This chapter provides an introduction to this book and also to the world of research and research students. The book is written as a general guide and I suggest that you read this chapter and then skim through the rest of the book. You may then choose when to read individual chapters in depth. They are designed to be read and worked through in any order.

The aim of this book is to provide library and information workers in the higher education sector with an understanding of the research process and to help them support research students. Library and information workers in higher education institutions are likely to provide well established support services for undergraduate and postgraduate students on taught programmes. In contrast, support services for research students are often not so well established as those that are focused on students on taught programmes, and in some cases may be relatively novel, e.g. as a result of some higher education institutions developing and expanding their research student base. The support needs of research students have recently risen up the academic agenda and this is linked to a number of factors.

The traditional taught doctorate, the PhD, has been joined by a range of doctoral qualifications including the ‘professional’ doctorate such as the Doctor in Business Administration (DBA), the Doctorate in Education (EdD) and psychology (DClinPsy or DEdPsy), and this
diversification has led to a more diverse student body, which now includes senior professional practitioners. Chiang (2003) identified that the learning needs of doctoral research students have undergone rapid change and development. He observed that doctoral education has shifted its focus from an experience enabling entry into an academic community and career, to a qualification for entry into the wider labour market. This puts emphasis on doctoral students gaining a wider set of employability skills. The issue of employability skills is explored in Chapter 5.

While the library and information profession is a graduate one, with many individuals having a taught Master’s degree, a relatively small number of workers have a research degree. This means that most will not have experienced and internalized the distinct learning processes involved in achieving a doctorate. This book provides guidance on the research process and on research degrees, and it outlines the ways in which library and information workers can support the specialist needs of these students.

My motivation for writing this book came as a result of my experiences as a part-time research student working towards a Doctorate in Education in a UK university. This was an extremely positive experience, and discussions with my fellow students during residential weekend schools led me to appreciate both the diversity of this group of students and their greatly differing previous educational backgrounds and experiences. My student cohort included international and home students; all of us worked in education, ranging from primary to higher education, with some in specialist areas, e.g. speech therapy or special education. Those of us who worked in higher education were familiar with the support structures and the resources available to us. This sometimes meant that we used the library and information resources of our employing university rather than of the one where we had enrolled as students. In contrast, other students had more than 30 years’ professional work experience since studying for their first degree and had little experience of modern academic libraries. They soon appreciated the massive
changes in the information landscape and the importance of digital resources. Some students had access to administrative support, including researchers who would carry out initial literature searches for them. Most of us had to rely on our own information skills and develop them by engaging with the range of learning opportunities offered by the university’s library and information staff.

My research for this book involved the following activities:

- a literature search
- discussions with current doctorate students and their supervisors
- discussions with graduates who had successfully completed their doctorates
- discussions with library and information professionals who attended my workshops ‘Supporting research students’ held at the Chartered Institution of Library and Information Professionals (CILIP)
- discussions with colleagues at the University of Hull and the University of Sheffield who were involved in the development of virtual graduate schools.

**Structure of this book**

This chapter provides an introduction to the book and also to the world of research and research students. This includes a brief overview of different types of doctorates. It concludes with a brief discussion about supporting research students.

The subject of research and the research process is vast, and, in Chapter 2, I provide an introduction to the main milestones and the terminology used in the field. The aim of the chapter is to provide library and information workers with a general understanding of research and its language. It considers different styles of research, from positivist to interpretivist research, and also different research methods. Due to the vast scope of the subject, I have selected
common research approaches, and methods, and so this is an indicative rather than an exhaustive introduction to research.

In Chapters 3 and 4, I consider the research process as experienced by a research student. Although every research student’s experience is unique, in these chapters I attempt to provide an overview of the research journey and discuss typical milestones such as the research proposal, upgrade seminar, writing up and the viva (oral examination). In Chapter 3, I outline the role of the academic supervisor and also explore the initial experiences of a research student from application to university through to the design of the research process. I cover topics such as induction, working with a supervisor and getting started. Chapter 4 provides an overview of the research process, which begins with the acceptance of the research proposal and continues through to completion and obtaining a doctorate. The chapter covers topics such as the literature review, methodology, fieldwork, writing up, the viva voce examination, amendments and completing the doctorate.

Research students need a range of skills to enable them to successfully complete their individual research and obtain a doctorate. These include information skills. In addition, they need to develop a range of skills that will enable them to obtain employment, whether as academics, researchers or within a particular profession. Research students, particularly those taking part in a professional doctorate, may also need to develop their employability skills, e.g. to enable them to move from a management to a strategic role. Chapter 5 considers the skills required by research students and, in particular, information skills.

Many academic library and information workers are involved in supporting research students, and this is the focus of Chapter 6. The chapter explores different approaches to supporting research students, including induction, workshops, one-to-one support and electronic support. Approaches for targeting and communicating with research students are also considered here.

Chapter 7 considers the rise of the virtual graduate school. The
concept for the virtual graduate school is an online environment where research students can come together to access a range of resources, and also to meet and discuss common issues with each other and, perhaps, with their supervisors. Two different approaches to developing a virtual graduate school are explored in some depth in this chapter.

An important aspect of becoming a researcher and completing a doctorate is joining a research community. Many doctoral students embark on a journey in their doctoral process which enables them to engage in a specialist research community that is often global in nature. These communities frequently cluster around a small number of international experts and come together at conferences and communicate with each other via electronic means. Chapter 8 provides an introduction to research communities in the context of supporting doctoral students.

Finally, Chapter 9 considers professional development for library and information workers in the support of research students. Different approaches to professional development are considered, and these include support offered by professional organizations and networks, provision offered by higher education institutions, and the role of research degrees.

**Introduction to the world of research and research students**

Research and knowledge creation are a central part of university life. Individual researchers and also research teams engage in systematic investigations using research approaches and methods relevant to their specific discipline. These activities may be funded by external bodies, such as the research councils or large organizations, or they may be funded by the university. The outputs of research are disseminated via conference papers (to academic peers) and research reports (aimed at funding bodies), and much research will be published in peer reviewed journals. These initial outputs are often
written in an academic and very technical language, which makes them not readily accessible to a wider audience. A wider form of dissemination may occur through articles in the professional, as well as through monographs and textbooks.

Following the above summary, the world of research will now be explored in some more detail, starting with researchers, who may be students carrying out a research degree and working under the supervision of an experienced researcher. Researchers also include individuals who have completed their doctoral degrees and have obtained research posts (often referred to as ‘post-docs’); people who are employed on temporary research posts which may be funded by external grants; and academic staff, including lecturers, senior or principal lecturers, readers and professors. There is a very large group of contract research staff in the UK. Academic staff are likely to be performing their research activities as part of their workload, which will include teaching and academic administration duties. Research teams are likely to be led by a senior academic, often a professor, and teams may vary in size from one or two members up to 12 or 16.

Research activities are often funded by external organizations, and in the UK the main bodies include the research councils:

- Arts and Humanities Research Council (AHRC)
- Biotechnology and Biological Sciences Research Council (BBSRC)
- Engineering and Physical Science Research Council (EPSRC)
- Economic and Social Research Council (ESRC)
- Medical Research Council (MRC)
- Natural Environment Research Council (NERC).

In addition, funding is available from a range of bodies, including:

- the Association of Medical Research Charities
- the Leverhulme Trust
- the Wellcome Trust.
Private companies and voluntary organizations also fund research.

Competition for funds is extremely strong and the bidding process involves producing a research proposal that includes evidence that the research ideas are located within the literature of the discipline and that the research activity will lead to the creation of new knowledge. Research teams are likely to work intensively on producing a high quality bid to a strict deadline, and this frequently means late-night working without any assurance that the bid will be successful. Bids need to demonstrate excellence or innovation, and they need to be written so that they meet the aims and objectives of the funding body. The selection process is based on peer review. If the bid is successful, then the principal investigator (the director of the research project) will have to draw together a research team and lead the project so that it meets the research outcomes.

Research teams produce a variety of outputs, including:

- conference papers (which may or may not be peer reviewed)
- reports aimed at the funding organization or other stakeholders in the research process
- academic journal articles in peer reviewed journals
- articles in the professional literature and high quality newspapers
- presentations at professional conferences
- press releases for academic and funding body websites.

In addition, as the new knowledge becomes accepted within its discipline, it may be included in a student textbook or a monograph written by a specialist in that field.

The concept of ‘peer review’ is important in the world of academic research. Academic journal articles and also bids for funds are commonly reviewed by other academics who are experts in the field, and the process is normally anonymous. This means that in order for an article to be published or for a bid to be approved for funding, it must be reviewed and approved by other academics in the same field.
This helps to maintain the quality and integrity of the research process.

**The production and dissemination of knowledge**

This section outlines the processes involved in both creating and disseminating knowledge. One of the main functions of universities is to create and disseminate new knowledge through research. Academics are likely to be involved in research activities as well as their teaching activities. Many lecturers work in research teams with colleagues from their own university, research institutions or from higher education institutions from around the world. Sometimes these teams will include doctoral students working on their theses. The research may be funded by the university, a government body, a private company or a sponsor.

Figure 1.1 shows some of the characteristics of a typical research process. Teams will normally carry out research, write up and then discuss their initial findings with colleagues. This often happens at conferences where an individual or a small team presents their findings for discussion and debate among members of the research community interested in that particular topic or theme. This communication with peers is an important characteristic of the research process and helps to ensure that the research meets the high standards required by the international research community. Once a research team has obtained feedback on its initial findings or ideas, it will perhaps carry out more research and/or edit and amend its work to take on board the feedback. Finally, the research will be submitted for publication, e.g. as a formal report for the funder or as an article in an academic journal.

Journal articles are normally peer reviewed before they are published. The journal editor sends the article to academic experts in the particular field who will assess it and ensure that the researcher/team has produced a high quality piece of research. They will check the research methods and the knowledge claims in the
article. Once the editor is satisfied by the peer review process that the article is well written and makes an original contribution to knowledge in the specific field, it will be accepted for publication. This process enables knowledge developed as part of the research process to be disseminated to the wider academic community and ensures that journal articles are of a high quality. It also highlights the importance of journal articles as a means of disseminating original research and new ideas.

The last stage in the knowledge dissemination process occurs when the new knowledge is summarized and presented in forms that are likely to be used by practitioners. Academic writing in journal articles is often rather abstract and difficult to read. Consequently,
the main findings that are reported in such articles are often rewritten in a more accessible manner and printed as:

- articles in professional magazines, e.g. Personnel Today, The Economist, Accountancy Age, Nursing Today
- articles in good quality newspapers, e.g. the Financial Times
- summaries in textbooks.

The knowledge process is summarized in Figure 1.2. It is interesting to note that although a relatively small number of people may read the original academic article, large numbers may read a simplified version in types of publication such as those listed above. Research students are expected to read the original academic articles, though they may find that textbooks and summaries in the professional press provide a useful overview to the subject (see Chapter 5).
Types of research degree

Research students are not a homogeneous group. Indeed, they are extremely diverse and will include full- and part-time students, students working as part of a research team or independently, and students based on campus and those who are researching from a distance. There are many different kinds of research degree.

The purpose of this section is to provide a rough guide to the different types of research degree. If you are reading this section and relating my overview to your own experiences in your own higher education institution, then my advice is to find out more about how research degrees are organized within your institution.

The traditional PhD involves independent research that is supervised by an academic supervisor and it is examined on the basis of a written thesis of typically 80,000 words and a *viva voce* (oral) examination. In the UK the length of study is typically three years full time, and students commonly take up to an additional year to write up and present their findings. It is now common for PhD students to take a series of taught modules in the first year or two of their studies. These modules, which provide credit towards the PhD, often focus on research methods and on specific research tools that the student will require later in their studies. In some universities students will be registered first for a Master in Research (MRes) or Master in Philosophy (MPhil), and once their progress towards the PhD has been assured, e.g. by an upgrading seminar or paper, then they are permitted to proceed to the doctorate. MPhil degrees may be awarded following a period of research rather than a course of study. In contrast, the MRes degree is a one-year full-time course that enables students to develop their knowledge and skills in research practices. While the MRes is sometimes used as the starting point for a PhD, another approach to the PhD is by publication, and this route is commonly taken by academics who have produced a series of quality academic papers, and possibly books. They may be asked to provide a paper that summarizes their research and its contribution to their field, and they may also be asked to attend a *viva voce* examination.
Professional and practice doctorates

Professional doctorates, such as the EdD (Doctorate in Education), DBA (Doctorate in Business Administration) or DInfSc (Doctorate in Information Science) were designed to enable practitioners in the workplace to obtain a doctorate through a series of taught modules and a thesis. As with the taught element of other programmes, these modules must be passed and they provide credit towards the degree. The thesis is an individual piece of research which is typically about 50,000 words long and likely to be work based.

My experience of gaining a professional doctorate in education through part-time study is fairly typical, as it involved two stages. Stage 1 was the taught element and I attended six residential weekends over a two-year period. Each weekend focused on a theme and the accompanying assessment activity was to write a 6000-word essay on a topic relevant to the theme and my own professional practice. Stage 2 involved another two-year period during which we worked individually on our research projects and the six residential weekends provided an opportunity for sharing of knowledge and experiences, supervision sessions and library work. I then took almost a year to write up my thesis and present it as a bound document and in the oral examination.

The advantages of studying for a professional doctorate include: the possibility of carrying out research and gaining a doctorate while still in full-time employment; the structured nature of the programme, i.e. two years’ taught element and two years’ individual research; and the benefits of working as part of a supportive professional network of like-minded individuals. The challenges include the difficulties of balancing work, home and research activities. Also, some people consider the traditional PhD as the ‘only’ quality route to gaining a doctorate.

Another form of research degree is the practice-based doctorate and this may include a variety of outputs, including a novel (for creative writing), a portfolio of work (for art and design) or performance pieces (for drama, theatre studies or music). These may
be accompanied by a written element which includes a description of
the context and critique of or reflection on the work(s). Examination
may be on the basis of the written elements or performance, as well
as an oral examination.

Readers are advised to find out about the different doctoral
programmes offered by their higher education institutions and to
obtain general information about them. This will help to provide a
starting point for supporting research students.

**Stakeholders in research degrees**

Park (2007) identifies the stakeholders in research degrees as the
students and their supervisors, academic departments and institu-
tions, the actual disciplines, funding bodies and employers, and the
nation as a whole. The key stakeholders are the students, who are
likely to invest many years of their lives in working towards their
doctorate. For many students, this involves leaving their home country
and living and studying abroad. It may involve a house move for their
family, and, for all research students, family and friends are frequently
valuable supporters of the research endeavour. Students’ motivations
for gaining a doctorate will vary, and may include love of their subject,
gaining an internationally recognized qualification, gaining the ‘top’
qualification in the world of universities, or gaining the qualification
required for an academic career. For many students, their motivations
may well be a mixture of reasons.

Academic supervisors choose to be involved in the supervision
process for a number of different reasons, including the pleasure of
facilitating a student’s research and entry into academic life. This is
rather like supporting an apprentice. Research supervisors may also
co-author publications with their students, so enhancing their own
publication records. The experience of supervision is also a valuable
addition to an academic’s *curriculum vitae*.

University departments welcome doctoral students, as they help
to demonstrate that their departments are active in research, and
they also provide a valuable income. Doctoral students also contribute to research centres and add to the academic life of departments. Many such research students are also involved in learning and teaching activities, e.g. holding seminars and tutorials, and running laboratory-based sessions or workshops. Individual universities and departments will have their own policies about the role doctoral students may take in their learning and teaching activities. At an institutional level, doctoral students help to provide credibility to the university’s research agenda, and having research-degree-awarding powers is an indicator of the status and academic credibility of a university (Stauffer, 1990).

Research students work within the context of a discipline, and students often experience entry to the discipline and an academic career through the doctoral process as a crucial part of their doctorate is knowledge creation. This means that they help to maintain the discipline as they join its ranks and they also add to the intellectual life of the discipline through their own intellectual endeavours. In addition, they become the university researchers and academics of the future.

In the UK some research students are funded by bodies such as the Higher Education Funding Council for England (HEFCE) or the Research Councils. These bodies’ support for research students and doctoral programmes helps to sustain the universities of the future by raising up new researchers and academics. In addition, the work of these students helps to create a critical mass in research teams (Park, 2007) and to ensure that there is a sustained output of high quality research that contributes both to university endeavours and to society.

Doctoral graduates have high-level skills that are valued by employers who want employees who offer critical thinking, systematic research skills and the ability to deal with complex subjects. In some countries and sectors a doctoral qualification is a prerequisite for certain types of employment, e.g. in research institutions, in the scientific and medical fields, and in the world of
higher education. Finally, the production of doctoral graduates with high-level skills contributes to the nation’s workforce and help to drive the knowledge economy.

**Contemporary issues regarding supporting research students**

As mentioned earlier, research students are not a homogeneous group of students. They are an extremely diverse group and will include full and part time students, students who work as part of a research team or independently, students who are based on-campus and those who are researching at a distance. They may range in age from their early 20s to their 90s, may be in full- or part-time employment, and may have families and caring responsibilities. Their financial positions will vary, with some students receiving generous sponsorship while others are self-financed. In addition, their previous educational experience will vary, ranging from students who have recently completed an undergraduate degree and have up-to-date skills in handling a wide range of information resources, to those who may not have any experience of using a modern library.

International students make up a significant part of the doctoral student body and, again, their previous educational experience and range of information skills may vary. Some may not have used a modern library with open access to resources; they may not be familiar with classification schemes such as the Dewey Decimal System and may have no experience of using journals (printed or electronic). In contrast, other international students will have high-level information skills and high expectations in terms of library and information resources.

Many research students will not have made extensive use of electronic journals, specialist tools such as citation indexes or interlibrary loans during their undergraduate degrees. Indeed, they may not be aware of the existence of these tools and resources. In
contrast, some research students will have up-to-date knowledge of such information tools and will be highly skilled in carrying out advanced searches.

The extremely diverse nature of research students provides a challenge for library and information workers who support them. In many respects, supporting research students is much more challenging than supporting students on taught programmes, e.g. undergraduate students, where there is likely to be more common ground in terms of information skills. Practical approaches to supporting research students are considered in Chapter 6.

**Summary**

In this chapter, I have provided an introduction to the book, including a brief outline of the contents of each chapter. This was followed by an introduction to the world of research and research students. I provided a summary of the research process and of the subsequent knowledge dissemination and publication process. Then followed an overview of different types of doctorates, including the traditional PhD, the professional doctorate and the practice doctorate. Readers are advised to find out more about the research degrees offered by their institutions. The chapter concluded with a brief discussion of the diversity of research students and the implications for library and information workers.