

Creating Knowledge IV: Empowering the student through cross-institutional collaboration

Reaching out to research students: Transferable skills training in context

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Abstract:

Research postgraduates need to develop a range of transferable skills both for successful study, and life beyond University. Developing information literacy in research students requires knowledge of their skills and abilities, and the creation of flexible self-directed training.

Context

Transferable skills are crucial in a world where the notion of a 'job for life' is increasingly redundant. The ability of individuals to make the transition between employment sectors by demonstrating the relevance of their experience to a variety of roles is vitally important for career progression and for an enterprise culture. Employers actively seek graduates not only with solid skills in literacy and numeracy, but also in transferable skills such as team working, communication (interpersonal and written) and problem solving. (Rook, 2005)

It is a common assumption in UK Higher Education that students at all levels self-develop another set of transferable skills, namely, effective strategies for finding and managing information. Student feedback however, suggests that they struggle to get to grips with some of the key skills in information literacy:

"I often worry there's crucial papers out there I don't know are there..."
(Research student, 2005-2006)

New research students are plunged into a world filled with big expectations; being able to find use and manage information effectively, is just one way of helping those students to succeed, but it is an important one. The Roberts' Review (Roberts, 2002) provided a vital spur to improve information literacy and other transferable skills training in UK higher education institutions by recognising the importance of such skills, and recommending that research students receive two weeks of appropriate training each year. To help institutions identify what these transferable skills might consist of, Research Councils UK (RCUK) had already created a statement of skills training requirements. (RCUK, 2001) Information literacy skills are clearly present in the Joint Skills Statement, but the language in which this is expressed is vague, and lacks the clarity which could have been present had a model of information literacy been applied.

Boosting provision

Government funding aimed at progressing the Roberts' agenda, allowed Leeds University to review existing skills training provision across the University. The appointment of a Senior Training and Development Officer to oversee the implementation of the agenda across the institution, gave existing training providers such as the Library and the Faculties, an opportunity to work more closely towards providing the training required by the Roberts' review.

Leeds University Library aimed to further develop its information literacy training for research students. Existing provision centred around two initiatives: 1. Faculty Team Librarians delivering training sessions in a variety of information literacy skills as required by their departments. 2. An annual series of bookable Library training session covering use of specific resources (e.g. EndNote). It was clear that a model of best practice was required to help Faculty Team Librarians deliver a consistent level of service to all research students.

A needs analysis survey

One of the first ways in which the Library began to research the information literacy needs of research students was through participation in the biennial University Research Student Needs Analysis Survey.

The survey included questions on a range of University support services and educational experiences, created through the collective input of a number of key individuals and co-ordinated by the University Senior Training and Development Officer. Students from any year of research postgraduate study were asked to respond, with the majority of respondents

undertaking a PhD. The response rate of 30.5% represented a total of 652 respondents out of a total estimated population of 2135.

The survey was conducted using Bristol Online Surveys (BOS) software, and advertised via email. Students without access to a computer or to email would therefore have been unable to participate in the survey, though it is estimated that the number of people in this bracket was small.

Questions on information literacy intended to gather research students' self-perceptions of their abilities in essential areas as identified in a literature review and examination of best practice in information literacy training for research postgraduates in other UK and Australian higher education institutions.

Results from the entire survey have been made available to Faculties and other training providers within the University of Leeds for analysis, comment, and action. A special report on the data collected on information literacy was simultaneously presented and discussed with Faculty representatives and the University Senior Training and Development Officer.

Areas of low confidence

Answers to questions on information literacy revealed that students' levels of confidence in specific skills were mixed. When asked about use of bibliographic reference management software for example, over 42% of respondents said that their abilities in this area were less than satisfactory.

Two other areas in which significant proportions of respondents felt less confident were; current awareness, and obtaining theses. When asked "I know how to search for and obtain theses written at other universities", 57.8% of respondents said that this skill 'Needs attention' or 'Needs a great deal of attention'; demonstrating a clear gap in the knowledge of research students in a skill necessary to running a long-term research project.

Areas of higher confidence

Higher levels of confidence were shown in answer to questions about evaluating web-based information, Boolean terms, using advanced features of search engines and databases, and plagiarism. Questions on web-based information for example, received some of the lowest scores for 'Needs a great deal of attention' in this section of the survey, indicating that respondents felt very comfortable using the technology. The area in which respondents showed the greatest confidence was plagiarism. Almost 90% of research students self-assessed their ability as 'satisfactory' or 'excellent'.

Zones of comfort

The survey included a number of statements which students were invited to respond to. The statement "I am worried that I sometimes miss essential papers when literature searching" generated a wide spread of opinion, with more than half of respondents agreeing or strongly agreeing that this was a concern. This highlights a possible contradiction with the answers given to the question "I plan my literature searches when preparing a literature review" to which 75% of respondents said that they performed either satisfactorily or excellently; if research students plan their literature searches and follow these plans through, then their fears over missing out essential papers should be minimised.

The high level of anxiety expressed over missing out essential papers is also at odds with the high confidence expressed when students responded to the final statement in this questionnaire on information literacy, "I feel confident in searching for information and managing the information I find for my research". Students were given an opportunity to make their own comments at the end of the survey:

“... still sometimes i come across important things of which i think i should have read them earlier and than wonder on how many things i might miss out.” (Research student, 2005-2006)

There was another mixed response by students to the statement: “I find it difficult to keep track of what I have read”, and while over half of all respondents disagreed or strongly disagreed with this, a significant proportion agreed. Comments made by respondents later in the survey shed light on why this might be:

“I am able to a certain extent to search for material for my research but usually find it very difficult managing information in terms of linking authors to issues raised when writing; this is particularly in ... terms of difficulty keeping track of what I have read.” (Research student, 2005-2006)

“I can find the relevant papers and read through them but am unsure how to organise and summarise the contents.” (Research student, 2005-2006)

Students expressed confidence in their overall abilities to search for and manage information for their research, and find the information required quickly. When responding to the statement: “I usually find what I'm looking for quickly”, almost 70% said they agreed or strongly agreed. 30.6% of respondents disagreed or strongly disagreed however, demonstrating that not all research students have a uniform experience of searching for information. Whilst this statement is not detailed enough to gauge real-life experience, written comments indicate how some students locate information:

“i tend to rely on consulting paper bibliographies in backs of books and papers and building lists in word of things to read/ or have read. it works for me” (Research student, 2005-2006)

The final statement “I feel confident in searching for information and managing the information I find for my research” gave students an opportunity to summarise their feelings. The majority of students agreed with the statement. Students who answered ‘Disagree’ or ‘Strongly disagree’ to this statement were invited to write more.

“I find it difficult to find the right pdf file that i have saved on my own computer and am not sure how best to organise them.” (Research student, 2005-2006)

It is concluded that respondents perceived that they had more of a problem with managing information, than in finding it. The research process at postgraduate level produces larger amounts of information than most students have previously handled, and it will be gathered and stored in a variety of formats. Without a systematic approach for handling information, writing a literature review may become unnecessarily difficult.

Many students indicated that they had had no previous training in literature searching during their University education, and were effectively self-taught. A number of students expressed a clear desire for training in Information Literacy skills:

“I think a session on using online databases would have been useful for everyone on my course and should be incorporated into the teaching”. (Research student, 2005-2006)

“As far as I am aware no such course exists and it is a major skill for a research student to develop.” (Research student, 2005-2006)

Results from this survey suggest that research students possess differing levels of skill and confidence in information literacy. A recognition of this variation is important so that suitable training interventions for those students are ensured.

Pilot training sessions

Results from the survey, along with examples of good practice from both internal and external sources, and extensive discussions with Faculty Team Librarians, resulted in the creation of a pilot half day training session. Five different groups of research postgraduate students participated in the pilot training, covering several key topic areas in two sections:

- Effective literature searching; your problems addressed; using the right keywords; Boolean logic and other invaluable search techniques
- Tracking academic discussion; avoiding and recognising plagiarism; managing the information you find effectively

A mixture of learning and teaching methods were used throughout the session, with the emphasis on practical skills applied to real-life research problems.

Self-diagnostic quiz

Having little or no prior warning of the research topics or information literacy abilities of research students attending training was a significant problem for Faculty Team Librarians at the University of Leeds. A self diagnostic quiz was developed for students to use prior to their attendance at a training session. The quiz was delivered via Questionmark Perception software, giving students on-screen feedback on their performance in several key areas: Current awareness; searching for and obtaining theses; bibliographic reference management software; plagiarism; web searching and evaluation; Boolean terms; cited reference searching. In addition, students were asked to indicate the title and subject of their PhD.

Web searching and evaluation

Students showed a good level of understanding in this area, with many thoughtful responses to a question asking them to describe how they would evaluate web-based information:

“Check about organisation/author/web maintenance information and background. Check about other previous reports, newsletters etc I may have already used the website in the past.” (Research student, 2005-2006)

A minority of students were unsure about how they would do this: “I have no idea, sorry.” (Research student, 2005-2006)

Using Boolean terms

Only 17.9% of students responding to the Research Student Needs Analysis Survey felt that they needed to improve their skills in using Boolean terms. Results of the self diagnostic quiz however, indicate that 24.3% were unable to correctly identify how AND, OR and NOT should be used, indicating a need for further guidance.

Plagiarism

The very high levels of confidence expressed by research students responding to the Research Student Needs Analysis Survey on the subject of plagiarism were borne out by the results of the quiz. 88.5% of Research Student Needs Analysis Survey respondents said that they had ‘satisfactory’ or ‘excellent’ skills in understanding plagiarism; students using the self diagnostic quiz achieved a mean correct score of 85.4%. One question which confused a

minority of students however, was whether or not they needed to ask permission from the author to cite their work.

Bibliographic reference management software

Over 42% of Research Student Needs Analysis Survey respondents felt that they needed to improve their skills in using software such as EndNote. The self diagnostic quiz showed that 72.1% of new students had never used reference management software, and just one of those who had felt 'very confident', about their ability to do so. This represents a significant training need for new research postgraduates.

Current awareness

The picture of research student confidence and ability in keeping up to date with new publications is complex. Whilst nearly 70% Research Student Needs Analysis Survey respondents said that their ability in this skill was 'satisfactory' or 'excellent', students using the self diagnostic quiz were less clear about what their actual strategies were. Almost 28% of students failed to complete this section of the quiz. One respondent commented:

"I have not yet reached the stage of being up to the current day with my literature review. As I get closer email alerts will be used although at present I only use manual searches." (Research student, 2005-2006)

Current awareness is a key skill in which new research students need help and guidance in establishing a working strategy.

Searching for and obtaining theses

Searching for and obtaining theses was another area identified in the results of the Research Student Needs Analysis Survey where research students needed extra assistance, and this was confirmed by the decisive results in this section of the self diagnostic quiz, where more than 72% of students were unable to search for and obtain theses.

Results of each group of students filling in the quiz were sent to Faculty Team Librarians prior to their training sessions. Armed with information about the real skills of students, Faculty Team Librarians were better prepared to deal with subsequent issues in class. In some cases access to the results of the quiz led to a re-shaping of the structure of the training session by some individuals, in order to more fully meet the needs of attendees.

Feedback

Student and trainer feedback from the pilot training sessions has been very positive, with trainers suggesting improvements, and reflecting on the student learning taking place within the training session.

"The mind map exercise was good. I felt that they got the idea but need prompting as we went around to consider variants of words, so obviously this exercise was needed! Going round and looking at the different mind maps was very revealing and you could tell how some people were suited to that way of thinking whereas others were grid and list people through and through." (Faculty Team Librarian, 2005-2006)

Written student feedback also indicates how the workshop was valuable to them:

"Very helpful session - even though been in PhD for 6 months, very helpful overview plus new hints to improve ability. Thank you."
(Research student, 2005-2006)

“It was cool! I feel much happier about starting my PhD” (Research student, 2005-2006)

Discovering whether the new training satisfied student needs was important to the review of the pilot session, and for the roll out of the training materials to all Faculty Team Librarians in 2006-2007. Over 95% of workshop attendees said that the training “Completely” or “Mostly” met their expectations, no students said that it had not met any of their expectations. A number of changes to the workshops have also been made as a result of student and trainer feedback.

Future plans and conclusions

A revised and updated version of the pilot training session including new learning objects and self-directed learning options, has been cascaded to all Faculty Team Librarians at the University of Leeds, with the expectation that they will disseminate information about the available training, and deliver it to research postgraduate students in their faculties from 2006-2007. The revised training session includes more flexibility and choice for attendees to address their individual needs, making the whole learning experience more rewarding and less prescribed. Faculty Team Librarians are also free to mould the teaching materials to the needs of their group, inserting their own preferred PowerPoint slides for example, or excluding particular exercises of less relevance to the audience.

Leeds University Library will continue to work with other training providers and Faculties within the University to consider how best to continue to fulfil the Roberts’ agenda. Research students are individuals with a range of prior experience and knowledge, and they should be offered a variety of training opportunities in the practical skills that they need to be information literate, and to add these to their portfolio of transferable skills. Given the range of skills, abilities and opinions seen in the research students contributing to this project, self-diagnostic testing seems a good way for information literacy practitioners to enhance their training and create flexibility of approach in their work. Where the information literacy of research students is concerned, one size does not fit all, and finding ways of responding to that challenge through flexible self-directed learning is critical.

References:

Faculty Team Librarian (2005-2006). Personal communication.

Research Councils UK. (2001). Joint Statement of Skills Training Requirements of Research Postgraduates. [Online]. [Accessed 5th May 2005]. Available from World Wide Web: [http://www.grad.ac.uk/cms/ShowPage/Home_page/Policy/National_policy/Research_Councils_training_requirements/pleaLXeFl#Joint%20Statement%20of%20Skills%20Training%20Requirements%20of%20Research%20Postgraduates%20\(2001](http://www.grad.ac.uk/cms/ShowPage/Home_page/Policy/National_policy/Research_Councils_training_requirements/pleaLXeFl#Joint%20Statement%20of%20Skills%20Training%20Requirements%20of%20Research%20Postgraduates%20(2001)

Research student. (2005-2006). Personal communication.

Roberts, S.G. (2002). SET for Success: Final Report of Sir Gareth Roberts' Review. [Online]. [Accessed 24th April 2006]. Available from World Wide Web: http://www.hm-treasury.gov.uk/Documents/Enterprise_and_Productivity/Research_and_Enterprise/ent_res_roberts.cfm

University of Leeds Careers Centre, (Rook, S). (2005). Employability Skills. [Online]. [Accessed 7th June 2006]. Available from World Wide Web: <http://careerweb.leeds.ac.uk/students/startingout/employabilityskills.asp>