World Library and Information Congress:
71th IFLA General Conference and Council

"Libraries - A voyage of discovery"

August 14th - 18th 2005, Oslo, Norway

*Conference Programme:*
http://www.ifla.org/IV/ifla71/Programme.htm

*August 12, 2005*

**Code Number:** 184-E
**Meeting:** 108 Education and Training with Library Theory and Research

# Research Methods Teaching in Information Science: UK Experiences

**Anne Morris**
Department of Information Science
Loughborough University
Loughborough
Leics
LE11 3TU
**Email: a.morris@lboro.ac.uk**

## Abstract

## Introduction

Library and information Science (LIS) educators have a responsibility to prepare their graduates for the challenging world of work. Programmes of study for future information professionals differ in content across the world but most contain a module in research methods. The aim of this paper is to review the teaching of research methods at postgraduate level in the departments of Information Science in the United Kingdom to determine current and best practice. There are 17 institutions[1] that teach professionally accredited Information Science related courses at postgraduate level and each provide research methods teaching as preparation for the dissertation

[1] Two of these institutions are currently withdrawing their PG courses in Information Studies/Management

component and future employment. The methods of teaching, depth and coverage vary considerably and now is an opportune time to review practices.

The last few years has seen many changes. Departments have been diversifying away from purely library and information studies. This has attracted students from a wider range of backgrounds, having a mix of different first degrees, different experiences of research methods training and different levels of IT skills. There has also been a rapid increase in the number of overseas students. At the same time, the use of virtual learning environments and other technologies has increased, and there has been changes, in some departments, towards short fat modules taught in one, two or three weeks as opposed the long thin modules taught over a much longer period of time. Semesterisation has also resulted in the dissertation component of some postgraduate programmes being downgraded in terms of time spent on research and word length. All these factors may impinge on the way research methods should be taught. Are we meeting this challenge?

## Methodology

The starting point for the investigation was the CILIP website[2].CILIP, The Chartered Institute of Library and Information Professionals, "is the leading professional body for librarians, information specialists and knowledge managers, with up to 23,000 members working in all sectors, including business and industry, science and technology, further and higher education, schools, local and central government, the health service, the voluntary sector, national and public libraries" As part of its remit, CILIP accredits undergraduate and postgraduate library and information courses in England, Wales and Scotland. The accreditation process involves assessing the relevance of the course to current and developing practice in librarianship and information science. While CILIP does not stipulate precise requirements for course content, they do require students to be taught "appropriate knowledge and skills to enable them to enter the profession" and to have undertaken a substantial individual piece of work in the form of a project or dissertation. Checklists are provided to test compliance and under the "Management and Transferable Skills" section evidence is required that "principles and techniques associated with business and institutional management, together with transferable skills of literacy and numeracy" is taught. Listed under this is statistical analysis, research methods, and project management. Hence, all the postgraduate courses accredited by CILIP have a research methods and a dissertation component.

The courses, or programmes, as they are known in some institutions, that have been accreditated by CILIP are listed in Table 1. It should be noted, however, that two institutions, University of Central England in Birmingham, and Queen Margaret University College in Edinburgh will not be offering their courses from 2005.

Table 1: PG CILIP accredited courses

| | |
|---|---|
| **Aberdeen:** | Postgraduate Diploma/MSc Electronic Information Management |
| *Robert Gordon University* | Postgraduate Diploma/MSc Information Analysis |
| | Postgraduate Diploma/MSc Information & Library Studies |

[2] http://www.cilip.org/

| | |
|---|---|
| | Postgraduate Diploma/MSc Information Management |
| **Aberystwyth:** | MSc Econ / PG Dip Information & Library Studies. |
| *University of Wales* | MSc Econ / PG Dip Information Management |
| | MSc Econ / PG Dip Management of Libraries and Information Services |
| | MSc Econ / PG Dip Health Information Management |
| | MSc Econ Information Systems |
| | MSc Econ / PG Dip Records Management |
| **Birmingham:** | Postgraduate Diploma/MSc Health Information Management. |
| *University of Central England* | Postgraduate Diploma/MSc Health Information Management |
| | Postgraduate Diploma/MSc Digital Asset Management |
| **Brighton:** | MA Information Studies |
| *University of Brighton* | MA Information Management |
| **Bristol:** | MSc Information & Library Management |
| *University of West England* | |
| **Edinburgh:** | MSc in Information Management |
| *Queen Margaret* | |
| *University College* | |
| **Glasgow:** | Postgraduate Diploma/MSc Information and Library Studies |
| *Stathclyde University* | |
| **Leeds:** | Postgraduate Diploma / MSc Information Studies |
| *Leeds Metropolitan University* | |
| **Liverpool:** | Postgraduate Diploma/MA Information and Library Management |
| *Liverpool John Moores* | |
| **London:** | |
| *City University* | Postgraduate Diploma/MSc Information Science |
| | Postgraduate Diploma/MSc Information Systems & Technology |
| | Postgraduate Diploma/MA/MSc Library & Information Studies |
| | MA/MSc in Information Management in the Cultural Sector |
| *University College London* | Postgraduate Diploma/MA Library & Information Studies |
| | MSc Information Science. Post-experience |
| | MA Electronic Communication & Publishing |
| *London Metropolitan* | MA Information Services Management |
| *Thames Valley* | MA Information Management (Library and Information Services Pathway). |
| **Loughborough:** | MA/MSc Information and Library Management |
| *Loughborough University* | MSc Information and Knowledge Management |
| | MSc Electronic Publishing |
| **Manchester:** | MA / PG Dip Library and Information Management |
| *Manchester Metropolitan* | MSc / PG Dip Information Management. |

| | |
|---|---|
| **Newcastle:** | MA/MSc Library Management. |
| *Northumbria University* | MSc Records Management. |
| | MA/MSc Information Studies. Post-experience course. |
| | MA/MSc International Information Studies. Post-experience course. |
| | MSc Web Information Management. |
| | |
| **Sheffield:** | MA Librarianship. |
| *Sheffield University* | MSc Information Management. |
| | MA Library & Information Management. Post-experience course. |
| | MSc Information Systems. |
| | MSc Chemoinformatics. |
| | MSc Health Informatics. |

Web links to the above institutions are provided on the CILIP website. Initially, the institutional websites were scanned to identify material relating to research methods teaching and dissertation requirements. Where possible, e-copies of module descriptions, coursework requirements and reading lists (to both printed and electronic sources) were procured. This was supplemented by emails and telephone interviews with all but two of the main tutors responsible for research methods teaching on the CILIP accredited PG courses. The data were analysed to answer questions such as: What is taught? How much contact and study time do departments allocate to research methods teaching? What type of coursework is expected? Where used, are virtual learning environments and discussion boards and lists effective? What innovative techniques are being used to teach Research Methods? What are the key texts/electronic sources that are being recommended to students? Has teaching of Research Methods changed over the last five years and if so, why have the changes been made? What is the balance of quantitative versus qualitative methods taught? What software is being used?
The rest of the paper describes the findings of this research.

## Structure of Research Methods modules

As expected, all the CILIP accredited courses provide Research Methods modules. A variety of names are used, reflecting different emphasises (see Table 2) but, by far the most common, is for the module to be called simply Research Methods. In general, Research Methods modules are taught generically across all the CILIP accredited courses offered by a particular institution. The exceptions are where courses are specifically geared towards a particular subject specialism such as health or records management or where, as in one instance, the course is regarded as a pre-requisite for PhD research training. The generic offering in these cases is therefore tailored to meet these different needs.

Table 2: Names of Research Methods modules

| | |
|---|---|
| Research Methods | 15 |
| Research methods and Dissertation Preparation | 5 |
| Research, evaluation and communication skills | 4 |
| Research Methodology in ILS | 3 |
| Research methods and integrative study | 2 |
| Research and evaluation methods information systems | 1 |
| Research skills and personal development | 1 |
| Principles of research design | 1 |
| Data collection and analysis | 1 |
| Research methods in information & communication | 1 |
| Introduction to systems and social research | 1 |
| Practical systems and social research | 1 |
| Research philosophy and methods | 1 |
| Research Planning | 1 |
| Applied information research | 1 |
| Research methods for Records Management | 1 |
| Applied research in information studies | 1 |
| Research methods and IM&T | 1 |

Most institutions require students to take one research methods module generally weighted between 10 and 20 credits. However, in one institution the research methods module is only allocated 5 credits and in another, no separate credits are given. In this case, the research methods unit is combined with the dissertation module which is worth 60 credits. This has been omitted from Table 3 which provides an indication of the amount of research methods teaching on the programmes being undertaken and the weighting given to this. Of course, it has to be recognised that all the institutions also provide individualised research training by means of a dissertation module, which is generally weighted 60 credits, a third of all credits for a programme. Students spend approximately three and a half months dedicated time on their dissertations. Word lengths for dissertations vary between 10,000 – 20,000 words, with 15,000 – 20,000 words being the most common. In one institution, the dissertation is worth only 45 credits for full-time students, however, the research methods module is assigned 15 credits, making 60 in total.

Table 3: Credit rating of Research Methods modules

| Credit rating | % of taught course component | No of courses |
|---|---|---|
| 5 | 4 | 1 |
| 10 | 8 | 9 |
| 15 | 13 | 17 |
| 20 | 17 | 8 |
| 30 | 25 | 1 |

Most institutions expect students to spend about 100 hours in either tutor directed or in private study per each 10 credit module. The mode of teaching varies across the institutions. Some of the institutions provide a distance learning option but most

require attendance for class based learning. Generally, the class contact time provided for the various modules are as follows:

| | |
|---|---|
| 10 credit modules | between 22 and 30 hours; |
| 15 credit modules | between 22 and 36 hours; |
| 20 credit modules | between 30 and 60 hours. |

The contact time comprises a mix of lectures, tutorials, seminars, online discussion and practical sessions. While lectures are considered important, for most courses the ratio between lectures and other teaching methods is about 1:2. Several of the tutors, during the telephone interviews said that they were deliberately moving away from lecture based learning. As one said *" We consistently got feedback from students – do we really have to be lectured at to learn – so we now only give a couple of lectures and provide much of our material online and require input through online discussion".* Another tutor reinforced this negative image students have of lectures – *"They all sit there, with glazed looks and do not take anything in. It is only by "doing" that they learn, so we provide more and more tutorials and seminars for our students."* However, one tutor pointed out that, although they would like to shift the balance even more towards practical sessions and group work, the large cohorts made this difficult.

Some of the Research Methods modules are taught across both semesters while others are taught in one semester only. Picking the right semester to teach Research Methods is difficult. A one tutor said "*We started by teaching it in the first semester but by the time the dissertation came they had forgotten what they had learnt. Then we switched to the second semester but that didn't give them enough time to prepare their research so now we teach in a long thin mode across two semesters which works best".* Two institutions teach Research Methods intensively over a short period of time, one over a week and one two full days a week for three weeks before the start of semester two.

## What is taught on Research Methods modules?

All of the Research Modules taught aim to provide a basic practical introduction to research principles, methods and practices in preparation for students carrying out their dissertations. Many extend this to providing students with the necessary research skills for professional purposes beyond their course. A flavour of the topics taught is listed below:

- Introduction to the research process, what is research and how it is undertaken;
- Research principles and design;
- Identifying research issues and developing research questions;
- Critiquing research;
- Literature searching, reviewing and citation;
- Research planning: writing project proposals, time management, costing;
- Qualitative methods: use of primary and secondary documentary sources. Interviewing, focus groups, case studies, diaries, observation, evaluation, Delphi method, discourse analysis, visual analysis;

- Quantitative methods: surveys and design of questionnaires, analysis of records (bibliometrics, system logs, content analysis) and experimentation;
- Sampling;
- Analysis of qualitative data;
- Analysis of quantitative data;
- Presentation of data;
- Dissertation and report writing;
- Research ethics.

The mix of topics taught on the courses vary, as does the emphasis on qualitative or quantitative techniques. At one end of the spectrum, the emphasis is almost entirely on qualitative research with only cursory examination of frequencies and the presentation of data in tabular and graphical form, while at the other end, the emphasis is in the ratio of 1:2 in benefit of quantitative methods. Coverage of statistical techniques, such as the student t test, Chi square test, correlation and regression and multivariate analysis is taught as core on the CILIP accredited courses in five institutions and a further institution offers an optional day workshop for students wanting to learn about SPSS. There seems to be a definite divide as to whether it is necessary to teach quantitative data analysis. As one tutor puts it *"Our students hate anything to do with numbers and avoid them at all costs, and, since we get so few students interested in quantitative analysis, we concentrate on qualitative techniques"* and another said "*our research module is aimed at information professionals/librarians so the emphasis is on real world/ action research of primarily qualitative data …….This leaves little room for a quantitative analysis that goes beyond the testing of simple correlations so only presentation of data in tables and charts is covered"*. On the other hand, several other tutors sided with the view that *"While students do not like numbers, an understanding of quantitative methods is essential, even if they themselves are not going to use them in their own immediate research they may need to critically evaluate other people's research before applying them in the workplace.*" This corroborates Liesbscher's (1998)[3] view that teaching both quantitative and qualitative methods is essential without which, he argues, graduates will be "*inadequately prepared to do research or to be critical consumers of the research of others*".

## Assessment

All the institutions, except one where the Research Methods forms one unit of the dissertation component as mentioned previously, require some form of assessment for their research modules. By far the most common type of assessment is for a research proposal of between 2500 – 3000 words, either as part requirement or combined with another form of assessment. Other approaches to assessment include (in order of popularity) :

- Critical appraisal of published research (individual and also group-based);
- Critical appraisal of a previous dissertation (a few institutions provide an e-library of previous dissertations);
- Presentation/viva of research topic;

[3] Liesbscher, P. (1998) Quantity with quality? Teaching quantitative and qualitative methods in an LIS Master's Program, Library Trends, 46(4), Spring , 668-680

- Literature review and reading plan in preparation for research proposal;
- Quantitative data analysis exercise, usually involving SPSS;
- Qualitative data analysis exercise, involving nVivo;
- Questionnaire construction on general topics such as online shopping, security issues, internet content etc;
- Essay on legal and ethical issues in research.

## Software packages used in teaching

Nine of the 15 institutions use SPSS in their teaching, although not all provided instruction to the whole cohorts. In some cases, SPSS tuition is only provided as an option by means of day tutorials or individually for those students interested in analysing quantitative data or needing to do so for their research. Most tutors using SPSS agreed, however, that it was important for students to have an understanding of the underlying theory and application of the various processes and tests, before using the software, which meant, for most, doing examples by hand first. Two institutions that did not use any software for data analysis said that Excel was taught elsewhere on the course.

Eight institutions also provide access to software enabling analysis of qualitative data such as ATLAS.ti[4], NUD*IST[5] and nVivo[6], and (in order of popularity). However, several of these give either individual instruction, on a "need to know basis" or provide a demonstration to the whole cohort. As one tutor said *"this software is so expensive that we can not provide it on all our machines, when teaching they have to double up, which isn't satisfactory"*. Only three institutions teach the use of referencing software such as RefWorks or Endnote and only one gives tuition in using questionnaire creation software packages. They use an old version of Pinpoint, which although adequate, leaves a lot to be desired.

One tutor, who did not use any conventional software for teaching research methods encouraged students "*to use FURL as a general tool (http://www.furl.net/index.jsp ) for creating their own web archive in Information Research areas they are interested in - to foster skills of conceptualisation and knowledge/sources construction"*.

## Use of Virtual Learning Environments

Eight of the institutions use Virtual Learning Environments for teaching Research Methods such as WebCT or Blackboard. In general, these are used for access to other materials or web sites, the housing of lecture notes, reading lists, discussion notes and so on. Some of these are in the public domain such as the one provided at http://www.ilit.org (Applied Information Research option), but most are password protected.

A similar number also make use of discussion boards, although one institution uses them for distance learning students only. They are used for a number of purposes, for example, for advice and support for dissertation work, the posting of student critiques

[4] http://www.atlasti.com/
[5] Now called N6, details: http://www.qsr.com.au/
[6] http://www.qsr.com.au/

of relevant research papers and feedback of these critiques by other students, online group discussion of various topics posted by tutors, piloting various topic ideas for dissertations by students, and posting of study material and discussion topics before coming on an intensive one week course on research methods. For the most part, those tutors who made use of discussion boards were enthusiastic about them. The following typifies the response *"they work really well and the students learn a lot from them"*. Most of the discussion boards in use for research methods have some tutor input but some are entirely student monitored and driven.

The use of JISC mailing lists for research purposes is promoted in two institutions. As one tutor said " *Evidence of use of appropriate lists is assessed in both the presentation and the written proposal. One of the assessment criteria is effective dissemination which requires the use of different media including discussion lists, weblogs etc. The interesting thing is that before the module the majority of the students are unaware of the benefit of using online discussion groups in research. By the end of the module they become enthusiastic users/ contributors who see online discussion lists as a main source of data that can be used to inform their research"*

## Innovative Techniques – best practice

Generally the most successful aspects of the Research Methods teaching was considered to be getting students to apply the knowledge they had learnt in seminars and practicals. Getting students to teach each other and enabling them to critique each other's research proposals online was thought by one tutor to be particularly innovative and helpful. Another thought that getting the students to present their research ideas in the form of a viva was really useful and inspired students to network among themselves. The same tutor also thought their "day schools" were much appreciated by students. These were optional workshops in the summer where students could choose to learn more about SPSS, NUDIST or search engines. One tutor had particular success with "*concept mapping to structure the literature review to address the knowledge construction process using diagrammatic representations*".

Online multi-choice question assessment had been introduced at one institution, which was regarded as innovative. The tutor involved said that this had been extremely difficult because of the subjective approaches to research, and it had been time-consuming and difficult to maintain. Some students found themselves disadvantaged especially those with poor IT skills and some international students who had poor English. As a result the tests are now used for summative assessment only. Unfortunately, just a few students now opt to take them.

Another institution requires students to undertake a work placement as part of their programme of study and they had the novel idea of tying in the assessment with this by requiring students to write a proposal for research expected to be undertaken while working.

## Use of multi-media

Little use of multi-media was made in the teaching of Research Methods. One tutor used a comedy clip on how not to do focus groups, while another used "Oh what a

lovely report[7]" for report writing. In-house videos were used by some institutions; one for the teaching of quantitative methods and another for teaching how to do observational research. The latter involves the class watching a video of an event and having to use different methods of recording what happens. The data are then analysed and the different recording methods are evaluated for effectiveness. A further tutor is intending making an in-house video of an interview role play exercise.

## Changes in Research Methods teaching

Most of the tutors said that their research methods teaching had changed during the last five years. There appears to be a shift away from theoretical topics and a heavy reliance on lectures towards more practical "hands-on", student centred learning approaches. As one tutor said there is *"more stress on them doing it, less lecturing, more exercises and more case studies"*. More use is also made of Virtual Learning Environments and discussion boards. While some institutions have increased the amount of data analysis and presentation given to students, others have decreased it, preferring instead to concentrate on qualitative methods.

The reasons given for change included responding to the demands of students, for example, fewer lectures; change of staff teaching the module; the introduction of virtual learning environments; higher expectation of students; higher number of part-time students resulting in the need to be more flexible; and the influence of other tutors and methods taught elsewhere. The changes to the courses did not appear to result from semesterisation or a change in student cohorts. Tutors did not perceive the abilities of students to be much different from five years ago, although several mentioned a higher proportion of overseas students on the programmes. The latter did not appear to affect the way Research Methods was taught.

A few institutions had plans to modify their research methods teaching. One wanted to include more critical appraisal of research while another was thinking of introducing more reflective practice techniques. A gap on one course was thought to be the lack of web based questionnaire teaching and another tutor saw the lack of quantitative analysis on her Research Methods module as a weakness, which she intended to remedy. The only other comment was about the need for new software: "*I would like to introduce software for concept mapping and content analysis (eg nVivo) but it depends very much on resources available (I am told by my HoD that there will be a 10% cut in next year's dept budget so things are looking rather glum at present)"*

## Recommended Reading

Most tutors provide a long list of recommended text books and other resources for students. However, a few institutions do have a set text for their module, which is then augmented by other material. The most popular set text is **Denscome, M**. (2003) The g*ood research guide for small scale social research projects*, 2nd edition, Buckingham: Open University Press. Other texts frequently recommended are: (in order of popularity):

[7] http://www.trainingworld.co.uk/master.htm?http://www.trainingworld.co.uk/video152.htm

- **Robson, C**. (2002) : Real world research, 2nd edition, Oxford: Blackwell.
- **Bell, J.** (1999) *Doing your research project*, 3rd edition, Buckingham: Open University press.
- **Oppenheim, A. N**. (1992) *Questionnaire design, interviewing and attitude measurement*, 2nd edition, London: Pinter.
- **Moore, N.** (2000) *How to do research*, 3rd ed., London: The Library Association.
- **Gorman, G. E. and Clayton, P**. (1997) *Qualitative research for the information professional*. London: The Library Association.
- **Bryman, A**. (2004) *Social research methods*, 2nd edition, Oxford: Oxford University press.
- **Blaxter, C.H. & Tight, M.** (2003): *How to research,* 2nd edition, Buckingham: Open University Press.
- **Powell, R.R.** (1997) *Basic research methods for librarians*, 3rd edition, London: Ablex Publishing.
- **Slater, M**. (ed), (1990) *Research methods in library and information studies*, London: The Library Association.
- **Babbie, E**. (2000) *The practice of social research,* Belmont, Calif: Wadsworth.
- **Hart, C.** (1998) *Doing a literature review: releasing the social science imagination*, London: SAGE.
- **Gash, S.** (2000) *Effective literature searching for research*, 2nd edition, Gower.
- **Stephen, P. and Hornby, S**. (1997) *Simple statistics for library and information professionals*, 2nd edition, London: The Library Association.


Finding out what websites are recommended to students for research methods training was more difficult. However, the following do appear to be popular:

- Stephenson, S. *Research methods resources on the web* (http://www.slais.ubc.ca/resources/research_methods/index.htm)
- Wilson, T. *Electronic Resources for Information Research Methods* (http://informationr.net/rm/)
- IS world website (http://www.isworld.org)
- BUBL list of research methods resources http://bubl.ac.uk/link/r/researchmethods.htm
- List of research methods links from Glasgow Caledonian University http://oassis.gcal.ac.uk/rms/crml/crml.html
  Social Research Update http://www.soc.surrey.ac.uk/sru

## Conclusions

Reviewing Research Methods teaching on CILIP accredited postgraduate courses has been a rewarding experience. Many tutors were willing to share their experiences and it is obvious from the various module outlines sent, and the subsequent discussions, that there are many dedicated staff out there preparing the next generation of information professionals in the UK.

Research Methods modules have different weighting, are taught in various formats, short and fat, long and thin, and cover a variety of topics. Some tutors place more emphasis on qualitative techniques than qualitative methods, while for others it is the other way around. However, it appears that most Research Methods have evolved from the mostly theoretical modules they once were. Now there is almost unilateral agreement about the need to stress the practical side of doing research and of engaging students in student centred learning practices. For most, this has resulted in less lecturing and more workshops, seminars and practical sessions. It also has been facilitated by increased use of Virtual Learning Environments and Discussion Boards. Surprisingly, changes in respect of semesterisation and differences in student abilities and ethnic make-up have had little effect on the way Research Methods are taught.

Some innovative practices have been uncovered and it is hoped that tutors can benefit from the sharing of these. Information professionals have a reputation of being able to meet new challenges, so there is no doubt that Research Methods teaching will continue to change and adapt as the need arises. As one tutor said *"My personal opinion is that research training encompasses many skills and a fair amount of knowledge that needs to be integrated into other modules. Research training cannot be an add-on"*. Will this mean that the next stage of development will focus on the integration of research methods teaching throughout the curriculum? We will have to wait and see!

**Acknowledgements**
*I would like to thank all tutors of the Research Methods modules in the various institutions that gave me their time and support while writing this paper. I would also like to thank Sarah Malone for undertaking some initial preparatory web searching.*