responses	Percentage
I'm unsure how to use it effectively	106	31.45%
I'm happy with my current strategies	101	29.97%
I don't think it would benefit me	69	20.47%
I'm too busy to investigate	53	15.73%
I am not confident using online technology	4	1.19%
My supervisor would not approve	2	0.59%
None of my colleagues use it	2	0.59%

Table 11: Why postgraduates who are aware of web booking tools don't use them.

As with the RSS feed readers, the most common reason selected for not engaging with these tools is a lack of awareness of how to use the tool effectively.

Respondents who had said that they were "Not aware of these tools" were asked whether they would like to learn more about them. Of the 188 people offered this question, 185 answered, with 148 (80%) indicating that they would like to learn more about web bookmarking tools.

The use of web bookmarking tools was explored further during the focus groups where some people specifically mentioned using these tools to save web sources.

"Yes, I use web bookmarking a lot. I just bookmark them [in the browser itself]. I decide that I can just reference back whatever I need. Not very extensively, but I do."

Physics and Chemistry PhD Year 1

However, some participants felt that these tools were more important for reference sharing and they didn't see the need to share references with others.

"I see those kind of online bookmarking tools more as a sharing tool rather than one for your own personal recording. I don't necessarily want everybody to see everything that .. I don't think anybody would want to see all my references. I think that'd be a bit boring."

Criminology PhD Year 2

In fact, one participant expressed scepticism regarding whether the sharing of bibliographies would be useful at all.

“I wouldn’t use it, I don’t think....somebody else’s bibliography wouldn’t be that useful to me.”

Wellcome Trust PhD Year 1

7.1.3 Citation / referencing tools

Citation / referencing tools allow researchers to export and store the details of information sources they have accessed so that they can be used in documents and compile a bibliography automatically at a later date. This category of tool does include both online and offline available technologies. Offline citation / referencing tools allow information sources to be saved and used from individual computers. Emerging online citation / referencing tools save information sources to remote repository so that they can be accessed from any computer and which can also be used to share bibliographies between different people.

Online survey respondents who claimed that they were “Aware and actively use” citation / referencing tools were asked to specify which tools they were using. Of the 713 people who were offered this question 640 gave an answer. Analysis of these responses indicated that 42 different tools were specified. However, some answers were much more frequent than others. 287 people (44.8%) indicated that they were using EndNote whilst 100 (15.6%) said that they were using Zotero. This high proportion of EndNote usage could be explained by the fact that it is provided free on networked computers at Cambridge University and corresponding training courses are provided by the University's Computing Service.

Respondents who claimed that they were “Aware but do not actively use” citation / referencing tools were asked,

Why don't you use citation / referencing tools to help you search or manage information sources even though you are aware of them?

Respondents were asked to select one of 7 options which are shown in Table 12 along with the numbers of respondents choosing each option. A total of 393 respondents answered this question (out of 430 who were offered it) therefore n=393 is used to calculate the percentages shown.

Response	Number of responses	Percentage
I'm unsure how to use it effectively	173	44.02%
I'm happy with my current strategies	95	24.17%
I'm too busy to investigate	75	19.08%
I don't think it would benefit me	36	9.16%
I am not confident using online technology	11	2.80%
My supervisor would not approve	2	0.51%
None of my colleagues use it	1	0.25%

Table 12: Why postgraduates who are aware of citation / referencing tools don't use them.

As with RSS feed readers and web bookmarking tools, the most common reason selected for not engaging with these tools is a lack of awareness of how to use the tool effectively.

Respondents who had said that they were “Not aware of these tools” were asked whether they would like to learn more about them. Of the 155 people offered this question, 153 answered, with 131 (85.6%) indicating that they would like to learn more about citation / referencing tools.

In line with the online survey results, there was a relatively equal split of focus group participants who were using citation / referencing tools over manual information management methods. The majority of focus group participants who were using citation /referencing software discussed their experiences using the online, open source software Zotero. This awareness of Zotero tended to stem from two main reasons: (1) because their department had offered training or (2) because they knew that it was open source and therefore they did not have to pay for it. However, mixed reactions about Zotero were expressed:

“I use the online software which is Zotero, which is free for everyone and I had some training for that at my department, my faculty, at the beginning of academic year, I find it very helpful. Although I am always afraid, since its free, its unreliable and I have to back it up twice a week, but it works very well for me. “

Education PhD Year 1*

“I use Zotero as well and mainly because it is free and I didn’t want to pay for it like with EndNote. I tried a couple of other open source bibliographic tools but they just didn’t work very nicely”

Criminology PhD Year 2

The use of EndNote and EndNote Web was also mentioned frequently in the focus groups and the majority of Zotero users were familiar with or had previously tried Endnote.

Whilst some participants saw clear advantages of online reference management,

“I also found it very useful the fact that you can upload papers and then you can have access to all these collection of our papers. So, for example, I don’t need to have a memory stick all the time when I’m in the office, and then I go home and I want to read a paper then I can just login and read the same paper.”

Physics and Chemistry PhD Year 3

Some participants expressed serious concerns about the reliability of online reference storage.

“The problem is with online searching and organising tools is that I’m paranoid. I want the article in my PC because the website might remove it and then I don’t want to be in the situation that I don’t have it anymore. So I prefer to have everything with me.”

Asian and Middle Eastern Studies, Year 3*

The storage of information as a mixture of both digital and hardcopy, which was discussed in section 6.1, exposed other potential problems of using citation / referencing tools.

“But between my e-copy and the hard copy, I need to start getting box files out because also sometimes I very much like to work manually, you know, for articles you print out. So it’s correlating that with my Zotero filing...”

Earth Sciences PhD Year 1

“So my information management is kind of a bit tricky where the paper system collides with the online source I’ve used and all the document photographs that I took as well, so it is actually a complete mess at the moment and I would be looking

for a tool to deal with that but I mean right now I'm kind of just going for manually entering pretty much everything, which is a bit of a pain."

History PhD Year 2

Finally, one participant indicated that in their subject, where most information sources are hardcopy, citation / referencing tools are not useful at all.

"For me they are useless, because when you retrieve information from one page from the library or who will take transliteration, it's a mess, so you cannot use it and when you are writing you have to do it again. So I just don't use it."

Asian and Middle Eastern Studies, PhD Year 3

7.1.4 Social / academic networks and discussion forums

In recent years a multitude of online academic communities have been established. Many of these communities allow members to communicate with each other, potentially requesting or sharing advice, references, articles or conference dates with others in their networks. Such sharing can also be done using academic discussion forums and email lists (List-servs).

Online survey respondents who claimed that they were "Aware and actively use" social / academic networks and discussion forums for search and managing information were asked to specify which tools they were using.

Of the 402 people who were offered this question 336 gave an answer. Analysis of those answers revealed that 69 distinct platforms or communities were being used. The most high frequency answer was Facebook (143, 42.5%) with the next most frequent answer being Academia (26, 8%). As the most popular answer was Facebook which is known by many as a pure social network, one possible limitation of the online survey was that the term 'social/academic' network may have been too vague. Although respondents may be members of specific online communities such as Facebook, it remained unclear from the online survey alone whether they are using them to actively assist with information search and management. This issue was probed further in the focus groups and is reported below.

Respondents who claimed that they were "Aware but do not actively use" social / academic networks and discussion forums for information search and management were asked,

Why don't you use social / academic networks and discussion forums to help you search or manage information sources even though you are aware of them?

Respondents were asked to select one of 7 options which are shown in Table 13 along with the numbers of respondents choosing each option. A total of 615 respondents answered this question (out of 658 who were offered it), therefore n=615 is used to calculate the percentages shown.

Response	Number of responses	Percentage
I don't think it would benefit me	203	33.01%
I'm unsure how to use it effectively	159	25.85%
I'm happy with my current strategies	121	19.67%
I'm too busy to investigate	106	17.24%
None of my colleagues use it	19	3.09%
I am not confident using online technology	7	1.14%
My supervisor would not approve	0	0.00%

Table 13: Why postgraduates who are aware of social / academic networks and discussion forums don't use them.

Unlike the previous three categories of tools reported upon, in this case the most common reason selected for not actively using social / academic networks for information search and management is that the respondents do not think it would be of benefit to them.

Respondents who had said that they were “Not aware of these tools” were asked whether they would like to learn more about them. Of the 238 people offered this question, 234 answered, with 168 (71.8%) said that they would like to learn more.

Focus groups participants made the point that online communities are only really useful when they are being used by a large enough number of people.

“But you sometimes find just one person from the department is on, or one person per university. If you go across the UK there’s very few universities that have pretty solid profiles there [‘Academia’],..... so sometimes these networks or whatever you want to call it are a bit biased and have more knowledge about something than other topics. So, for instance, if you’re doing research areas, very specific, they’re not there yet.”

Engineering PhD Year 1

Although there was some initial uncertainty regarding whether survey respondents who claimed to be using Facebook to search for and manage information were in fact simply stating that they were members of that community, some focus group participants did indicate that they were using Facebook for academic purposes.

“I get some information from Facebook groups actually. So there are some researchers worldwide who are interested in a relatively small topic, so they meet on Facebook, and I engage with them and we share references and interesting books and articles.”

Research Centre for English and Applied Linguistics, PhD Year 4

Although participants were not asked to discuss this issue, during one of the focus group sessions, the topic of using of social / academic led to a discussion and concerns expressed about the blurring of boundaries between social and professional usage of online communities. There was strong agreement within the group that a conflict of academic and social purposes could cause problems.

“There is this odd conflict between academic work and social work that I find sometimes a bit difficult. It’s the same Facebook page of your Facebook that will come up for the academic community or for your friends, which I find very bizarre I think I personally feel there’s a bit of a danger in terms of professionalism and how you’re viewed”

English PhD Year 1

“I attended a conference online on Google Wave... but what was seeping into it was the fact that people are used to using chatting as a social thing, so in the middle of this academic conference on basically mapping technology you had people talking about their football, you know...which is not.... but maybe it’s a work in progress.”

Earth Sciences PhD Year 1

The use of email lists for sharing information amongst a community with a shared interest was also popular amongst focus group participants, as was subscribing to e-mail alerts from search databases such as Web of Science and directly from publishers. The use of listservs was very important to many focus group participants for sharing subject related information and reducing the amount of time spent searching for news. One participant also discussed using online groups such as Yahoo and Google groups to collate information as well.

“In my research it is the same, we have all now, we have like more than a couple of dozens of groups [yahoo groups or other portals] which do a lot of sharing. Just a day you can receive like 25 messages about interesting books and conferences, calls for paper, articles in papers. It’s very helpful actually. It’s great. The smallest group I know. I feel it’s like more than 1200 people and some others are much bigger.... when you receive about 25 emails you make an option so that all these emails, all these news comes as one newsletter at the end of the day.”

Politics, PhD Year 2

7.1.5 Micro-blogging

The predominant micro-blogging tool currently available is Twitter, which allows members to post updates to a community of followers in the form a 140 character long ‘Tweet’. Although very little information can be contained in such a message, the real-time possibilities of ‘Tweeting’, combined with the potential for a large community of followers, the ability to signpost others to more detailed content and the ease of access which Twitter allows, make this a powerful tool for disseminating academic information.

Online survey respondents who claimed that they were “Aware and actively use” micro-blogging for searching and managing information were asked to specify which tools they were using.

Of the 55 people who were offered this question 44 gave an answer. There were 11 different answers given, of which Twitter (32, 73%) was the only answer with frequency greater than 1.

Respondents who claimed that they were “Aware but do not actively use” micro-blogging for information search and management were asked,

Why don't you use micro-blogging tools to help you search or manage information sources even though you are aware of them?

Respondents were asked to select one of 7 options which are shown in Table 14 along with the numbers of respondents choosing each option. A total of 457 respondents answered this question (out of 487 who were offered it) and n=457 is used to calculate the percentages shown.

Response	Number of responses	Percentage
I don't think it would benefit me	184	40.26%
I'm happy with my current strategies	104	22.76%
I'm unsure how to use it effectively	91	19.91%
I'm too busy to investigate	60	13.13%
None of my colleagues use it	14	3.06%

I am not confident using online technology	4	0.88%
My supervisor would not approve	0	0.00%

Table 14: Why postgraduates who are aware of micro-blogging tools don't use them

As with social / academic networks and discussion forums, the most common reason selected for not actively using micro-blogging tools for information search and management is that the respondents did not think it would be of benefit to them.

Respondents who had said that they were "Not aware of these tools" were asked whether they would like to learn more about them. Of the 750 people offered this question, 730 answered, with 457 (62.6%) said that they would like to learn more.

7.2 Where do postgraduates find out about online tools?

Discussion of online tools during the focus group sessions also included discussion of how the participants had found out about the existence of different online tools. The majority of participants indicated that they had learned about online tools either from other colleagues or students, supervisors or handbooks.

"Initially it was my professor who sent me this thing. Actually, he didn't introduce me to the list. He just wanted me to read specific notes, but then I see some lists. I went and did some searching and then I understood there was this tool and I was just trying to expand this to see whether there are other lists, and then some colleagues from conferences more or less, yes, it's a bit of self searching, then some colleagues and some professors."

Politics PhD Year 2

"I found out about at least two of those mailing lists through handbooks. One was on qualitative research and they had a section about information sources, so about associations, about journals, and also about those mailing lists. I found that quite good because that was a comprehensive source about what are regarded by established scholars as important sources."

Education PhD Year 1

Training courses as a source of hearing about these categories of tools were only mentioned in relation to citation / referencing tools. For example;

"I went to an EndNote course, so it was very useful, and that's when I started using EndNote."

Biology PhD Year 2

"I'd heard about it [EndNote Web] because I'd seen courses and I made a few enquiries with IT type friends, and then there was a colleague, someone a few years further up than me, and he lent me a manual on it when I decided to buy it."

Classics PhD Year 3

Other methods of finding about online tools included finding them by chance online, which was particularly true for email listservs.

"Online actually. Probably by Google searching, and then you'll be led to a kind of webpage that describes the society and then you sign up and you get frequent

7.3 Summary

Postgraduates at Cambridge University appear to have different levels of awareness regarding the different types of online tools that they could use to assist with their research, in particular to aid information search and / or information management. Where postgraduates are actively using specific tools, there are a large number of different tools which they have chosen to use, although certain tools are slightly more popular than others (Google Reader, Browser Favourites, EndNote / Zotero, Facebook, Twitter). As discussed in the project background at the start of this report, this reflects the current digital landscape in which new tools are continuously emerging with slightly different features whilst other tools become less popular because as yet there is not a dominant set of tools which has been adopted by all researchers.

The results of the online survey imply that the most common reason that postgraduates choose not to use RSS feed readers, web bookmarking tools and citation software is that they are not sure how to use them effectively. However, for social / academic networks and micro-blogging, the primary reason is that they do not think they would be beneficial.

8. Seeking Advice on Information Search and Management

Sections 5 and section 6 report upon who has previously advised postgraduates on how to search for information and manage information based upon responses to the online survey. In both cases the most common source of advice, amongst those who have received advice, were peers (proxy 'other students' and 'colleagues in my group') or supervisors. These relationships were explored in more detail during the focus group sessions.

8.1 Supervisors

Focus group participants gave a mixed reaction about whether supervisors were a source of help with regards to questions about information search and management. Some said they were only for technical help whilst others would go to them as their first port of call for almost everything, but for others the supervisor was the second choice after research group colleagues.

"I'd usually ask my supervisor because if ...I mean he doesn't always know how to use the resources but he would know who he could send me to, like I mean for information management for other stuff as well, there are people in my subject group who know a lot more, and he knows everyone and what they do, so he'd usually send me off."

History PhD Year 1

"I ask my class mates, I've already done so for referencing software.... So my supervisor does help, but she doesn't give advice like "You should do this like this." She will just give the technical stuff. She just won't give any ... but I think she might answer, but I prefer asking my classmates."

Masters Engineering

"My supervisor is too busy to look into that [information search or management issues]."

Physics and Chemistry PhD Year 1

8.2 Peers

The most common source of learning amongst all focus group participants was asking colleagues, other students or otherwise friends, particularly those in the same discipline and then following this up with self investigation. For some this was because they wanted to have help immediately rather than waiting for the next training course available or because they considered their peers to be better informed.

"Other people in the group first, you chat to them over coffee and then Google what they say and see... find out a bit more."

Physics PhD Year 4

"Any of the other PhD students in the faculty, pretty much any other member of the faculty, if I had questions regarding things that I think they know about research wise, then I just ask them about it."

Philosophy PhD Year 3

“I would ask my boyfriend [recently graduated science postgraduate] actually because he works in IT and he’s generally a bit more logical than me, so like with EndNote he taught me how to do programming and he’s usually got a sensible idea if I’m drowning under bits of paper.”

Classics PhD Year 3

8.3 Not receiving advice

It is interesting that 21.8% of online survey respondents indicated that they had received no advice regarding information searching. This percentage increased to 48.3% for information management advice. Online survey respondents were also asked whether they felt comfortable asking for advice on information search and information management using the following two statements along with Likert scale responses.

Statement 1: I am comfortable asking for advice on how to search for information sources

Statement 2: I am comfortable asking for advice on how to manage my information sources effectively

1312 and 1317 respondents answered these two questions respectively. Their responses are shown in Table 15.

	Statement 1		Statement 2	
Response	Number of responses	Percentage	Number of responses	Percentage
Strongly Agree	301	22.9%	180	13.7%
Agree	672	51.2%	657	49.9%
Neither Agree or Disagree	229	17.5%	318	24.1%
Disagree	106	8.1%	156	11.8%
Strongly disagree	4	0.3%	6	0.5%

Table 15: How comfortable are postgraduates in asking for help about information search and management strategies?

It appears from these online survey responses that the majority of postgraduates do feel comfortable asking for help with both information search and information management strategies. Only 8.4% and 12.3% of respondents disagreed or strongly disagreed with the statements related to information searching and information management respectively. Therefore, the question of why large proportions of respondents receive no advice is interesting.

Focus group participants indicated that it is often an underlying sense of independence that encourages them to seek information on their own rather than seeking advice from others.

“I don’t think I really do ask for help. I just do it. I’ll ask my supervisor if she’s got any suggestions for who to read about a particular thing, but I don’t think I ask for help on how to find it.”

Criminology PhD Year 2

“Well, I go about it largely by myself, but if I really feel like I need to get something, get out of a dead end or something, I go and see my supervisor. That’s a big help, but I basically do what I use ... I’ve been doing for a long time, just try and figure it

out.”

Masters Archaeology

However, amongst participants who struggled asking for help, previous experiences were cited as a reason which discouraged them from doing so.

“The library personnel are not aware of these holes, so I would go and ask for information, they could not help me. I go back do it myself, so I have just stopped asking for information, because people can’t help me.”

English PhD Year 1

One more experienced postgraduate also felt that they couldn't ask for help themselves because others were always seeking help from them:

“I think I always found myself as being the one who was asked by everybody and sometimes even by the librarian. I think what I would do is probably ask colleagues and possibly my supervisor if I’m really completely at a loss, without really expecting them to be able to help me probably.”

Research Centre for English and Applied Linguistics, PhD Year 4

One participant also alluded to departmental differences affecting the probability of seeking help.

“I would be quite happy to email a fellow PhD student and say “I need help looking for this.” I’d most likely get a response, but it doesn’t sound like in other departments that would happen.”

Law PhD Year 2

9. Postgraduate Attendance at and Perceptions of Training Courses

In order to assess the postgraduate uptake of and attitudes towards, training courses on information search and information management respectively, online survey respondents were asked a series of questions related to training courses. The number of courses that postgraduates had attended was investigated by the following two questions.

How many training courses on information searching have you attended?

How many training courses on information management have you attended?

1313 and 1314 respondents answered these two questions respectively. Their responses are shown in Table 16.

Response	Information Search		Information Management	
	Number of responses	Percentage	Number of responses	Percentage
None	609	46.4%	1055	80.3%
1	431	32.8%	212	16.1%
2	197	15.0%	39	3.0%
3	50	3.8%	2	0.2%
4 or more	26	2.0%	8	0.6%

Table 16: Postgraduate attendance at training courses for information search and information management.

Figure 4 shows a comparison of the data in Table 16. It is apparent from this online survey data that the proportion of postgraduates that have attended at least one training course on information searching is greater than the proportion that have attended at least one training course on information management. This potentially highlights that fewer training courses on information management are provided than are provided for information searching.

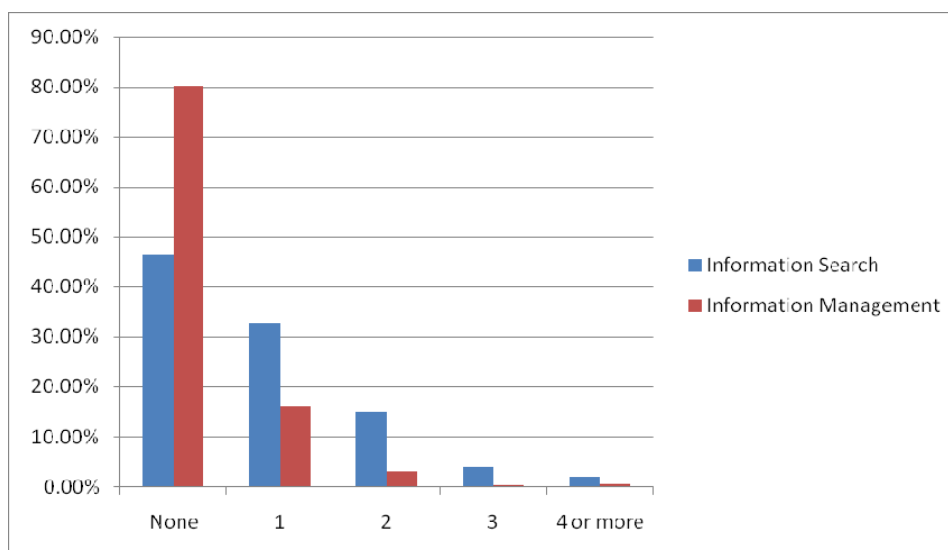


Figure 4: Comparative attendance at information search and information management training courses by postgraduates.

Possible reasons for why postgraduates have not attended a training course were explored using follow-up logic questions offered to postgraduates who indicated that they had not attended training courses for information search and information management respectively.

You indicated that you have NOT attended a training course on information searching, what is the main reason for this?

You indicated that you have NOT attended a training course on information management, what is the main reason for this?

These questions were offered to 609 and 1055 respondents respectively and each question was answered by everyone to whom the question was offered. Their responses to the 7 options they were given are shown in Table 17 and plotted in Figure 5. The most popular answers in each case are highlighted in the table. The two most common reasons for not attending training courses, accounting for more than half of respondents in both cases, is that postgraduates do not think they would be useful, or because they do not know where to find out about the courses.

Response	Information Search		Information Management	
	Number of responses	Percentage	Number of responses	Percentage
I don't think it would be useful	183	30.0%	273	25.9%
I don't know where to find out about training courses	147	24.1%	313	29.7%
I'm too busy	139	22.8%	175	16.6%
I prefer advice from a friend or colleague	50	8.2%	69	6.5%
There aren't any	47	7.7%	146	13.8%
Other	28	4.6%	61	5.8%
It's too far to get to	10	1.6%	10	0.9%
My supervisor would not approve	5	0.8%	8	0.8%

Table 17: Reasons for not attending a training courses for information search and information management.

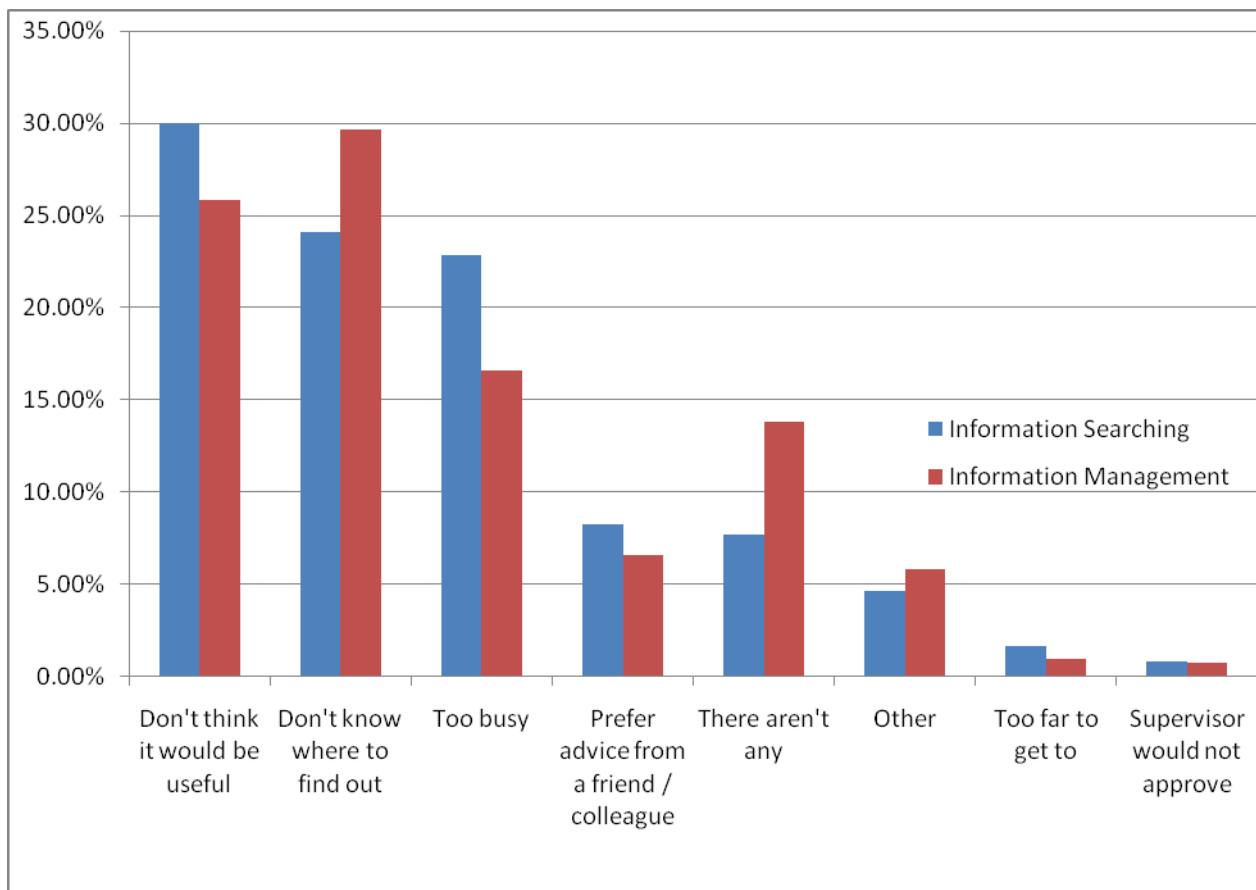


Figure 5: Why don't postgraduates attend training courses on information searching and information management?

Postgraduate attendance at and perceptions of, training courses were explored in more detail in the focus group sessions. Reasons for not attending training courses echoed the results of the online survey, with many questioning the usefulness of the current training courses.

There was a common feeling that the courses on offer were too basic and did not go beyond what was available for undergraduates and were therefore not advanced enough for their requirements as postgraduates.

"I went to one on English resources at the UL and it was just way too basic, and that's generally what I find with every single training course; it's way too basic. So I think I can teach myself much better than anybody else can."

English PhD Year 1*

"At our library they did also and it's stuff that, I mean it was really basic, stuff that I could do just by going on the website myself and just ... so it was really basic, same thing."

Masters Archeology

"I hear about them, yes. But similar really, I just think they'd be too basic."

Criminology PhD Year 2

It was also suggested that some course content is outdated.

“I suppose these things are packaged – they’ve been packaged over 10 years ago and they’re just reproducing them every year to new students and there’s no refreshment of these materials.”

Engineering PhD Year 1

A number of participants also mentioned that disappointment arose in specific training courses because it was felt the person leading the training course was not familiar enough with the material.

“The [trainer] didn’t even know, so that’s pretty much in a sense - it kind of failed the expectations we had about it because it was too generic.”

Engineering PhD Year 1

There is another / better quote for this point (look in focus group 3?).

Some participants indicated that sometimes they felt that outcomes of the training courses should be clarified prior to attending so that this could be aligned with expectations to avoid disappointment.

“And I think also with the training, one of the things they don’t distinguish between is theory and practical. I mean you can have both in one training but sometimes you go in expecting theory because you want to understand what it is but it’s actually practical so you don’t benefit from it, or vice versa. You go in for practical and the guy is just spouting theory, which you already know and you don’t want to know.”

Earth Sciences PhD Year 1

Summary

Based upon this research it appears that almost half of postgraduates within the University of Cambridge have not attended any training courses on information searching. This proportion rises to more than 80% of postgraduates not having attended a course on how to manage information. The two most common reasons provided for not attending courses is that the postgraduates do not feel the course would be useful, or they do not know how to find out about available courses. Focus group discussions revealed that some common reasons for doubting the usefulness of courses is that postgraduates feel that the content is too basic or may be out of date. These findings indicate that better promotion of the availability and value of existing training courses may be necessary.

10. Postgraduate Attitudes to Libraries and Librarians

The first online survey responses, reported in sections 5 and 6, suggest that approximately 50% of postgraduates have received advice on information searching from a librarian but only 10% have received advice on information management from a librarian.

Postgraduate attitudes to seeking advice from librarians were further explored during the focus groups. Some participants expressed views on precisely which librarians they expect to be able to help them with their questions, revealing a tendency to favour librarians within their own faculty or department. The information that emerged from the focus groups provided a rich image of postgraduate library perceptions which was further tested using a series of questions included in the follow-up online survey. The focus group discussions are outline below along with the supporting results from the follow-up survey to postgraduates at Cambridge University.

10.1 Levels of awareness of library support

In line with the findings of the IRIS report, postgraduate participants in focus group sessions did not appear to have a very good knowledge of many of the different types of support offered by the libraries. There seemed to be a number of areas of confusion about the services the libraries offered, with some participants understanding or knowing more than others. For example, one participant commented:

"... I think the university should have a website which you login using Raven, and then after you login to that you can assess the journals that the university has subscribed to."

To which another participant replied,

"There is a list of all the e-journals."

The follow-up online survey explored how well informed respondents thought they were about available library support and resources. Respondents were asked,

How informed do you feel about support which is provided by libraries at Cambridge University?

From the 705 whom completed the follow up survey, this question was answered by 671 respondents selecting from one of the Likert scale responses shown in Table 18. Percentages shown are calculated with n = 671.

Response	Number of responses	Percentage
Very informed	23	3.4%
Informed	308	45.9%
Neither informed or uninformed	156	23.2%
Uninformed	149	22.2%
Very uninformed	35	5.2%

Table 18: How informed do postgraduates feel about the support available from libraries?

Based upon these responses, less than half of postgraduates feel informed about the support which is provided by libraries. It is interesting to note that 27.4% of respondents actually feel uninformed about the support that libraries can provide which may be related to the low attendance at training courses which was explored in the previous section. This result may further indicate that additional promotion of library resources (including training courses as outlined in the previous section) is required amongst the postgraduate demographic.

10.2 Postgraduate perceptions of libraries and librarians

Given the relatively low proportion of respondents to the first online survey that had received support from librarians related to information searching and particularly information management, the focus groups were used to further explore whether postgraduates consider libraries and librarians to be good sources of advice on these topics. During the discussions, several participants revealed that they had previously only thought of libraries as buildings to store books and that the main role of librarians was to manage those books. These perceptions were also reported in the Digital Information Seeker report which found that many general library users still consider libraries as physical entities that store books rather than sources of additional support. Asking a librarian to help with more general information search and management questions just did not occur to many of the participants.

“It seems from like everyone we don’t really think about the librarian as a person to turn to. And I haven’t ever thought - I was here a year and a half, and I hadn’t ever thought that if I have any problems with information I could actually go to the library and ask. Because I get along really good with all the librarians in the department but I never thought to go there and to ask about it. I don’t know why, because we are so isolated in that online search that we don’t even think about real people that they could help.”

Biology PhD Year 2

“I think it’s more that I would ask a librarian if I had trouble locating a particular book, or if it was out of print, or that really specific sort of thing, especially with something like rare books. The librarians are really helpful there, but for things like how do I organise my notes, I’d feel really pathetic asking a librarian. It just didn’t occur to me that someone would be able to say “You do this, this is nice and organised” and that would be all sorted. It just didn’t occur to me.”

Classics PhD Year 3

Some participants also doubted whether librarians would be able to offer advice that was subject specific enough to assist them, in comparison to their peers.

“I’ve never been to any of the libraries here because of my experience for biological research at the very least, most librarians don’t really know how to search or to do what we need. But biological sciences as a whole, we’re quite good at disseminating information between ourselves, so we don’t normally go via a library.”

Wellcome Trust PhD Year 1

Following the focus group, this perception was tested as part of the follow-up online survey. Respondents were asked to rate the following two statements.

Librarians are a useful source to help me with information search strategies.

Librarians are a useful source to help me with information management strategies.

669 and 668 respondents answered these two questions respectively, using Likert scale responses. Their responses are shown in Table 19 and plotted in Figure 6. n=669 and n=668 are therefore used to calculate the percentages shown.

Response	Information Search		Information Management	
	Number of responses	Percentage	Number of responses	Percentage
Strongly Agree	84	12.6%	32	4.8%
Agree	308	46.0%	172	25.7%
Neither Agree or Disagree	206	30.8%	298	44.6%
Disagree	56	8.4%	141	21.1%
Strongly disagree	15	2.2%	25	3.7%

Table 19: Do postgraduates consider librarians to be a useful source of assistance regarding information searching and management?

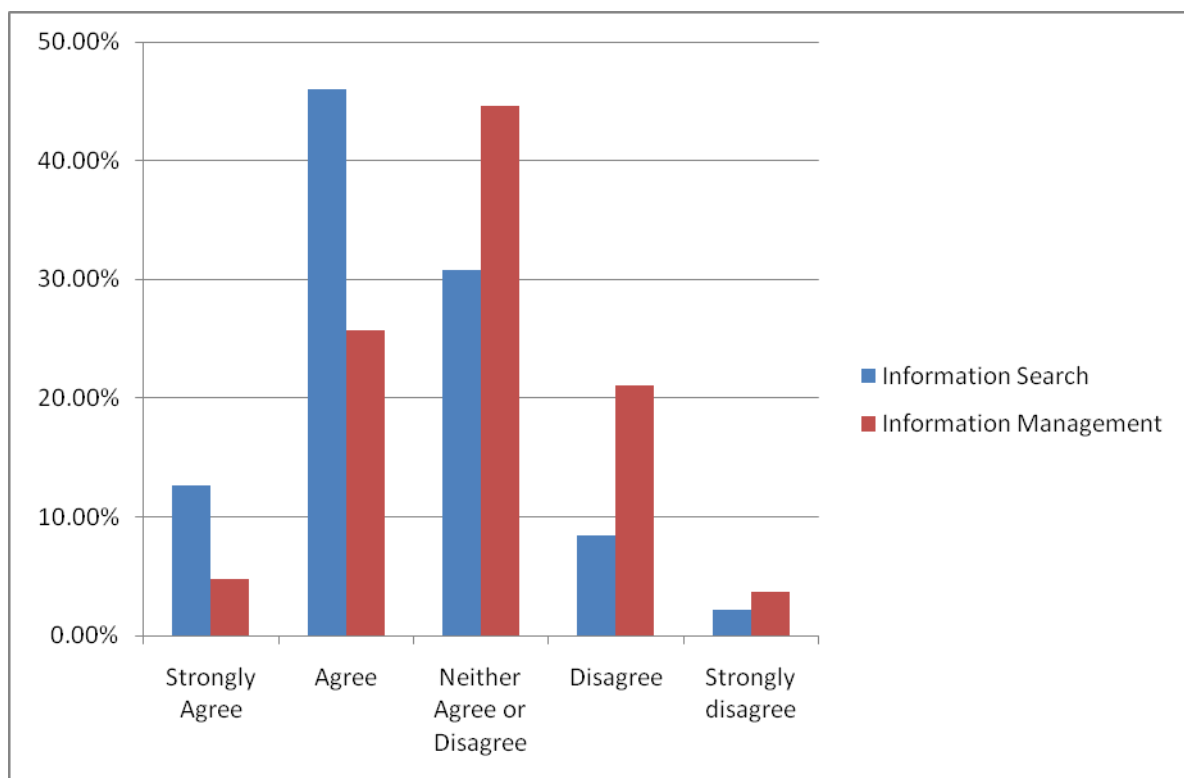


Figure 6: Do respondents consider librarians to be a useful source of information regarding information searching and information management?

Although almost 58.6% of respondents consider librarians to be a useful source of information searching advice (as indicated by the ‘Strongly Agree’ and ‘Agree’ responses), only 30.5% feel they are a useful source of information management support. This result from the follow-up survey is in line with the results of the first survey, that whilst approximately 50% of postgraduates have received advice on information searching from librarians, only 10% have received advice from

librarians on information management. Since the management of large amounts of information is a key requirement of a librarians role, it is interesting to question why postgraduates do not consider them a good source of advice on this topic. This issue may once again be related to additional promotion of library support amongst the postgraduate demographic being necessary.

10.3 Which libraries do postgraduates find the most helpful

During the focus group discussion some participants did discuss finding library resources helpful. For those postgraduates that had found a librarian helpful, it was the Faculty librarians rather than college or university librarians that were seen as a source of help:

“I would also go to the Faculty librarian. I don’t know if that’s specific to our faculty, but I get the impression our faculty is very ahead of the game in terms of technological stuff. I frequently get emails that say “We’ve just signed up to this resource. Have a look at it.” I think they’re really on the ball.”

English PhD Year 1

“My [department] librarian is really good. She’s not a criminologist, butShe seems to know almost every book in that library, which is quite amazing.”

Criminology PhD Year 2

“My [department] librarian is also very good. He knows anything. If he thinks he can help in any case, he will search and let me know by an email “Okay, I found this thing for you”

Physics and Chemistry PhD Year 1

“Not the college librarian, but the Faculty library several times, especially because we’ve had over the course of three years significant changes in which we have subscriptions to ... she’s been very helpful – our librarian’s been very helpful.”

Philosophy PhD Year 3

To investigate whether there was a preference for different levels of library provision across a wider sample, respondents to the follow-up online survey were asked to indicate at what level they preferred advice and support regarding information search and management from libraries to be delivered.

Which library do you find the most supportive for training, advice and support?

This question was answered by 664 respondents selecting from one of the options shown in Table 20.

Response	Number of responses	Percentage
Faculty Library	325	48.9%
University Library	165	24.8%
None	113	17.0%
College Library	61	9.2%

Table 20: Which libraries do respondents feel are the most supportive in terms of training, advice and support?

Almost half of respondents felt that their Faculty library was the most supportive whilst fewer than 10% chose their college library. Possible reasons for this result, based upon the focus group discussions reported earlier, is that postgraduates may feel that college libraries focus support at undergraduates. Furthermore, a preference for faculty level support rather than central university level support is a common theme which emerges as part of the recommendation section reported below which draws on both the focus group discussions and results drawn from all sections of the follow-up online survey.

10.4 Perceptions of Existing Cambridge University Libraries' Search Tools

Although this topic was not intended to form part of this research and was therefore not directly asked as a question during the sessions, focus group participants began to share stories of problematic experiences within Cambridge University Libraries. In particular, Newton⁵ was not perceived as being very easy to use by many focus group participants.

"I think Newton, for instance is rubbish..... You know its not very user friendly..... You could get all sorts of improvements."

Engineering PhD Year 1

As many of the participants had undertaken their undergraduate degree elsewhere, some also drew comparisons of the search facilities at other universities, both in the UK and internationally. For example, one participant still prefers to access journals using the systems of their previous institution because they were unconfident of Cambridge University's libraries databases' ability to provide them with comprehensive search results. This was echoed by a number of participants.

"What I do is I search on the McGill library, because I come from Montreal and I find there the online journals and I get access it through there because I'm still member of that library."

English PhD Year 1*

"And because of my experience with the libraries database, I actually don't have confidence that they are as comprehensive as I would like when I'm trying to search a physical book, the fact that it takes five searches sometimes."

Education PhD Year 1*

Although one postgraduate in their second year noted that they had felt that the library catalogue was improving over the last year and was consequently more useful. Another postgraduate had also commented that they found Newton useful:

"I found the categories [subject headings] on Newton were quite a good place to start if I had absolutely no idea of what I was looking for."

Classics PhD Year 3

Although this topic does not fall directly within the remit of this study, due to the large amount of discussion that took place in the focus group sessions, indicating that the topic of university-provided search tools was important to Cambridge postgraduate experience of information

⁵ Newton is the online catalogue for the libraries of the University, including Cambridge University Library, its dependent libraries, and most faculty, departmental and college libraries.

searching, the following question was included in the follow-up online survey.

How easy to use are the information searching tools provided by the university libraries (e.g. Newton)?

This question was answered by 666 respondents selecting from one of the Likert scale options shown in Table 21. Respondents were also able to leave their own additional comments in an open text field, which prompted a further 88 comments.

Response	Number of responses	Percentage
Very easy	44	6.6%
Easy	283	42.5%
Neither easy or difficult	219	32.9%
Difficult	110	16.5%
Very difficult	10	1.5%

Table 21: How easy to use do Cambridge postgraduates think the university library searching tools are?

Despite, a third of respondents indicating they were indifferent and almost half of respondents feeling that the library searching tools were easy to use, it is still interesting that 18% of respondents indicated that they found the tools either difficult or very difficult.

Comments left by respondents provide some further insight into feelings about these tools. The large majority of the 88 comments contained particular references to Newton, describing it as "not user friendly", "not logical", "extremely frustrating", "clunky", "very dated", "awkward to use, need a bit of an overhaul" and "not at all intuitive". Many respondents made comments indicating they couldn't find what they wanted using Newton and many wished there was one simple, comprehensive way to search all catalogues.

10.5 Additional Feedback Specific to Cambridge University Libraries

During the focus group discussions participants discussed a number of issues specific to Cambridge University libraries. Therefore, in the final question of the follow-up survey, participants were offered the opportunity to leave additional comments regarding the facilities offered by Cambridge University libraries. This question prompted 89 comments. Common themes arising from these comments could be broadly categorised under the following types of improvements; (1) Connecting libraries in Cambridge and (2) greater provision of online journals and e-books and (3) improvement to the physical library environment.

These themes had also arisen during the focus group discussions. For example, the way in which different libraries are connected in Cambridge was a source of both confusion and frustration for some participants.

"I think we need to connect libraries within Cambridge at least. I mean this is bare minimum."

Engineering PhD Year 1*

Although one participant was aware of the user-ed@cambridge movement trying to make this happen but expressed some doubts.

"There is a move to consolidate all the libraries, but my departmental librarian is

fairly against it because – partly because the UL is very bureaucratic.”

Criminology PhD Year 2

The issue of connecting libraries was also linked by one participant to the issue of paying for additional services in Cambridge which a number of participants found frustrating.

“My last university was in Switzerland. All the libraries are interconnected. No matter where you are, if there are like 10 books available across the country and 9 of them have been borrowed, and the one that you are asking for is not available in your city, they will ship it from wherever they need to ship it and you’ll get it at your doorstep in your mailbox, without any extra cost.”

Engineering PhD Year 1*

“Just the other morning I was looking for certain data and I really needed desperately but there is no way I can get it without paying.”

Physics and Chemistry PhD Year 1

Comments made by online survey respondents and discussions during focus groups revealed that there is a demand for increased access to online books:

“I fully agree with what he said about online books because searching books physically or ordering from somewhere else might take time, so it’s always good to have something online, just as we have online papers, online journals. So if there’s a way by which we can access the books also online that would be great.”

Physics PhD Year 2

Finally, some focus group participants also felt that improvements to the library environment were possible and that the library *should* be more than just a collection of books but some restrictions in place hindered the creation of a pleasant study environment.

“[The library is] for us to study in a nice environment, and if you cannot put a glass of water in the library it’s really not nice. Well, I am so critical because my previous university libraries were much better and that’s why I’m so critical, where I could bring food, water, where I had free coffee and tea. Harvard Law Library has free coffee and tea after 11.00am. So we can actually bring water in the library. It will not damage. If it would damage something, we must be liable to pay for it, but we will not, so environment matters, to be nice and comfortable.”

Education PhD Year 1*

10.6 Advertising of library support and resources

Based upon the postgraduate perceptions of libraries and librarians reported above and, in line with the Digital Information Seeker report, there are indications that additional and more targeted promotion of the support available within Cambridge University Libraries is required amongst the postgraduate demographic. One focus group participants specifically felt that many library services are marketed at undergraduate students.

“Well, I just noticed that a lot of the services provided by libraries, also in terms of courses, induction and everything, they seem to be geared more towards undergraduate ... I just noticed that a lot of the courses or whatever it is seems to be

more for undergraduate students. And there are some for graduate students but not very many.”

Research Centre for English and Applied Linguistics, PhD Year 4

This suggestion of increased marketing towards postgraduate was also made by some focus group participants more generally in relation to both library support resources and training courses.

“I know there are loads of courses at the computing service, but I think if they’d come round to the faculty they would have come into my radar because otherwise I wouldn’t actually go to the computing service and look up what courses there were unless it was something ... I did do that for EndNote. But I already knew about it, so it didn’t help me find out about it. So maybe circulating things more I think would have helped..... But I think it’s the same with some of the UL courses. We get some of them but not very many. So if you come in they’re on the monitors, but maybe getting them by email would mean that more people got the opportunity to attend them.”

Classics PhD Year 3

To explore how awareness of library services could be increased, respondents to the follow-up online survey were asked what was the best way to contact them regarding library support,

What is the best way to communicate information to you about library support and resources? (tick all that apply)

This question was answered by 665 respondents selecting from one of the options shown in Table 22 and n=665 has been used to calculate all of the percentages shown.

Response	Number of responses	Percentage
Email	543	81.7%
Posters	102	15.3%
Social Media (Facebook, Twitter etc.)	57	8.6%
University Websites	330	49.6%

Table 22: How to inform postgraduates about the support available from libraries?

A large majority of postgraduates said that the best way to contact them was via email, with the second most popular option being the use of University websites. However, it is important during promotion activities not to overlook postgraduates who have been undergraduate at Cambridge University. A bias in promotion activity concerned one focus group participant.

“the perception is they are marketed at people who are new to Cambridge, and so if you have come through but you’re going to different fields or different stage, I think I felt like I didn’t need to, or I’d be clogging up, or I’d be wasting my time because I knew where the staff room was and where the ‘mic?’ room was. I didn’t know the other things, I guess.”

Classics, PhD Year 3

10.7 Summary

It appears from focus group discussions and from results to the follow-up online survey that postgraduates do not feel particularly well informed about the support and resources available

within the libraries at Cambridge University and many do not consider librarians to be sources of advice related to information searching and particularly information management. In agreement with the Digital Information Seeker report, it may be that this perception could be amended by more targeted advertising of library services amongst postgraduates, with follow-up survey respondents indicating that email is the best way to communicate with them.

Although not an original objective of this research, focus group participants entered into an unprompted discussion about some issues specific to Cambridge University libraries, particularly the usability of Newton which was criticised by many, but not all, participants.

Part B - Recommendations

11. Timing of Support

A number of focus group participants felt that the compulsory training on information search and management had been delivered at the wrong time and that the same course would have been of greater benefit had it been offered at a different stage of their postgraduate study. This suggestion was related to feelings of information overload in their first few weeks with suggestions that courses on information search and management would have been better received once the postgraduates had a better sense of what their work would involve.

“It might be more help to have those classes later in the term rather than Fresher’s week or week two because people are settling in and there’s so much information coming at them that actually it might be better say week five or week seven just to kind of let them settle in and then work out what they’re going to do with that information.”

English PhD Year 1

“The one we had was in my first week and it was very brief, and time was running out and it didn’t really cover anything, and as I was shiny and new I had no idea about this, about what I’d need it for. It meant absolutely nothing at that time.... Yes, they learned Zotero and they had about the databases and things like that. At the time it meant absolutely nothing to me. I didn’t know what relevance it would be.”

Education Masters

However, some participants did stress that training courses need to be provided and advertised early on enough in order to allow postgraduates to develop their information search and management strategies at an early stage to prevent difficulties towards the end of their course when writing up.

“I didn’t hear much about information management or courses until fairly towards the end, I think probably into the later part of my last year, of the third year, let’s say, where then I was so busy writing up that I didn’t go. But then I saw courses on EndNote and I think very recently also on Zotero and general courses I think there were as well, but that was all really fairly recent when I really couldn’t go anymore. It would have been interesting to have that a bit early on.”

Research Centre for English and Applied Linguistics, Year 4

Also for obligatory induction courses, some participants suggested that infrastructure to deal with PhD researchers who do not start in October was missing. There are three official PhD start dates: October, January and April.

“Well, I just was not aware that there’s something like this. Probably it’s not happened by the time I’ve been here because I’ve been here for a very short while [started in January], so maybe this was in the Michaelmas [last] term, possibly.... So maybe if they do something every term so people who join in, in the middle of the

year can also - I mean it's probably more sensible to do it that way, but ...”

Engineering PhD Year 1*:

To investigate further whether training courses were being delivered at a preferred stage of the postgraduate course, the follow-up online survey included the following two questions related to information search and information management support respectively.

At what stage do you think support regarding information search would be the MOST useful?

At what stage do you think support regarding information management would be the MOST useful?

These questions were answered by 702 and 675 respondents respectively by selecting from one of 5 options shown in Table 23. The percentages shown are therefore calculated with n=702 and n=675. The data in Table 23: Timing of information search and information management support – postgraduate preferences. are plotted in Figure 7.

Response	Search		Management	
	Number of responses	Percentage	Number of responses	Percentage
As part of the induction	279	39.7%	249	36.9%
During my first term but after the induction	175	24.9%	173	25.6%
Before I started my course	87	12.4%	76	11.3%
At any time	82	11.7%	79	11.7%
During my first year	79	11.3%	98	14.5%

Table 23: Timing of information search and information management support – postgraduate preferences.

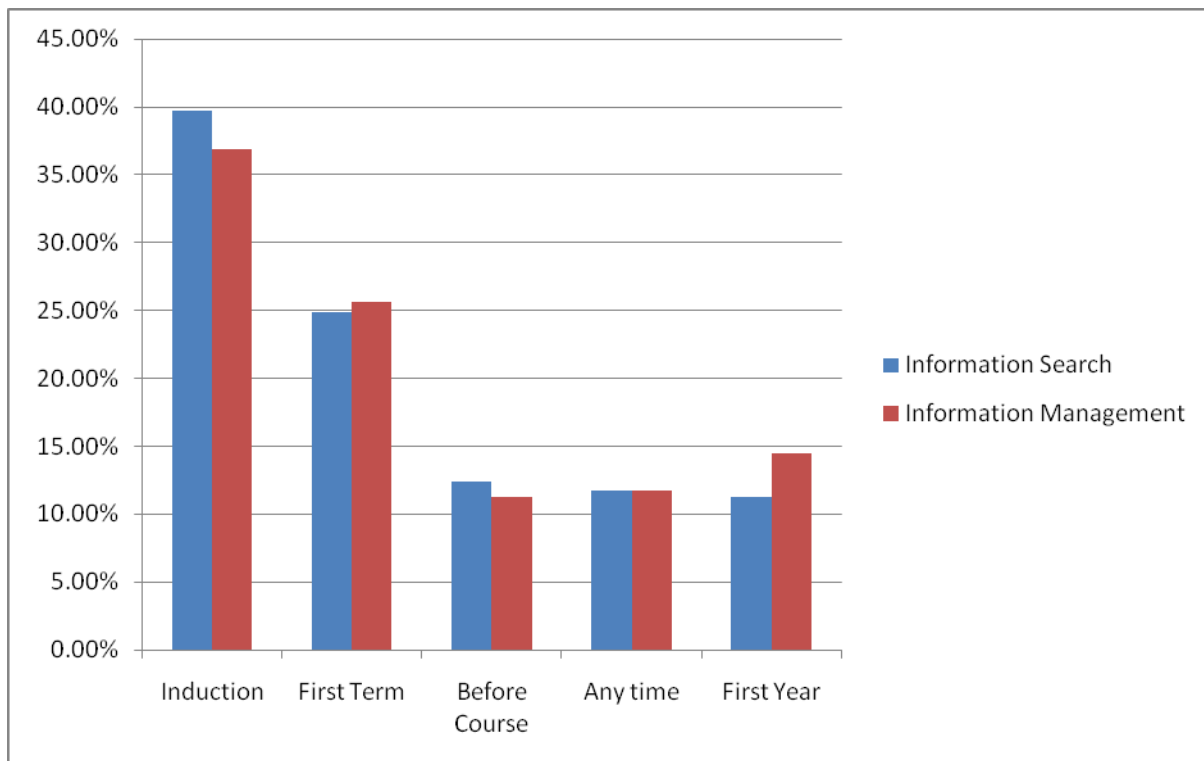


Figure 7: Respondent opinions about when information search and information management support would be most effective.

Based upon these responses, the majority of postgraduates do prefer to receive advice and support on information search and information management at a relatively early stage in their course. The most popular option for both information search and information management support timing was as part of the induction courses with 39.7% and 36.9% respectively. However, it is important to note that the number of people selecting the “during my first term but after the induction courses” is still relatively high with approximately 25% of respondents selecting this option in both cases.

Respondents were also given the option to leave additional comments in an open text field, which prompted 11 comments for both questions. A number of the comments made suggestions that the induction training courses could be supplemented with additional “*sessions open to those who later realise they have gaps*”.

Summary

During the focus group sessions a number of comments had indicated that training courses on information search and management delivered during the postgraduate inductions may be more effective if they were delivered later in the first term after the postgraduates had time to settle in and may better understand the relevance of the information provided during the course. This recommendation was tested as part of the follow-up online survey but did not deliver a clear result. Although approximately a quarter of respondents would prefer the courses to be delivered during the first term but after the initial inductions, a larger proportion of respondents would still prefer these course to remain part of the inductions (39.7% and 36.9% for information search and management respectively).

12. Providers of Advice and Support

Another common theme that emerged during the focus group sessions was that advice given by individuals from within a specific subject area or Faculty was preferred as it was often more relevant and useful than advice given by central university sources. Participants who discussed subject specific training course said that they were the most useful as the course leader had a better understanding of the needs of the attendants.

“It was in EndNote and it was run by somebody who was I think associated with the faculty, not the computer officer for the faculty. So I think the idea was it was specifically for Classicists who would not be that familiar with that sort of thing [technology].”

Classics PhD Year 3

But there seemed to be differences in the level of training provision for different faculties:

“I know the Graduate School of Life Sciences does these courses all year, but I think perhaps we’re better set up because so much of our work in life sciences is looking at papers that they’ve got a lot better idea of what we need, I think. Certainly I’ve been impressed enough with their courses and the advice they can give.”

Wellcome Trust PhD Year 1

“In the faculty I think because I think it’s so specific that ... I mean probably the very initial how do you get Zotero onto your laptop, how do you set it up, how does it download things, you know, the very basic training could be not faculty based, but the more specific stuff I think would have to be.”

English Literature PhD Year 1

For those that had not been offered a large amount of departmental level support, there was agreement that provision by the department would have been useful.

“A course on my department would have been really good, but we didn’t have that.....I think a small group would be good, like informal in the department. I think it would be good, but definitely face-to-face because it’s easier to interact and ask questions and all these things. So I would have liked that but we just had many inductions on fire safety and stuff like that, but nothing on information management.”

Biology PhD Year 4

The suggestion that postgraduates prefer advice from people with a working knowledge of their subject is in line with the fact that supervisors and peers are the most common sources of advice for information search and management which was reported in sections 5 and 6 above. It is also in agreement with the preference expressed by the focus groups and by 48.9% of follow-up survey respondents who found their faculty library the most useful compared to 24.8% who found the university library the most helpful, reported above in section 10 above.

To investigate if a preference for different providers of support exists across a wider population in a quantitative manner, the follow-up survey included the following two questions.

At what level do you think information search support would be MOST useful?

At what level do you think Information Management support would be MOST useful?

These questions were answered by 705 and 678 respondents respectively by selecting from one of 5 options shown in Table 24. Respondents were also given the option to leave comments which prompted 11 comments for both questions.

Response	Statement 1		Statement 2	
	Number of responses	Percentage	Number of responses	Percentage
Department Level	276	39.1%	250	36.9%
A combination of levels	182	27.9%	183	27.0%
Faculty Level	161	22.8%	168	24.8%
Central University Level	53	7.5%	62	9.1%
College Level	18	2.6%	15	2.2%

Table 24: Level of information search and information management support – postgraduate preferences.

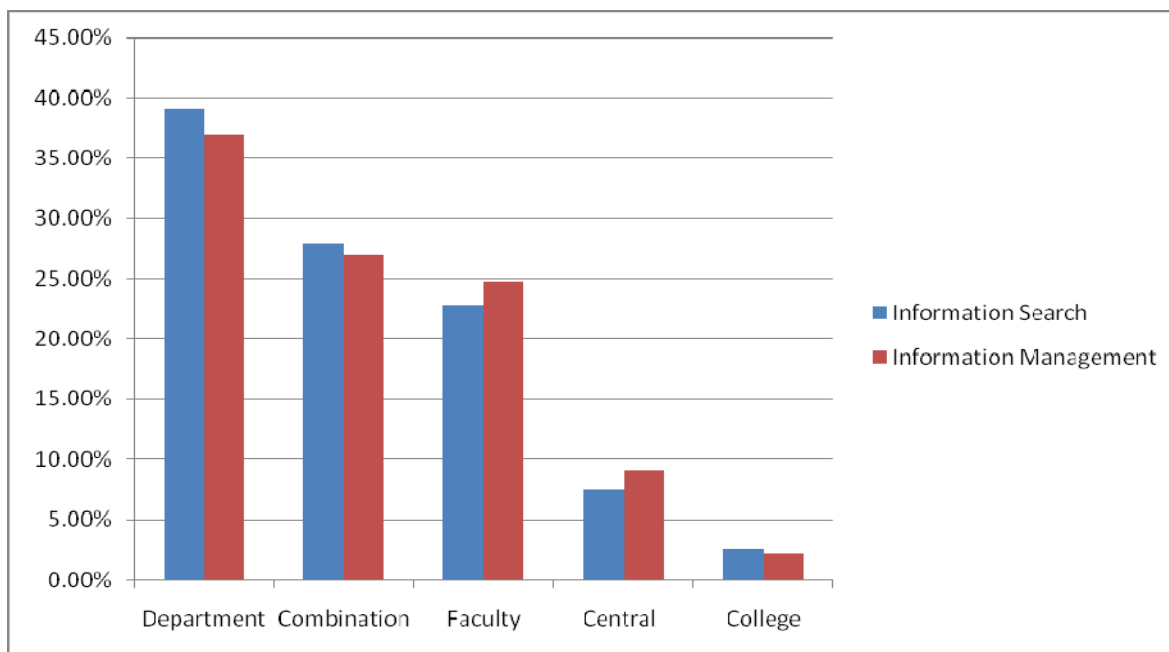


Figure 8: At what level should advice and support be provided.

These results are in line with the focus group discussion outlined above with 61.9% and 61.7% of survey respondents expressing a preference information search and information management support respectively to be delivered at either a departmental or Faculty level.

Summary

A common theme emerging as part of this research is that postgraduates prefer advice and support which is delivered at a Faculty or departmental level as it is often felt to be more directly relevant and useful to them. This perception is in line with the fact that supervisors and peers are the most common providers of advice for information search (section 5) and information management (section 6). Furthermore, it was reported in section 10 that almost half of postgraduates responding to the follow-up online survey find their faculty library more useful than the University

Library in terms of support.

This postgraduate preference has been confirmed further by the focus group discussions and the results reported in this section from the follow-up online survey where greater than 60% of respondents indicated that they think Faculty or departmental level support for information search and management is *most* useful.

13. Different Methods of Delivering Support

During the focus group sessions, the question of how advice and support could be delivered was discussed. In addition to the formal training courses, which were discussed in section 9 other possibilities discussed include face-to-face meetings, online resources, such as guides or wikis, and informal sharing between postgraduates.

The majority of focus group participants agreed that the type of support delivery that they would prefer depended on the type of questions they had. When accessing central support resources, face-to-face sessions were thought to be useful for broadly introducing and showing people how to use tools and methods, whilst specific questions could probably be dealt with via email. One participant specifically also raised the possibility of a synchronous chat tool which they had used effectively in the past when communicating with other international university libraries for immediate answers to very simple questions.

“It depends what is the question. If it is about storing information, I would like somebody to come to my place and explain how to store all these things, if it is possible. Anyway, yes, face-to-face would be much better. But if it is about a finding something, email would be much better because there is no need to wait until the next session of meetings.”

Politics PhD Year 2

“For me I think it’s very important it’s a nice person, like if it’s in your department then face-to-face because I realise our computer people might have really good skills but they’re not approachable, so they’ve already shut the door on you going to them, or they’re vague, or they’re not good presenters, so definitely having a good, friendly, helpful person is important, but then for those late night before the day you turn in the essay you want that Zotero guy in the States [referring to support from online network] who’s going to be awake the time you’re asleep, so both.”

Earth Sciences PhD Year 1

To investigate further whether there was a preference for different methods of support delivery, the following two questions were asked in the follow-up survey;

Which of the following types of information search support would you find useful? (tick all that apply)

Which of the following types of information management support would you find useful? (tick all that apply)

These questions were answered by 705 and 672 respondents respectively by selecting at least one of 6 options shown in Table 25 or entering their own comments. Percentage shown have been calculated using n=705 and n=672. The data from Table 25 is plotted in Figure 9.

In addition to these questions on information search and information management support, an additional question was included in the follow-up survey on how respondents would like to be given support on how to use emerging online tools which can assist with information search and

management. The wording of the question clarified a range of different online tools by making specific reference to the categories of online tools investigated in the first survey (see section 7). The results from the first survey had implied a strong demand for advice /support about these tools. For each of the five categories of tools more than 60% of those who had not heard of them had expressed a desire to learn more. Of those individuals who were aware of tools but were not using them, the most common reason was that respondents did not understand the benefits or how to use them effectively which provides additional evidence that more support is required.

What type of support on online tools which could assist you with your research/work, such as RSS, academic networks, web bookmarking, citation sharing and reference management, micro-blogging, would you find useful? (tick all that apply)

This question was answered by 661 respondents selecting from at the six options shown in Table 25 along with a 7th option for 'I do not want support with these emerging online tools' which was selected by 44 respondents. These 44 respondents did not tick any other option and were therefore removed from the sample in order to compare data with the information search and management questions above. n=617 was used to calculate the percentages shown in Table 25 and plotted in Figure 9. **The preferred answer has been highlighted.**

Response	Search		Management		Online tools	
	Responses	Percentage	Responses	Percentage	Responses	Percentage
Training courses	444	62.9%	445	66.2%	430	58.1%
Online guides	185	26.2%	434	64.6%	359	69.7%
Online training courses	300	42.5%	291	43.3%	272	44.0%
Printed guides	234	33.1%	249	37.1%	225	36.5%
Informal drop in sessions	273	38.7%	231	34.4%	224	36.3%
Online wiki / discussion forums	458	64.9%	201	29.9%	174	28.2%

Table 25: Preferred delivery of information search, information management and online tools support.

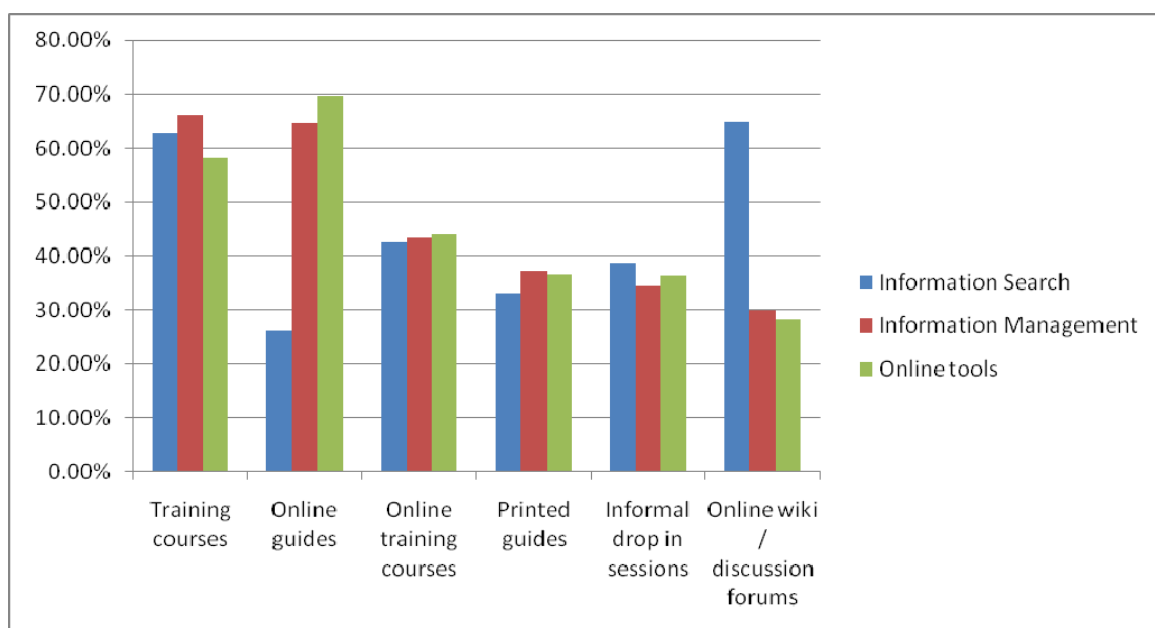


Figure 9: Preferred delivery of information search, information management and online tools support.

For training courses, online training courses, printed guides and informal drop in sessions there is little apparent difference in the response profiles for information search, information management and online tools. However, the preference expressed by survey respondents for online guides is much higher for information management and online tools support than information search support, whilst the situation is reversed for online wikis / discussion forums.

Focus group participants discussed the provision of online resources, and suggested that more could be offered. In line with survey results reported above, suggestions for additional resources included wikis, online guides and even the possibility of a university wide network of postgraduates.

“final year PhD students should note down somehow either on a wiki for the department, the main tips that they have because it would just have been so useful to know ahead of time.”

Biology PhD Year 4*

Participants also expressed a strong preference that information available gave details of specific tools. For example, wikis and online guides were seen as a good way to sign post postgraduates to different online tools or e-resources that are relevant to different disciplines. There was also a demand for comparative guides to be constructed that assisted when postgraduates were choosing which tools to engage with. Once again demand was expressed for these online guides to be provided by the Faculty.

“I have been on some useful courses, but I think the most useful for me, what I’d be looking for initially, would be a wiki page with a list of names and a brief blurb saying ‘this is useful for / this is mostly used by historians, scientists, whatever’, and then you can look through, find something that seems relevant to you and then possibly go on a one hour introductory course to that particular programme. But a half day on all the different types of programmes would probably be ... wouldn’t appeal as a good use of my time.”

Physics PhD Year 4

“I guess for me it would be good if the library had a kind of a field specific site. I mean this is outside of the department of faculty. If I could go on and I knew like if you’re a geographer this is where our e-resources are, you know, and if the library got together a database like that, that would be really helpful.”

Earth Sciences PhD Year 1

However, several participants also raised the issue that departmental or discipline related differences may affect preferences or the rate of technological adoption. Several participants in the social sciences and arts related fields highlighted that online forums would be useful since fieldwork reduced the probability of meeting people face to face regularly. However, they also felt their departments did not yet adopt online resources readily.

“Well, for some reason my department doesn’t really like stuff online. Everything is always in books and papers, and people don’t really do much online. I would really love it, but it’s not going to happen because of my department, I would really love it, if there was a forum between the people, because all the people in the department, especially PhDs, they’re all doing fieldwork and they’re not there. You

can't sort of just go and bump into them or anything like that... And to get information, especially about fieldwork and about how they're managing the information ... it would be really great to have a forum online. But I know that's not going to happen, but I still dream about it. But I think that would be really helpful."

Masters Archaeology

A University-wide online network which could allow people with the same research interest to communicate was also suggested. Again this highlights a preference for specific information sharing.

"I think it would be really useful if each PhD student from each department has a website on which he's able to tell what he's doing.....Because sometimes you want to find somebody who is doing similar work In a university like this, there's bound to be somebody else who's doing something remotely related to what you're doing. This would be useful because you could ask loads of, I mean once you know he's doing similar stuff, or he or she is doing similar stuff, then it just opens up a lot of information."

Engineering PhD Year1*

Summary

The types of support delivery that postgraduates prefer appears to depend on the type of questions they have. These survey results, in addition to the focus group discussions, suggest that for support related to information management and online tools, postgraduates may wish to have information provided in the form of informal drop-in sessions or guides which explain how to use specific technologies.

For support related to information searching, a preference expressed for online wikis / discussion forums suggests that postgraduates recognise the benefits of a more open discussion related to search methods and information sources.

However, in all cases, there is a strong demand for access and sharing of very specific information which postgraduates can use to inform their choice between particular strategies and tools.

14. Sharing practices amongst postgraduates

The question of whether more experienced postgraduates can provide useful advice related to information search and management to postgraduates in the earlier stages of their course was also discussed during the focus group sessions. There was a mixed reaction amongst the focus groups of Masters and early stage PhDs (1st and 2nd years) as to whether this would be a useful practice, with possible failings being a lack of subject specific knowledge or up to date information on the most recent tools available.

“I agree that a new graduate who had done well in exactly your field, teaching how they manage their information, and for me important would be to hear what’s a waste of time.”

Earth Sciences PhD Year 1

“It would be nice to have the option to talk to them, but I feel like their research would have happened two or three years ago and I feel like it’s all changed in that period. So it might be useful but I – my feeling would be that it probably wouldn’t.”

English PhD Year 1

Having training courses run by recent PhD graduates was mentioned by a number of participants in different focus group sessions, who suggested that the primary benefit would be that the person delivering the training may have a better understanding of what the objectives of the work were and how the course content related to those objectives.

“The librarian that I was doing the training with was learning at the same time as I was and didn’t know exactly what I wanted from it, whereas other postgrads would know more probably about that, possibly ...”

English Literature PhD Year 1

“The best trainings I’ve been to for any sort of software are where the person uses the software themselves for roughly the kind of thing you want to do with it. I mean it doesn’t have to be exactly the same, but they understand the preoccupation you’ve got in your field, which are definitely most helpful really.”

History PhD Year 2

To investigate further whether postgraduates would welcome the opportunity to discuss information search and management practices with more experience postgraduates a series of logic questions were included in the follow-up online survey. The opening questions asked were,

When you started your current course, do you think it would have been useful to discuss information search strategies with PhD finalists or recent PhD graduates at the University?

When you started your current course, do you think it would have been useful to discuss information management strategies with PhD finalists or recent PhD graduates at the University?

These questions were answered by 704 and 681 respondents respectively by selecting at least one of the options shown in Table 26. This data is plotted in Figure 10.

	Search		Management	
Response	Number of responses	Percentage	Number of responses	Percentage
Yes	415	58.7%	427	62.7%
No	58	8.2%	48	7.0%
Not sure	195	28.0%	165	24.2%
I did get this opportunity	36	5.1%	41	6.0%

Table 26: Would it be useful to discussion information search and management with late stage PhD's and recent PhD graduates

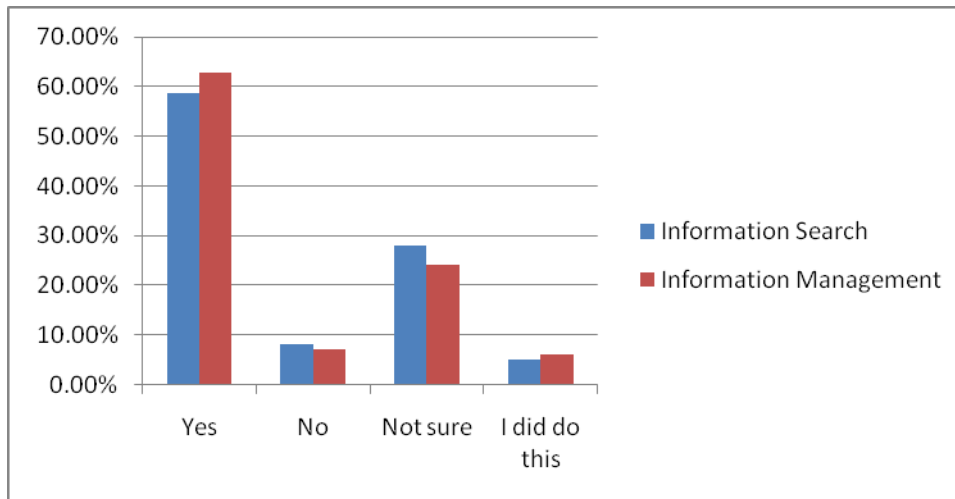


Figure 10: Do postgraduates think it would have been useful to discuss information search and management with more experienced postgraduates when they started their course?

More than half of survey respondents (59% and 53% respectively) thought that it would have been useful to discuss both information search and information management strategies with more experienced postgraduates when they started their course. Interestingly, 5% and 6% respectively had already had the opportunity to share experiences about information search and management with more experienced postgraduates. To explore these answers further, these questions were followed by a series of corresponding logic questions.

14.1 Different methods for postgraduate sharing

Postgraduates that answered 'Yes', to the question about whether they would have found it useful to exchange information, were then asked whether they would like this discussion to take place between postgraduates specifically from their own subject area or with any postgraduate.

Would you prefer to discuss information searching with final year PhD researchers or recent PhD graduates from...

Would you prefer to discuss information management with final year PhD researchers or recent PhD graduates from...

Respondents were asked to choose from one of three options which are shown in Table 27. Of the 415 and 427 people who were offered this question, it was answered by 414 and 425 respondents respectively.

	Search		Management	
Response	Number of responses	Percentage	Number of responses	Percentage
From my subject discipline	321	77.5%	282	66.4%
Either would be useful	79	19.1%	109	25.6%
From any subject discipline	14	3.4%	34	8.0%

Table 27: Which postgraduates would postgraduates prefer to share information with?

Based on these responses, it seems that those postgraduates who think it would have been useful to discuss information search and management with more experienced postgraduates when they started their course, would prefer to do so within their own subject discipline. This response is in line with a similar preference expressed for faculty level formal support delivery in other parts of the online survey and within the focus group discussions.

These respondents that had answered 'Yes' were then asked to indicate how they would like this sharing to take place. The same question was asked twice, once in the information search section and again on the information management section.

How would you prefer to communicate with them? (tick all that apply)

Of the 415 and 427 people who were offered this question, these questions were answered by 414 and 423 people respectively, by selecting at least one of the options shown in Table 28 and plotted in Figure 11.

	Search		Management	
Response	Number of responses	Percentage	Number of responses	Percentage
Face to face meetings	296	71.7%	290	68.6%
Training Courses	186	45.0%	198	46.8%
Email Exchange	176	42.6%	188	44.4%
Online (forums, wikis, etc)	145	35.1%	147	34.8%

Table 28: How would postgraduates like to receive advice from more experienced postgraduates?

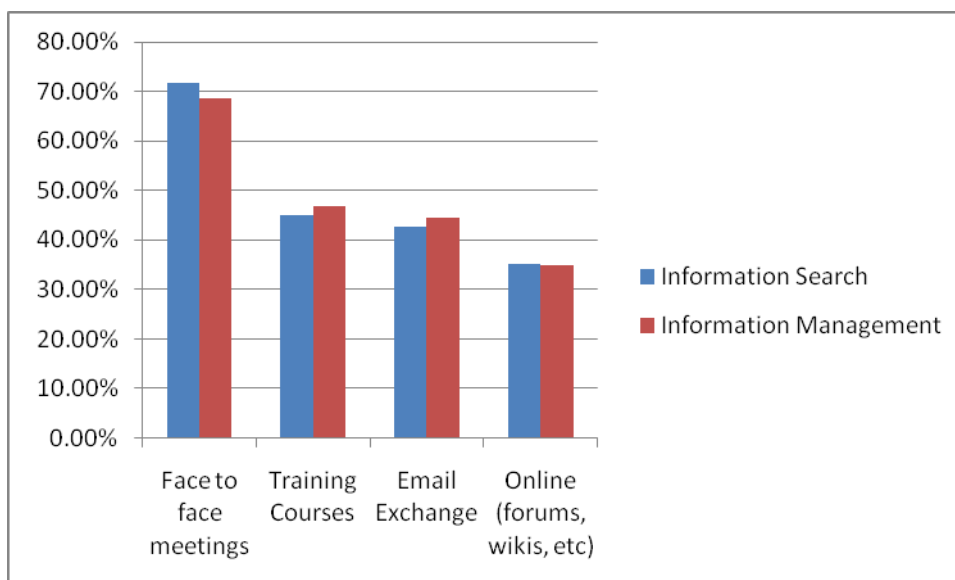


Figure 11: How would postgraduates like to receive advice from more experienced postgraduates?

These responses indicate that postgraduates would prefer to exchange information via face-to-face meetings. This preference is in line with the day-to-day mechanism that postgraduates may be used to when interacting with other postgraduates. There is also a relatively high demand for both training courses and online resources which is in agreement with the preferences expressed in section 13 regarding different methods of support delivery.

14.2 Reasons why sharing practices might not be useful

Respondents that answered 'No', they did not think that sharing information with more experienced postgraduates when they had started their course would have been useful, were provided with a free-form box to outline why they gave this answer. From the 58 and 48 people respectively who were offered this option, this question prompted 50 comments for information search and 32 comments for information management.

One common answer was that respondents just didn't feel that it was necessary for them to learn any more about how to search for or manage information.

"I don't see why there is a need to "teach" people how to use Google Scholar etc."

Online Survey Respondent

Comments of this type were the most common answer for information management (10 respondents) and the second most common answer for information management (15 respondents). Another common reason for not thinking that information sharing with more experienced postgraduates was useful was that respondents doubted whether the information shared would be specific enough to be practical to them.

"They may not be doing research in my field and may not know how to help me with what I need."

Online Survey Respondent

For information searching this was the most frequent type of answer (20 respondents) and the second most frequent for information management (5 respondents).

14.3 Existing examples of sharing practices

Based upon the experiences described by some of the focus group participants, within some departments there are already examples of sharing amongst postgraduates. The examples raised in the focus groups described interactions which had occurred in an informal setting.

"We all got together in the common room ... so we as first year PhD students, we were asking them [second and third year PhDs] what sort of tools we were using, what were the benefits of each one of them – which one of them, what were the pitfalls, what they were not really delivering and ... Yes, it was extremely useful."

Engineering PhD Year 1*

"Well almost everyone who does the PhD does the MPhil just beforehand, ... during the summer between the MPhil and the official start their PhD and a lot of the sort of informal stuff gets done there and say "Yes, we might as well try and... like go to fillpapers.org and

see how useful it is and something like that.” It’s a very, very informal sort of thing but it works very well..... Most people work in the department - so just one big room with all the public workstation and computers, and someone comes in and they say “Hey man, what are you doing?” “I’m working on this.” “Oh well, you know you can look here and here and here.” Something like that. It’s very, very informal ... It’s made it a thousand times easier, and without it, it would have been much more difficult.”

Philosophy PhD Year 3

These informal sharing examples seemed quite successful and spontaneous, occurring at informal gatherings of students working in the same departments and where conversation naturally turned to study practices. However, there was also an example where an initiative attempted by one participant to try and share information had been less successful.

“So myself and another PhD student tried to set up a wiki where we could gather all that information and it would be useful for other students when they came along. And we also set up a mailing list, but we found that nobody ... of course that depends on people contributing to it and using it and it was very, very little. There was a lot of interest in it initially, but then when it came to actually doing it, no one really did it, so it’s currently just sitting there. It has some information on it but it’s not developing”

Biology PhD Year 4

To explore further about existing sharing practices, follow-up survey respondents that had answered ‘I did get this opportunity’ were asked a series of questions to explore how this information exchange had taken place. First they were asked to indicate whether this information sharing had taken place with postgraduates from their own subject discipline.

You said that you had shared information regarding information search strategies with other postgraduates. The postgraduates you shared information with were...

You said that you had shared information regarding information management strategies with other postgraduates. The postgraduates you shared information with were...

Respondents were asked to choose from one of three options which are shown in Table 29. From the 36 and 41 people who were offered this question, it was answered by 36 and 40 respondents respectively for information search and information management.

Response	Search		Management	
	Number of responses	Percentage	Number of responses	Percentage
From my subject discipline	26	72.2%	30	75.0%
From outside my subject discipline	0	0%	3	7.5%
Both	10	17.8%	7	17.5%

Table 29: Sharing information with more experienced postgraduates.

Based on these responses, the majority of those postgraduates who have discussed information search and management with more experienced postgraduates did so within their department.

These respondents were then asked to indicate how this sharing took place. The same question

was asked twice, once in the information search section and again on the information management section.

How did this / these discussions take place? (tick all that apply)

Once again, from the 36 and 41 people who were offered this question, it was answered by 35 and 39 people respectively, by selecting at least one of the options shown in Table 30.

Response	Search		Management	
	Number of responses	Percentage	Number of responses	Percentage
Face to face meetings	34	97.1%	34	87.2%
Training Courses	6	17.1%	6	15.4%
Email Exchange	8	22.9%	3	7.7%
Online (forums, wikis, etc)	1	2.9%	0	0%

Table 30: How information was shared with more experienced postgraduates.

It is important to note that the profile of answers provided by those respondents who had the opportunity to engage in sharing practices is very similar to the profile of answers provided by those who would have welcomed the opportunity to do so. i.e the majority of respondents indicated that they have / would prefer to share information with postgraduates in their subject discipline and the preferred means of sharing information is through face-to-face meetings.

14.4 What information could be shared?

In the focus groups containing early-stage postgraduates (Masters, 1st and 2nd years) participants were encouraged to think about exactly what they would ask a recent PhD graduate if they were given the opportunity to do so. In agreement with the online survey findings reported above, it was information management that participants felt they needed the most help with.

“I would ask how to manage it, as in there are a lot of papers, hundreds of papers that you read actually, and from one day you might just need that one particular line. I mean how do you manage that, those kinds of things? ... Searching is not a problem for me, but managing that and using them efficiently and judiciously.”

Physics and Chemistry PhD Year 1

During focus groups with later stage PhD participants (3rd and 4th year) participants were also encouraged to think about what kind of information they would share with earlier stage postgraduates if they were given the opportunity to do so. Many participants said that the information that would have been considered the most useful to pass down was again related to information management in preparation for thesis writing.

“Once you’ve done your literature review and you’ve done extra things just stick them together. Just do a little bit of extra work on your own. And then when you come to write your thesis it’s going to be so much easier because you’ve got a really good backbone to start from – things like writing up your methods as you go along and organising them and filing them away so that you can just call them back up in the third year when you need to write.”

Wellcome Trust PhD Year 1 (undertaking second PhD)

Respondents in the follow-up survey who had the opportunity to discuss information search and management with more experienced postgraduates were given a free form text field to indicate what they had discussed which prompted 10 and 5 comments for information search and information management respectively. These comments indicate that information searching discussions included good search engines and sites to set keyword alerts, subject-specific online databases and using manuscripts and archives whilst information management discussions included referencing software and bibliographic tools.

Summary

The question of whether postgraduates in the early stages of their course could learn information search and management techniques from more experienced postgraduates prompted a mixed reaction in focus group sessions and was explored further in the follow-up online survey.

The majority of respondents indicated that they would have liked the opportunity to discuss information search and management with more experienced postgraduates when they started their course. These respondents also expressed a strong preference for sharing to take place between postgraduates from their own subject discipline and a preference for face-to-face meetings, although online exchanges were also relatively popular.

Possible reasons for not wanting to share information were feelings by some respondents that it just wasn't necessary or that information provided would not be specific enough.

For postgraduates who had this opportunity when they started their course, the characteristics of the exchange was similar to the preferences expressed by those that would have liked the opportunity. i.e. taking place primarily between postgraduates from the same subject discipline and usually through face-to-face meetings.

Bibliography

IRIS Project Report. April 2009. *Information Skills Provision: Mapping the information skills of Cambridge undergraduates and inductions / training provision across the University*

Available at: http://arcadiaproject.lib.cam.ac.uk/docs/Report_IRIS_final.pdf

Centre for Applied Research in Education Technologies (CARET). 2009. *The Lives and Technologies of Early Career Researchers*

Available at: <http://earlycareerresearchers.caret.cam.ac.uk/wp-content/uploads/2009/12/JISCEarlyCareerResearchers.pdf>

Lynn Silipigni Connaway and Timothy J. Dickey, OCLC Research. February 2010 *Digital Information Seeker, Findings from selected OCLC, RIN and JISC user-behaviour projects.*

Available at: <http://www.jisc.ac.uk/media/documents/publications/reports/2010/digitalinformationseekerreport.pdf>

Vitae & RCUK. *Joint Statement of the Research Councils Skills Training Requirements for Research Students.*

Available at: <http://www.vitae.ac.uk/cms/files/RCUK-Joint-Skills-Statement-2001.pdf>

[Accessed March 2010]

Vitae. 2009. *What do researchers do?*

Available at: <http://www.vitae.ac.uk/policy-practice/107611/What-do-researchers-do-2009.html>

Beauchamp, C., Jazvac-Martek, M. and McAlpine, L. 2009. *Studying doctoral education: using Activity Theory to shape methodological tools.* Innovations in Education and Teaching International, Vol. 46, No. 3, pp 265 – 277

Pyhälto, K., Stubb, J. and Lonka, K. 2009. *Developing scholarly communities as learning environments for doctoral students.* Int. Journal Academic Development, Vol. 14, No. 3, pp 221-232

Conrad, L. 2003. *Five ways of enhancing the postgraduate community: Student perceptions of effective supervision and support*

Higher Education Academy. 2009. *Postgraduate Research Experience Survey*

Available at: http://www.heacademy.ac.uk/resources/detail/ourwork/postgraduate/pres_2009_technical_report

Vitae, (March 2010), *Digital Researcher: Managing your networks and building your profile*, Hosted by the British Library.

JISC, (March 2010), *Digital Scholarship: Advanced Technologies for Research*, Hosted by Professor M. Weller and Dr. N Pearce at the Open University.

Cohen, D. (April, 2010). *Arcadia Second Annual Lecture*, Presented at University of Cambridge

user-ed@cambridge, *Working towards the delivery of a more coherent approach to library inductions*, Working Group, July 2009

Appendix A. Issues raised by PhDs in their final years

Some focus groups participants in the later stages of their PhD (3rd or 4th years) expressed feelings of finding out about useful tools to assist with information search and management too late in their study and made it clear that it would have been beneficial to know about them earlier.

“... I now receive emails when a new paper has cited that original paper, which is very handy but I didn't really know about it when I first started.”

Biology, PhD Year 4*

However, the participant then went on to highlight that this ability to acquire additional information also involves additional information management which necessitates better information management strategies and that training on this topic would have been beneficial.

*“...I could have also been swamped with information that would require some management. ... I guess finding a simple, sort of easy that is not time consuming way to get to information and organise it would be – **would have been** (stressed) so helpful. That's the one thing I've kind of missed.”*

Biology, PhD Year 4*

Finding out about useful tools too late and also feeling that information could have been better managed during the early part of their study was a common theme that led to a lot of frustration. All participants that raised these issues had dealt with the new information in similar ways, essentially electing to persist with their old strategies rather than adopt the new one.

“More recently I've found a reference manager, which is good but that only has a small ... It only has most recent papers in it and I will shortly be writing up, and I'm basically going to have to go through all the places where I usually store papers to try and collate them, but pretty much most of my PhD has just been using the folders in a normal file system to organise mine.”

Physics Year 4

“..I saw courses on EndNote and I think very recently also on Zotero and general courses I think there were as well, but that was all really fairly recent when I really couldn't go anymore. It would have been interesting to have that a bit early on.”

Research Centre for English and Applied Linguistics, Year 4

Acknowledgements

I am very grateful to the Arcadia Programme based at the University of Cambridge for giving me this opportunity and to Professor John Naughton for his assistance and guidance. I would like to thank the Arcadia Support Group: Laura James, Isla Kuhn, Anna Jones, Yvonne Nobis and Steve Joy for their input and feedback during the project. I would like to also give a special thanks to Lizz Edwards-Waller, previous Arcadia Fellow, for her advice and for sharing her experiences of the IRIS project. I would also like to thank Emma Coonan for her input and help and also Arcadia Fellow, Harriet Truscott, who in the early stages was a great sounding board for my ideas. I would also like to thank Emma, Isla and Katy Cherry for observing the focus group sessions. I am very grateful to Lesley Gray, the Graduate Union and the College MCR executives, Graduate Faculty Representatives and Cambridge librarians for their help in publicising the surveys to postgraduates. And lastly, I would like to thank all the postgraduates and librarians at the University of Cambridge who participated in the surveys and focus groups sessions.