Postgraduate Researcher Handbook 2017 - 2018

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1. OVERVIEW

1.1 Welcome

Welcome to Cardiff Met's Research Degrees Programme. Cardiff Met aims to support you as much as possible during the course of your studies, and to provide you with opportunities to develop your research and employability skills. Your Director of Studies and supervisors will be important to helping you progress, but ultimately it is up to you to work hard and be organised for the duration of enrolment. Cardiff Met wishes you a smooth passage to a successful result.

1.2 The Status of Postgraduate Researchers at Cardiff Met.

Postgraduate researchers are considered to be students for the purposes of their degree activities, however they have long been considered as academic colleagues by other academics. In recognition of their professional status as researchers Cardiff Met has granted those who are not already members of staff the title of Academic Associate.

Academic Associates are non-contract researchers who are granted the status of members of academic staff with staff privileges including staff email addresses, computer desktop, ID cards and building access. They include visiting scholars as well as postgraduate researchers.

1.3 The Purpose of the Handbook and other documents

This Handbook is made available to all candidates on enrolment and is intended to guide you throughout the period of your research degree programme.

The Handbook is a reference document that includes some information on the rules and regulations pertaining to research at Cardiff Met. It also provides general information and guidance relating to welfare and other difficulties that you may encounter.

You should be aware of 3 other documents that are directly relevant to research degrees. These are (A) The Research Degree Regulations (B) The Code of Practice for Research Degrees and (C) The Supervisor's Handbook.

(A) The regulations

The Regulations are the definitive rules for research degrees which must be complied with. The regulations are regularly updated (usually in minor details), and so the version which is in force when you first enrol may be altered before you are ready to graduate. It is your right to have the regulations in force on first enrolment applied throughout your studies. If a rule changes then it cannot be enforced if it disadvantages you, however you are entitled to ask for a new rule to be applied to you if it is more to your advantage than the rule which was in force when you first enrolled.

The Research Degree Regulations can be found at:

http://www.cardiffmet.ac.uk/registry/academichandbook/Documents/AH1_11_01.pdf

(B) The Code of Practice for Research Degrees.

The Code of Practice for Research Degrees elaborates on the regulatory framework on how research degrees should be managed.   It provides requirements laid down by the university for processes involved in Research Degree study and administration, from admissions to the oral examination, for all staff and students involved in research degrees.

The Code of Practice can be found at

 https://tsr.cardiffmet.ac.uk/units/RES/Pages/Code-of-Practice.aspx

(C) The supervisor's handbook

This is a companion handbook to the Postgraduate Researcher's Handbook, covering part of the same ground, but with additional advice aimed at supervisors.

You are free to consult all this material.

Other documents

The Regulations and Code of Practice form part of the Academic Handbook of Cardiff Metropolitan, which is the definitive administrative manual of the Institute. This can be found on the web-site of the Cardiff Met Academic Registry. It also contains information on the management of other undergraduate and postgraduate programmes.

The Student Handbook is produced by Student Services, and includes information on the general services available to all students at Cardiff Met, such as counselling, advice on housing, finance and studying.

What if the documents seem to give different advice?

Where there appears to be ambiguity between the advice given in the different documents, the Regulations take precedence, and the Code of Practice should be regarded as more authoritative than the postgraduate researcher and supervisor handbooks.

1.4   Improving the Handbook

The information given in this Handbook is correct at the time of publication and the content is intended to cover most of your needs. Any suggestions on how the

Handbook might be improved should be directed to Graduate Studies Officer in Research & Enterprise Services.

1.5   Who to contact for help/advice

Problems can occur for many reasons, and it may not always be obvious whom to approach for advice. As a general rule, in the first instance, you should seek advice from your Director of Studies regarding matters relating to your research project, and the relevant tutor in relation to the taught components of the research methods training.

Where you do not feel comfortable discussing a personal problem with a member of the supervisory team, (including where the problem concerns a member of the supervisory team) you can contact your School Director of Research or Graduate Studies Coordinator for confidential help and advice at any time. Alternatively, the Chair of Research Degrees Committee or the Graduate Studies Officer (see section 18 of this handbook for contact details) can be approached for help.

Any comments or suggestions on how the experience of research degree students at Cardiff Met could be improved are welcome; these should be addressed to the Chair of Research Degrees Committee or the Graduate Studies Officer

 If your supervisors are unable to help with any queries in connection with the administration of a research degree, including issues relating to enrolment and examination, or the procedures outlined in this handbook, the Chair of Research Degrees Committee and the Graduate Studies Officer are the appropriate people to contact (see section 18).

2.   ROLES AND RESPONSIBILITIES OF POSTGRADUATE RESEARCHERS

Ultimately you, as a postgraduate researcher, are responsible for the success of your project, although you have the right to facilities at Cardiff Met and help from its staff in supporting your research.

Your rights and responsibilities are set out in section 9 of the Code of Practice for Research Degrees: You should receive help and guidance on the following activities from your supervisors at an early stage in the process.

- Being familiar with and complying with regulations governing research degrees and with Cardiff Met regulations and policies;
- Identifying topics for discussion with the supervisory team;
- Keeping in contact and attending all arranged supervisory meetings;
- Undertaking a skills audit and a needs analysis to develop a training programme;
- Developing a Professional Development Portfolio;
- Submitting work as agreed;
- Establishing an on-line group for their supervisory team in Blackboard or SharePoint;
- Keeping a written record of objectives or planning outcomes agreed during supervisory meetings;
- Regularly reviewing their skills development and the training programme;
- Completing and contributing to progress report documentation as required;
- Maintaining satisfactory progress in accordance with agreed deadlines;
- Informing supervisor(s) immediately of unexpected problems or difficulties that may impede progress;
- Participating in research seminars, attending and making presentations at conferences;
- Preparing and submitting articles for publication in relevant journals and periodicals;
- Networking with other researchers and peers.

Please note the following particularly important responsibilities:

2.1   Maintaining contact with your supervisors

Supervisors are responsible to Cardiff Met for monitoring your progress, and they need to know what your plans are and how your work is progressing. If you are absent, or not meeting with your supervisors regularly, then they may be concerned

that you are not making satisfactory progress. In this case they are expected to report their concerns to the School's Director of Research, and you may receive a written or verbal warning about attendance at Cardiff Met or about the regularity of meetings with the supervisors.

2.2   Making satisfactory progress.

Research degrees are unlike taught programmes, in that there are few formal examinations to assess your achievements and progress. However Cardiff Met still has a responsibility to all its stakeholders to use its resources effectively, and the cost of research degrees far exceeds the income from any fees that the candidate may pay. This means that postgraduate researchers who are unable to make satisfactory progress over a significant period of time will not be permitted to continue with their research degrees.

2.3   What constitutes satisfactory progress?

Research Degrees Committee has set down milestones to be used by Schools to monitor candidates' progress, and RDC's policy on monitoring progress can be found in full in the Code of Practice for Research Degrees section 7.1.

Of course unforeseen personal or professional problems may occur to impede progress, and it is not the intention of these guideline to consider all possible eventualities.

The major milestones agreed by RDC are: During the first year of study you should have achieved:

   a.   A satisfactory written literature review to support the project proposal. The review should show a satisfactory grasp of the rules for written presentations, the ability to analyse and summarise published work, and to justify the research project. The timing for this requirement will vary depending on the subject area; it may be a much smaller requirement in a practice-based research area than in a theoretical research area. However the date for a satisfactory review to be received should be set at the start of the programme, and should be before the end of the first year at the latest.

   b.   A satisfactory Research Proposal, giving details of the work to be carried out, the techniques to be used, how any skills are to be acquired, and the planned timeframe for the completion of the project. This timeframe should form the basis for assessing whether the project is progressing according to plan. This is expected within three months of enrolment for full-time candidates and six-months for part-time candidates.

   c.   By the end of the first year for full-time candidates (2 years for part-time candidates) , a satisfactory transfer proposal should have been approved by the School, and forwarded to RDC for approval with the candidate's annual monitoring report. Where this milestone is not achieved, a timetable for transfer is to be included in the annual monitoring report.

During the second year of study (3rd year for part-time candidates), the achievement of milestones is more difficult to define, but these should be included in the original project plan approved by the School. You must submit an application to transfer enrolment from MPhil to PhD within 18 months of enrolment (30months for part-time candidates), and you must have received approval to transfer from your School within 2 years of enrolment (3 years for part-time candidates) or you will only be able to submit for the award of MPhil. Research Degrees Committee will not consider applications for transfer unless they have been received and approved by the School Research Degrees Subcommittee within the 2 year period (3 years for part-time candidates).

In addition, by the end of the second year of full-time study you should have produced a plan for the thesis, and should be able to make a more reliable estimate of the likely completion date.

Midway through the 3rd year of full-time study (or at the end of 4th year for part-time candidates), the first draft of the thesis should be substantially complete, and should have been received by the Director of Studies. An Examining Board should have been identified, and a submission date agreed.

The Annual Report required for Enrolment on the 4th year for a full-time PhD candidate (or year 6 for a part-time candidate) must include a detailed plan for submission of the thesis with milestones.

2.4   Unsatisfactory progress.

If your supervisors do not think your progress is satisfactory then they will tell you. There may personal reasons explaining the lack of progress, in which case your supervisors may be able to advise you (or point you to advice) on what to do. (For example, if you are unwell, or you have pressing personal problems, then it may be a good idea to temporarily suspend your studies until the problems are resolved).   You will need to develop a plan in conjunction with your supervisors dealing, as far as possible, with the problems and re-establishing satisfactory progress, and you need to keep to the plan.

2.5   Formal Warning

Generally a postgraduate researcher will be given a formal warning if the supervisory team feel that, despite advice, they are seriously concerned that progress is unsatisfactory. The School's Director of Research should be informed about this, and if you are not satisfied with your supervisors' position then you can discuss it independently with the Director of Research or Graduate Studies Co-ordinator. The School will discuss your plan to re-establish satisfactory progress, and how progress will be monitored. A subsequent failure to make satisfactory progress without a good reason will usually result in the School recommending to the Research Degrees Committee that enrolment should be terminated.

2.6.   Completing Annual Reports

Postgraduate researchers and supervisors are required to complete a formal report of progress and achievements each year, as well as plans for the completion of the research programme before the postgraduate researcher can re-enrol. This report is reviewed by the School Research Degrees Sub-committee, and the School makes a recommendation to the Chair of Research Degrees Committee about the postgraduate researcher's continued enrolment.

It is clearly of the greatest importance to you that these reports are completed well in advance of your re-enrolment date to allow time for the School and Chair of Research Degrees Committee to review the reports and make a decision on your re-enrolment. You should start the annual review process with your supervisors at least 2 months before the re-enrolment date, and ensure that the School's Director of Research has the Supervisors' and postgraduate researcher's comments at least 1 month before the re-enrolment date.

2.7   What happens if the report is not approved in time?

If the report is not received and approved by the Chair of Research Degrees Committee then you will not be able to re-enrol on the re-enrolment date. Your ID card will not allow access to buildings or services, and you will not be able to access your email or desktop on Cardiff Met IT facilities. Once the report is approved, and you have permission to re-enrol, your staff privileges will be restored within a few days.

2.8   What happens if the School recommends that re-enrolment should not be permitted?

Your report will be sent to Research Degrees Committee to make a decision. You will be informed, and given the opportunity to inform Research Degrees Committee of any circumstances that you want taken into account that are not already in the documents sent to Research Degrees Committee.

Research Degrees Committee may decide that you should be allowed to re-enrol, but will usually attach conditions to this permission. The conditions may apply to the School as well as the candidate.

Research Degrees Committee may decide to accept the recommendation of the School to terminate your enrolment. In this case you will be informed in writing of the decision, and of how you can appeal against the decision.

2.9   Concerns about the relationship with the Director of Studies

Either a postgraduate researcher or the Director of Studies may feel that the postgraduate researcher/supervisor relationship has deteriorated or is unsatisfactory, to the possible detriment of the postgraduate researcher's progress. It is essential to seek early advice on this; in the first instance, if you cannot resolve the problem with the supervisory team, the School's Director of Research or Graduate Studies Co-

ordinator should be approached for advice. Alternately the Chair of Research Degrees Committee may be asked for assistance. Ultimately, if problems cannot be resolved, either you or your Director of Studies may ask for a change in the supervisory team.

3. ROLES AND RESPONSIBILITIES OF SUPERVISORS

3.1 School Associate Dean of Research

Each of Cardiff Met's Schools (or equivalent) is represented at the Research Degrees Committee (RDC) by the School's Associate Dean of Research. The Associate Dean of Research monitors research activity in the School and is the advocate for their School's research student population. The Associate Dean of Research chairs the School's Research Degrees Sub-committee. The Associate Dean of Research provides guidance and advice to supervisors and should be kept informed of all developments.

3.1.1 School Graduate Studies Co-ordinator

Each School has a second representative on Research Degrees Committee. This member of staff is generally involved with the administration of the School's Research Degrees Programmes, and may have the title of Graduate Studies Co-ordinator. In some Schools they have the major responsibility for managing all postgraduate research activities.

3.2 Supervisory Team

Each postgraduate researcher has a research supervisory team consisting of a Director of Studies and (normally) up to two other supervisors.

3.3 Director of Studies

The role of Director of Studies combines developmental and procedural responsibilities. The Director of Studies is appointed in relation to her or his relevant academic experience in the area of the postgraduate researcher's research. This includes research expertise, and the Director of Studies must have a track-record of research activity. The Director of Studies is responsible for the submission of your research degree paperwork to the School Research Degrees Subcommittee, and for your research methods training as appropriate.

The Director of Studies is responsible for managing the supervisory team, and for the day-to-day supervision of the candidate. In managing the supervisory team, the Director of Studies should ensure that all members of the team agree their roles, the way they will communicate with each other and with the candidate, and the arrangements for meetings. The major roles include:

- Expertise in some or all areas of the candidate's project;
- Advising on personal development and employability skills;
- Supervision of an external element of the project;
- Advising on pastoral matters;
- Mentoring the Director of Studies (where the Director of Studies is new to supervision).

Other roles are shared with the supervisory team, and are detailed in the next sections. Essentially these roles should relate to and complement each other, thereby providing coherence in supervision.

Where the expertise in an aspect of the student's research lies with another supervisor, it may be appropriate for the Director of Studies to share day-to-day responsibilities for this aspect of the candidate's project with the other supervisor.

3.4   Supervisors

Postgraduate researchers must have at least one additional supervisor for their project (and may have two or more). The term 'Supervisor' can be used in reference to either the Director of Studies or the other Supervisor(s). The Director of Studies has the responsibility for overseeing the research, and ensuring, as far as possible, that it conforms to Cardiff Met's standards for good practice (see section 20)

3.5   Responsibilities of Supervisory Teams

Responsibilities include:

- Explaining admission procedures to prospective postgraduate researchers;
- Following Cardiff Met's formal admissions procedure for postgraduate researchers;
- Giving advice on institutional procedures;
- Apprising the postgraduate researcher of the postgraduate researcher induction and training programme;
- Advising the postgraduate researcher on the completion of a skills audit and a needs analysis
- Helping the postgraduate researcher to develop an appropriate training programme.
- Supporting the postgraduate researcher's development of a Professional Development Portfolio
- Submitting the postgraduate researcher's Research Degree Proposal to the School's Research Degrees Sub-committee for consideration;
- Submitting Annual Monitoring Reports to the School Research Degrees Sub-committee;
- Encouraging the postgraduate researcher to complete his or her section of the Annual Monitoring Report;
- Assisting the postgraduate researcher in formulating a sound and achievable Research Degree Proposal;
- Ensuring the postgraduate researcher's basic needs as a researcher are met such as suitable workspace and access to PC, telephone, etc;
- Meeting the postgraduate researcher on a regular basis to provide academic supervision and monitor progress;
- Holding quarterly or half-yearly meetings of the full supervisory team to formally review progress;
- Reporting to the School Director of Research that formal reviews have been held;
- Reading and providing feedback on written and other work to improve and develop academic writing and referencing and other relevant skills;
- Acting as mentor and being a sounding board for the discussion of ideas;

- Advising on the development of strategies for overcoming academic difficulties the postgraduate researcher may encounter and providing a source of encouragement and support;
- Encouraging the postgraduate researcher to discuss and present work at seminars, conferences and other relevant events;
- Encouraging the postgraduate researcher to write and publish work in relevant journals;
- Advising the postgraduate researcher on developing and improving techniques in research methods;
- Helping the postgraduate researcher to plan and execute work to agreed timescales;
- Advising the postgraduate researcher in preparing for the final presentation of their thesis and the oral examination.

4.   ENROLMENT AND REGISTRATION

4.1   Enrolment

All postgraduate researchers are required to enrol at Cardiff Met for the period of their studies.

At the start of the first year of study your School's Director of Research or Graduate Studies Coordinator must countersign the enrolment form.

You must re-enroll annually on the anniversary date of your initial enrolment.

Each year prior to re-enrolment, an Annual Monitoring Report Form must be completed by both you and your Supervisors and sent to the School Director of Research. Re-enrolment requires that the reports should be accepted as satisfactory, and so adequate time (at least 1 month) must be allowed for the approval process.

Please note that failure to re-enrol on the due date will result in the loss of access to Library and IT resources and entry to buildings until re-enrolment is complete.

The enrolment number (generated by the Academic Registry) will need to be cited on ALL research degree related forms.

For advice on the Postgraduate researcher enrolment process, contact Academic Registry.

4.2   Registration

Registration for research degrees was a process required by the University of Wales for all Research Degree Candidates until 2006. It also signalled the start of the period within which the research programme had to be completed.

Since July 2006, there is no registration process for research degrees candidates, and the starting date for your research programme is the enrolment date.

4.3   International Students

Applicants from outside the European Union are responsible for their own immigration and visa arrangements. Applicants from outside the European Union, admitted to undertake postgraduate research degrees, will be sent a copy of the International Students Handbook together with other pertinent advice by Cardiff Met's International Office. The Handbook contains advice on Finance and Immigration:

http://www.cardiffmet.ac.uk/international/study/Pages/default.aspx

Any queries that might arise should be directed to the International Office on 6035 or 6027.

INDUCTION, RESEARCH METHODS TRAINING, AND SKILLS TRAINING

6.1   Induction

Postgraduate Researchers Induction training is intended to introduce you to postgraduate life at Cardiff Met, and to provide you with essential tools for the start of your research programme. It consists of a 1-day programme of workshops soon after the start of the semester in which you enrol, and a Research Methods Training Programme that generally takes place during the first year of study.

At present, Cardiff Met's Research Methods Training is delivered through formal courses, and attendance at these courses is compulsory for most postgraduate researchers.
It is essential that a skills audit and needs analysis be conducted with the help of the Director of Studies as soon as possible after enrolment. This will indicate whether an exemption from any part of the Research Methods training can be granted. Generally, exemptions are only given where a postgraduate researcher has already completed a substantial amount of training in research Methods at Masters level.

Details of the Induction Programme can be obtained from the Graduate Studies Officer, Research and Enterprise Services (see section 18 for contact details).

6.2 Skills and Skill Week:

In addition to specific research skills, you are also expected to develop your transferrable skills while undertaking your research degree. The Joint Research Council's Skills Statement (Appendix 1) outlines the breadth of skills that should be considered, and many of these skills will be acquired by candidates through their normal research activities.

Research Degrees Committee considers that full-time candidates should spend 20 hours per year on developing their transferrable skills. Candidates should develop a programme for each year, in consultation with the supervisory team, and completion of this programme should be formally monitored and documented by the supervisory team in the candidate's PDP.

Activities which should be counted towards the 20 hours training include, but are not limited to:
- Attendance at formal courses and workshops (such as those held during Cardiff Met's Skills Week, the 1-day "Effective Researcher" programme run jointly by Cardiff Met, Cardiff University, Glamorgan University and UW Newport).
- Training for teaching
- Attendance at Seminars within Cardiff Met or externally
- Presenting papers and leading seminars
- Attending conferences external to Cardiff Met.
- Attending career-orientated events

You will gain many research skills from undertaking your research degree, as well as improving your transferable (employability) skills. To give you the opportunity to

further develop your personal skills in specific areas, we provide postgraduate researchers with access to appropriate training available to academic and administrative staff at Cardiff Met, much of which is available on-line for you to undertake at your convenience.

In addition we provide face-to-face training opportunities during Skills Week for all postgraduate researchers. Skills week is scheduled for the Monday to Thursday immediately preceding Easter Weekend.

Additional training opportunities are offered from time to time in collaboration with other Universities in the region, and these will be communicated to you via email.
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7.   DESIGNING, PLANNING AND MANAGING YOUR RESEARCH PROJECT

7.1   Introduction

In this short overview it is not possible to explore thoroughly all the aspects and requirements of good project planning and management. The intention here is to encourage you to think about the integrity of research design and about planning and managing your time and resources to achieve a successful outcome within a reasonable timescale. Further reading is strongly recommended and some useful references can be found at the end of this section.

Firstly, it is important to recognise that whilst a research degree might constitute an academic achievement it is also training in the discipline of high-level research. An important part of that discipline is submitting on time and within budget, which might mean adjusting the project on a regular basis as findings unfold.

Things can go wrong in any research project and there will be unanticipated obstacles to overcome. However, if your project methodology has been properly designed, nothing that happens should prevent the successful completion of your research degree.

7.2 What to Expect from Research

Cardiff Met Research degrees conform to the descriptors laid down in the Framework for Higher Education Qualifications in England, Wales and Northern Ireland – January 2001. These can be found on the Quality Assurance Agency for Higher Education website at http://www.qaa.ac.uk/

7.2.1 Masters Degrees
A Masters Degree is awarded to a student who has demonstrated:
i.) A systematic understanding of knowledge, and a critical awareness of current problems and/or new insights, much of which is at, or informed by, the forefront of their academic discipline, field of study, or area of professional practice;
ii.) A comprehensive understanding of techniques applicable to his or her own research or advanced scholarship;
iii.) Originality in the application of knowledge, together with a practical understanding of how established techniques of research and enquiry are used to create and interpret knowledge in the discipline;
iv.) Conceptual understanding that enables the student to evaluate critically current research and advanced scholarship in the discipline and to evaluate methodologies and develop critiques of them and, where appropriate, to propose new hypotheses.

Typically, a Masters level graduate will:
i.) Be able to deal with complex issues both systematically and creatively, make sound judgements in the absence of complete data, and communicate their conclusions clearly to specialist and non-specialist audiences;

ii.) Be able to demonstrate self-direction and originality in tackling and solving problems, and act autonomously in planning and implementing tasks at a professional or equivalent level. Continue to advance their knowledge and understanding, and to develop new skills to a high level;

iii.) Have the qualities and transferable skills necessary for employment requiring the exercise of initiative and personal responsibility, decision-making in complex and unpredictable situations and the independent learning ability required for continuing professional development.

7.2.2   *Doctorates*

A Doctorate is awarded to a student who has demonstrated:

i.) The creation and interpretation of new knowledge, through original research or other advanced scholarship, of a quality to satisfy peer review, extend the forefront of the discipline, and merit publication;

ii.) A systematic acquisition and understanding of a substantial body of knowledge that is at the forefront of an academic discipline or area of professional practice;

iii.) The general ability to conceptualise, design and implement a project for the generation of new knowledge, applications or understanding at the forefront of the discipline, and to adjust the project design in the light of unforeseen problems;

iv.) A detailed understanding of applicable techniques for research and advanced academic enquiry.

Typically, a Doctoral level graduate will:

i.) Be able to make informed judgements on complex issues in specialist fields, often in the absence of complete data, and be able to communicate their ideas and conclusions clearly and effectively to specialist and non-specialist audiences;

ii.) Continue to undertake pure and/or applied research and development at an advanced level, contributing substantially to the development of new techniques, ideas or approaches;

iii.) Have the qualities and transferable skills necessary for employment requiring the exercise of personal responsibility and largely autonomous initiative in complex and unpredictable situations, in professional or equivalent environments.

7.3   Being a Postgraduate Researcher

A First or Upper Second degree in a relevant subject is the normal minimum qualification to be considered as a PhD candidate. A Masters degree would be an advantage if it contained an element of research or dissertation writing. However, excellence at degree level should be viewed as a given and is no guarantee of eventual success. Many other factors will need to be in evidence. These are mostly centred on your ability to undertake a long-term study under your own direction.

Your previous track record should therefore show the ability to:

• Read, copiously and quickly;

- Display good verbal and written communication skills;
- Work in an organised and methodical manner;
- Schedule work, set goals and meet self-imposed targets;
- Work to structured schedules and consistently meet deadlines;
- Postulate questions and deduce solutions;
- Acquire knowledge and skills outside the normal realms of your undergraduate subject area;
- Present to an audience;
- Sustain and defend an argument or line of thinking;
- Demonstrate that you are self-motivated and self-disciplined;
- Provide evidence of good problem solving skills;
- Accept and respond positively to criticism.

This is likely to require you to be self-motivated, self-disciplined, organised, methodical, creative, resilient, determined, resourceful and sociable.

7.4   Project Management and the Research Process

7.4.1 Rules and Regulations

You should become familiar with the rules and regulations associated with your research degree. This will give you an overview of matters which should be borne in mind, such as when particular reports are due and how to submit them. Whilst the rules and regulations may appear bureaucratic, they are there to guide and protect you throughout your research. Failure to follow them may delay the award. For more information on these matters please refer to Section 1.2 of this handbook, or the Research and Enterprise Services web-pages

http://www.uwicresearch.co.uk/research-manual/

If you have a sponsor, there may also be additional paperwork, the completion of which should be considered when planning your work schedules.

7.4.2 Aims and Objectives

The principal aim of your research programme should drive and direct your research. The aim should reflect a well-defined gap in current knowledge. Your research is expected to produce a significant contribution to knowledge so it is essential that the aim will direct you towards accomplishing this. The aim should preferably be expressed as a single sentence using academic language. The aim should be firmly in your mind and regularly referred to and reinforced to maintain focus and prevent unnecessary work or drifting from the point.

Your aim will be best accomplished by breaking the work required into a number of smaller discrete objectives. The objectives provide more detailed guidance and indicate the actual tasks and milestones associated with meeting the stated aim.

Your research must also be largely original and your own work. Examples of original work include:

- Carrying out empirical work that has not been done before;
- Making a synthesis that has not been made before;
- Using known material but with a new interpretation;
- Bringing new evidence to bear on an old issue;
- Being cross-disciplined and using different methodologies;
- Looking at areas that people in the discipline have not looked at before;
- Adding to knowledge in a way that has not been done before.

7.4.3 Literature Review

Normally, the literature review is the first step in any research study. The review is both a learning process and a deliverable result. The importance of the review cannot be overstated. It is the foundation of the entire study and a poor review may be difficult or impossible to recover from in the study period allowed. A well-conducted and timely review will lead to increased confidence and definite goals being set for the rest of the study.

The review has many purposes, it should enable you to:
- Develop a sound knowledge of the field of study;
- Develop core research skills: reading, library, networking, interview and communication;
- Develop an understanding of previous research and the research currently underway;
- Identify key institutions and individuals in the field of study;
- Identify gaps in the current knowledge that the study will address;
- Develop reporting and writing skills.

The literature is one of the main methods of showing that you satisfy one of the criteria for the award of a doctoral degree (see section 7.4.2 (ii)).In terms of the thesis the review also has several purposes. The review will often be the first chapter of the thesis and as such it should:

- Illustrate that you are an expert in your field of study;
- Set out the background and context for the thesis;
- Lead the reader into the specific area of research;
- Give the reader confidence that your work addresses a recognised gap in the current knowledge.

It is crucial that the content of the literature review is continuously and regularly maintained over the study period to remain up to date and relevant.

The review will generally encompass different strands or discipline areas that may be combined in the study – for example, where computer technology is first applied to a traditional skill or practice. In these cases it is vital that the relevant aspects of each of the disciplines are reviewed without allowing the review to become overlong and

drift away from the main thrust of the study. It is important that the review remains strictly focused.

7.4.4 Research Methodology

You should select a research design based on a methodology that provides a consistent and justifiable link (valid and reliable) with the research question as research methodology is highly subject dependent. You should ensure you have a good understanding of research methodologies used in the particular field and seek training where necessary.

You should ensure that your research methodology has been designed properly and that all the elements required have been thought of. There is a temptation to jump at the first design that comes to mind and this is inadvisable. Instead, you should carefully consider the design in overview and in detail and should consult with others on its integrity. Most research is about pursuing stated aims (and their objectives) through an investigation of some kind, which will normally involve taking measurements and analysing the results, and making a comparison of the results with a theory or the results of parallel/similar studies. How this is done will depend upon the discipline area.

It is easy at the beginning of a project to be too ambitious. You should ensure that the size of the intended project is manageable within the normal timescale of the study. Make sure that you can control, compensate for or eliminate variables not being measured. The ethics of the research programme should also be considered and a way of testing findings identified.

In seeking ways to take measurements, don't just opt for the first method that comes to mind. You should explore possibilities on the basis of appropriateness, cost, time, accuracy, etc and ensure that a decision to do things in a particular way has a credible explanation.

Things are rarely perfect in research and the tools of measurement are no exception. Ensure that you know the limitations of your measurement techniques and findings (tools include mathematical and statistical analysis techniques and computer programmes which deal with these to produce results).

7.4.5 Programme of Work

You must develop your own timetable and programme of work. This is best achieved through breaking the project down into a number of achievable discrete tasks. It is helpful to use a Gantt chart or similar representation, as shown in the example below. This makes it easy to visualise the timing and relative size of tasks. It is also easy to modify when things change. You may find project planning software such as Microsoft Project helpful.

Ensure that timescales you adopt are realistic and achievable. If you feel too inexperienced in this field and therefore unsure how to estimate timescales accurately, you should enlist the help of a more experienced person. Be conservative in estimates as setting optimistic deadlines may cause problems later. These issues can be especially difficult when the research relies on external responses, such as

questionnaires or interviews. It is also recommended that the reporting schedule of the research degree for which you are registered is incorporated.

Activity	Months											
	3	6	9	**12**	15	18	21	**24**	27	30	33	**36**
Enrolment	▓											
Research Methods Training	▓											
Literature Review	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	
Problem Identification	▓											
Research Methodology Design	▓											
Submission for Registration		▓										
Selection of Research Methods	▓											
Identification of Data Sources		▓										
Equipment Purchasing		▓	▓									
Methods of Calibration			▓									
Data Collection				▓	▓	▓						
Data Analysis						▓	▓	▓				
Validation								▓	▓			
Writing		▓	▓	▓	▓	▓	▓	▓	▓			
Editing										▓	▓	
Final Document											▓	
Soft Binding												▓
RDC Reports				▓					▓			
Sponsor Reports				▓				▓				

Example of Gantt chart

7.4.6 Resource Planning
Projects vary greatly in their resource requirements. It may be necessary for you to anticipate and estimate likely costs such as experimental equipment, copying, telecommunications, printing, stationery, books, inter-library loans, IT, travel and subsistence to seminars and conferences, etc. You should plan in advance what the approximate needs will be (based on research design), what the costs will be, when purchases or spending will be required and – most important - where the money is to come from.

Even if no costs are incurred it is also essential to plan ahead for access to shared or departmental facilities such as computers, laboratories, specialist equipment, etc. Bear in mind that you may not have sole use of facilities and may therefore be expected to work around existing schedules.

These issues can become critical when undertaking site work or research in conjunction with collaborating establishments.

7.4.7 Supervision

Your supervisory team is there to guide you through your research not to do the work on your behalf. Your Director of Studies must ensure that all of the regulations are adhered to and you should make sure that your Director of Studies fulfils his or her responsibilities on time. The role and responsibilities of supervisors are described in

Section 3 of this handbook. Your basic rights are laid out in Section 2 of this handbook, and in section 9 of the Code of Practice for Research Degrees.

Ensure that clear dates, sufficient time, and objectives have been agreed with your supervisory team and that these are adhered to. You are advised to keep an agreed and written record of each meeting ensuring that objectives set after each meeting are feasible, openly discussed and agreed.

The members of your supervisory team should have complimentary skills and knowledge enabling you to call on the appropriate team member and access his or her particular skills. In addition, don't be afraid to request specific training or subject help from outside the supervisory team if you feel it necessary.

7.4.8 Organisation

One of the purposes of undertaking a research degree is to learn how to become a proficient, effective and efficient researcher. Good organisation is the hallmark of a good researcher.

You should therefore ensure that your working environment is organised. It is advisable to obtain a filing cabinet as your papers will soon mount up. Develop a filing system both in reality and on disk. NUD*IST, NVIVO, Endnote or Atlas may be a help. Ensure that copies of important references are kept and filed carefully. Remember that time management is critical although essentially an acquired skill.

7.4.9 Keeping a Logbook

It is good practice to maintain a logbook, journal or diary in either paper or electronic form in order to record things as they happen or occur to you. This will enable you to refer back at a later date. It is advisable to use a hard backed bound notebook as this will survive better over the years than a soft-bound book. It is also much less likely that pages will be lost than if a loose-leaf binder is used. **Ensure that your logbook is with you at all times.**

7.4.10 Regular Writing

It is most important for a research degree candidate to write things up as the research programme progresses. Many research degrees are not completed on time because candidates are not sufficiently disciplined at writing-up what they have done. Writing-up first-draft chapters or parts of chapters should be an ongoing task. Whilst you should not expect a first-draft write-up to be anything like what will appear in your final thesis, it will form the basis of it and will save time later. Don't be overly concerned with the quality of the prose at this stage as your writing skills will mature and improve considerably during your research programme.

It is a good idea to have given some thought to the final structure of the thesis. Whilst this will inevitably change over time, having a structure in mind initially will help with the discipline of writing. It is also advisable to ask someone else to proof read your work.

7.4.11 Support

Talking and discussion can be as important as reading. You should try to meet or phone the leading figures in your field. Make arrangements to meet and discuss with other researchers in the field and attend useful conferences. It is also useful to discuss general issues with other researchers at the university.

7.5   Time Management

Only approximately half the people who embark on a doctorate actually complete it. This is rarely because they are incapable. The usual cause of failure to complete is that they run out of time or become demotivated.

In some ways it is better to think of a research degree as a test of self-discipline, determination and hard work rather than intellectual brilliance. Unlike at undergraduate level, no one will set your tasks or deadlines. No one will set out work for you. No one will set your day-to-day timetable.

Remember:
Once you have successfully negotiated entry to a research degrees programme at Cardiff Met, you should have the necessary background, accomplishments and skills to finish the programme. However it is still a considerable personal challenge that requires commitment, perseverance and a great deal of hard work.

It is not uncommon for candidates to feel overwhelmed at times by the apparent size of the task, and to doubt their ability to complete it, discouraged by mistakes and dead-ends. Nonetheless, like most journeys, the key is to plan, learn from mistakes and wrong turnings, and make progress. It is also important to accept that, while supervisors can give much assistance and advice, it is your project and you are the person that is responsible for it. You need to "get stuck in" and keep yourself motivated!

Recognising and adopting the following techniques will help to improve your time management.

1. *Treat your research as a job*
    Work nine to five or thereabouts. The advantages are that:
- Most facilities operate during office hours (labs, computer facilities, reprographics, companies, libraries, etc.);
- Most academic and support staff work office hours (i.e. the people who are there to help you);
- It is generally considered healthier to work during daylight hours. You will be at your most attentive during the day;
- You will maintain good and normal working and social hours with the majority of your friends and colleagues.

2. Recognise the importance of routine
A regular routine will
- Make organising your work easier;
- Make it easier to predict workflow and progress;
- Make it easier to plan meetings and keep appointments;
- Spread your workload evenly over time.

3. Recognise the importance of rest:
It is vital to ensure that you
- Get enough good quality, regular sleep;
- Set aside time for socialising, sport or rest and relaxation;
- Don't work overlong hours as fatigue leads to poor quality work, errors and accidents;
- Alternate between different types of work to break up long, tedious or repetitive tasks.

4. Recognise the need to be resilient
Things can and will go wrong so be prepared to deal with problems.
- Remember, some things are simply out of your control.
- Be adaptable; try to turn difficult situations to your advantage.
- You will face scrutiny and criticism throughout your study, don't take it personally.

5. Remember to set your goals
Break your goals down into realistic long-term and short-term objectives eg
- Overall aim   – get doctorate, masters, etc.
- Yearly aim   – get to the next critical stage of the research
- Monthly aim   – complete experiments, write-ups, etc.
- Daily aims   – accomplish individual tasks

6. Recognise the importance of staying on time
Make it a regular habit to:
- Keep track of time and your progress by using calendars, diaries, and to do lists;
- Strictly prioritise your tasks according to importance and urgency;
- Identify and eliminate procrastination;
- Identify and eliminate avoidance or delaying of tedious tasks.

7. Remember the importance of good records
Good records and organisation of your work will make your research easier. Ensure that you
- Keep a diary, journal, log book or notebook, use hard cover, bound notebooks not loose paper;
- Write up your work regularly as you proceed, you will not remember things in 3 or 4 years time!;
- Be neat, tidy, methodical and highly organised, illegible or misplaced data or information could be disastrous;

- Keep multiple weekly back ups in different locations. Beware of theft, fire and flood – they do happen!

8. Recognise the need to rely on others

It is inevitable that your research will rely on the input of supervisors, interviewees, questionnaire respondents, experts, librarians, technicians and suppliers. It is therefore important to try to:

- Allow longer than normal for responses from other people;
- Remember that you may well not be their highest priority;
- Response rates tend to be low, don't over estimate likely response;
- Where possible eliminate or reduce your dependency on people you have no control over.

9. Getting started

One of the hardest things is getting started. Staring at a blank screen, clean sheet of paper and not knowing where to begin can be a major hurdle. To help the process along try to:

- Always start the work on the day it is assigned or scheduled;
- Start by writing the title, headings and sub-headings, and add notes under each section;
- Write whatever comes to mind as this will be easier to build from than nothing;
- Don't worry about good grammar, spelling or presentation – it can be edited later.

10. Reading

Reading is perhaps the most important skill in your life as a postgraduate researcher.

- Be careful and selective, don't waste time reading irrelevant material;
- Learn to read quickly, scan documents for relevant information then re-read important parts;
- Make sure that you actually understand the meaning of what you are reading;
- File important or useful references, you will want to read them again in the future perhaps years after the first reading.

11. Remember the importance of good communication

- Don't waste time waiting to get in touch with people or in responding to people;
- Make sure people know where you are and how to contact you at all times;
- Stay on campus as much as possible – people can find you and you'll be close to staff;
- Chase people who are late replying to you;
- Never, under any circumstances be late or miss an appointment or meeting.

12 Use your supervisory team

Make good use of your supervisors.

- Make sure they fulfil their responsibilities but do not expect them to solve all your problems or do your work for you;
- Schedule and hold regular meetings – even if there is little to discuss;
- Keep a written record of progress as reported to your supervisor;
- Make sure your supervisor is always up to date with your working situation;
- Make sure you know and follow Cardiff Met's codes of practice and procedures.

13. Other tips
- Accomplish difficult (or boring) subjects first;
- Be aware of your best time of day;
- Use waiting time;
- Use a regular study area;
- Choose a place that minimizes distractions;
- Learn to say no to unnecessary tasks;
- Ask yourself: "What is one task I can accomplish toward my goal?";
- Ask yourself: "How did I just waste time?";
- Stretch yourself - ask yourself: "Can I do just one more thing?";
- Eliminate or delegate trivial tasks;
- Perfectionism and paying unnecessary attention to detail is a form of procrastination;
- Break tedious jobs into smaller tasks and do just one of the smaller tasks at a time;
- Allow time for important, but often not scheduled, priorities such as family commitments;
- Promise and give yourself a reward for completing important tasks;
- Make good use of your supervision time, come prepared, listen attentively;
- Make a short daily list by prioritising 5 or 6 items - both academic and personal - set small specific goals;
- Use your daylight hours and minutes;
- Stay on campus;
- Use a wall or desk calendar for major deadlines, due dates and meetings and a pocket calendar, diary or personal organiser to remind you of appointments, meetings, errands;
- Don't let questions accumulate, instead of trying to get it perfect - just do it;
- Concentrate on one thing at a time;
- Be realistic in your expectations of yourself;
- Get started immediately – don't put things off;
- Clear your desk - when nothing else is in front of you, you are most likely to start working;
- Start - do something rather than sit and stare, regardless of how trivial it may seem;
- Don't avoid a task because you're not sure how to do it – get help;
- Recognize escape routes - spend time away from your desk doing routine tasks;
- Only turn the television on for your favourite programs as a reward for working.

7.6 Part Time Students

> Studying for a research degree on a part time basis involves a huge commitment from the candidate.

Studying for a research degree, part-time: What does it involve?

What does studying for a research degree mean?

For full-time students with a Bachelors degree the minimum time needed to complete an MPhil degree is one year and a PhD three years. Students entering with an appropriate Masters degree may complete a PhD degree in a shorter period.

Research funding councils base their calculations on a research candidate's working year being 44 weeks. Therefore, this reflects a total of about 1,600 hours study for an MPhil and 4,800 for a PhD.

How long do I have to cover the same ground as a part-time student?

The expectation is that a part-time MPhil will take 2 years and part-time PhD will take 5 years. It is worth noting that the exceptional minimum and maximum times for such part-time study (for students entering with an appropriate Masters degree) are 1½ - 5 years for an MPhil and 3-7 years for a PhD.

How can that work out in practice?

It takes more hours to achieve the same output as a full-time candidate as it is necessary on each occasion to spend a short period of time being fully engaged with the task again after each break. Realistically, you would need to find approximately 20 hours per week. Another way of looking at this is that this represents half an ordinary working week, or 120 days per annum.

Obviously, everyone's life-style and working commitments differ, but we would always recommend that where possible a candidate should consider trying to complete some full days of study each year. Progress can be more effective if the time spent on studying is in larger chunks.

If your employer is prepared to release you for a weekly study day, it would be reasonable to assume that this would represent half the time needed for studying each week. As well as a ten-hour study day, you should be prepared to study for say three hours per night, for three further nights of the week. Alternatively, you could set aside one and half days of each weekend for study.

If your employer is not giving you time off to study, you need to consider whether studying for a research degree is viable.

What if I start studying, but later find it difficult to manage?

A lot depends on when you encounter this difficulty. The first two years of part-time

study on a PhD degree is considered probationary. If you were not making satisfactory progress at the end of this period (or at the end of year 1 for candidates on an MPhil degree), you would be well advised to withdraw and apply again at a later date when work and other commitments allow.

If a candidate finds that they can no longer manage the time after they have progressed past the probationary stage of study, then there are two options currently available.
• The first is to withdraw from study. A candidate enrolled on the MPhil/PhD route may exit with an MPhil rather than continue.
• The second option is to apply for a suspension of studies. Suspension can only be granted in exceptional circumstances and some form of evidence would be required to substantiate the application. For example, the problem may be caused by health or family circumstances. You normally need to be able to show that the problem is likely to be resolved within the period of suspension (maximum period 1 year), and normal part-time study will resume.

Conclusion

Studying part-time for a research degree is a major undertaking and the time required to complete successfully must not be underestimated. If your employer is not providing you with time off to study, you should consider whether you are prepared to add another two and half days to your ordinary working week in order to achieve a research degree.

7.6.1 Personal Time Survey

Candidates studying for a part-time research degree have many different demands on their time and consequently have to manage their time carefully in order to allow enough time for study.

To manage time effectively it is useful to know how you use your time now. One method that may help you to estimate how much time you currently spend in everyday activities, such as working, home life or travelling is a personal time survey. Visually representing your time is a good way of getting a clear idea of how you use your time.

Take the table below as an example and fill in the spaces to illustrate how you use your time. The remaining white cells will then represent the free time that you have available for study.

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
0:00							
1:00							
2:00							
3:00							
4:00							
5:00							
6:00							
7:00							
8:00							
9:00							
10:00							
11:00							
12:00							
13:00							
14:00							
15:00							
16:00							
17:00							
18:00							
19:00							
20:00							
21:00							
22:00							
23:00							

Examples of time use to insert

Sleeping		Shopping		Cooking / Eating		Commuting	
Housework		Regular Events		Socialising		Working	

When looking at the completed personal time survey, try to identify where potential free time is interrupted and ask yourself whether these activities could be moved or whether they are essential? You may not wish to make changes but gaining a further degree will inevitably require some commitment or sacrifice.

The total amount of free time is not the only consideration. It may be that there appears to be a lot of free time but it may be fragmented or late in the evening when tiredness may reduce motivation and concentration. An hour starting at 6.00 pm may be much more productive than one starting at 11.00 pm

Try to rearrange your weekly schedule so that it will give you enough time to study and where possible arrange fewer but longer periods to study. For example, a weekly session of three and half hours will probably be more productive than half an hour each day.

Once you have a schedule that works try to stick to it. Sticking to a routine will make planning and estimating your progress easier and more accurate.

Do not forget to leave adequate time for rest and especially sleep. Your working hours will be much more productive if you are well rested and relaxed.

7.7 Recommended Reading

Cryer, Pat, (1996) The Research Student's Guide to Success, OU

8   APPROVAL OF RESEARCH PROPOSAL

After enrolment i.e. at an early stage (preferably within three months for full-time candidates and six months for part-time candidates) candidates should agree a research programme with the supervisory team and submit a Research Degree Proposal to the Research Degrees Committee and to Research Degrees Board, whose approval shall be required for continued enrolment.

In many cases candidates will have submitted a short proposal to the School with the application for admission, however this will need elaboration before it can be formally accepted by RDC.

The Proposal should provide
- clear aims & objectives;
- a method that is clearly mapped onto those objectives;
- a realistic time-scale for each of these objectives;
- adequate referencing and context to the research.

The School Research Degrees Subcommittee will be looking for clear evidence that the work proposed is soundly based, and is likely to meet the criteria for the award of the degree you are studying for; if you are enrolled as an MPhil/PhD candidate, then the proposal will be judged against doctoral criteria.

Your supervisory team is responsible for helping you develop and draft the proposal: They should also:
- Comment and advise on that proposal until you have made it ready for submission through the committee structure;
- Ensure that the final version submitted to the committee structure is complete in all sections and has a full set of signatures.
- Advise you on Cardiff Met's requirements for ethics review
.
In the event of the submitted proposal not being approved the supervisors should:
- Ensure that you understand what was wrong with the proposal;
- Help you make the necessary amendments;
- Encourage you to resubmit.

9. PROGRESS, MONITORING AND MILESTONES

Progress monitoring occurs at regular intervals through the year, culminating in a formal annual review that is submitted to Research Degrees Committee. The Annual Progress Review must be approved by the Chair of Research Degrees Committee as satisfactory before you can re-enrol.

Supervisory teams and candidates can submit additional reports to Research Degrees Committee at any time.

9.1 What progress should you be making?

There is a detailed set of guidelines about satisfactory progress in the Code of Practice for Research Degrees section 7.1, and a summary of the advice in section 2 of this handbook.

9.2 Candidate reports to Research Degrees Committee

Candidates make an annual report to Research Degrees Committee as part of the annual monitoring process, using the Annual Monitoring Report Form (see section 9.4) You may submit an additional report at any time, without any contribution from your supervisory team, if you wish to bring to the attention of the Research Degrees Committee a matter of concern.

9.3 Quarterly Reviews

Formal reviews of progress are made, ideally by the whole supervisory team, at 3 monthly intervals for full-time students and at 6-monthly intervals for part-time students. This can be done using the Skills Record and Log Book in the Research Studies Manual. A record of the outcome of each meeting must be kept, and the School Director of Research and Graduate Studies should be informed that a satisfactory review has taken place.

9.4 Annual Monitoring Report

The candidate and the supervisory team make annual progress reports at the end the semester preceding re-enrolment. This gives supervisors the opportunity to formally bring to the attention of the School the development of the candidate's research skills, plans for the remainder of the research programme, as well as any problems, such as issues of attendance or time management. The candidate can comment on any problems encountered during the year, This process is co-ordinated by the Director of Studies. The report contains a confidential section completed by the candidate and sent directly to the Chair of Research Degrees Committee. This section allows you to the attention of the Dean of Graduate Studies your satisfaction with various aspects of supervision and the working environment, and is not seen by anyone in your School. If you are having problems with facilities or supervision, the Chair of Research Degrees Committee may contact you in confidence about resolving the problems.

9.5   Transfer MPhil/PhD to PhD

Candidates normally apply to transfer to a PhD enrolment at the end of the probationary period (1 year for full-time candidates or 2 years for part-time candidates). Transfer is approved when a candidate has demonstrated sufficient progress in their research development to allow the School to be confident that they should be able to continue to complete their Doctoral studies successfully.

It should be noted that this is NOT an automatic process, and you only have a limited time within which you can transfer.

In 2008 RDC brought in a requirement for all MPhil/PhD candidates who enrol after 1st September 2008 to achieve transfer within 18 months of enrolment (30 months for part-time candidates) or to continue to an MPhil. It is therefore essential to start the Transfer process during your first year of study to allow time to complete any extension of the probationary period or other conditions required by the Transfer committee or RDC.

9.6   Monitoring Attendance:

1. **For all Research Degree students**: That if a student cancels/fails to attend two consecutive meetings (on a monthly basis) with their supervisors that the Director of Studies may contact the student directly to arrange a third meeting to take place as soon as possible, making it clear that missing this third meeting will be taken as indication of withdrawal.
2. **For International Research Degree students**: That if an international cancels/fails to attend two consecutive meetings the supervisory team should contact the International Office.

10   ETHICS

10.1   Introduction

Ethical behaviour in research is required of academic researchers by professional associations, as well as by the Universities in which they work. Researchers have ethical obligations to their professional colleagues, employers and to the wider community.

Ethical obligations are sometimes articulated in lofty terms, but they can be simply summed up: you have an ethical obligation to be honest, to treat people fairly, to consider the impact of your research on people taking part in it, (or animals being utilised in it) as well as the impact of the research on society. These ethical obligations apply to researchers in all disciplines; however the nuances of how they are interpreted may vary slightly between disciplines.

It is, therefore, important that you consider ethical aspects of your research at an early stage and that you incorporate this into the research design and methodology of the project.

10.2   The Ethics Review Process at Cardiff Met.

All researchers planning a project are expected to assess the need for formal ethical approval of their project using the processes approved by Cardiff Met's Ethics Committee. These can be found at:

https://tsr.cardiffmet.ac.uk/units/RES/Pages/Research-Ethics.aspx

The review process starts with a self-assessment assisted by an Ethics Checklist. This allows you to evaluate whether or not your project will require formal approval by your School Ethics Committee. As a general rule, projects that involve human participants require a formal ethics review.

If your project requires formal ethics approval then you will need to complete an application form (available from the Cardiff Met Ethics website) and send it to the School committee before your project can be approved by RDC.

Any project submitted to the Research Degrees Committee (RDC) that appears to warrant further ethical exploration will be deferred. RDC will seek assurance that the proposal has been passed by the relevant School Ethics Committee.

10.3   Sources of Information on Ethics in Research

You should first discuss the ethical issues that need to be addressed with your supervisors. Even if there appears to be no ethical issues raised by the research the Ethics Checklist, indicating that you have addressed the questions, should be submitted for endorsement. You should also consult the particular professional

association code that governs your discipline area. A list of some such codes is included at the end of this section. You may also wish to consult texts on the subject, and a list of useful references is also given at the end of this section.

10.4   Principal Issues

The essence of good practice in ethical consideration relating to research is that researchers are responsible for ensuring that, as far as possible,

- the research should be beneficial to humanity
- the research should do no harm

In particular, the wellbeing (physical, social and psychological) of those participating in research should not detrimentally affected by the research. There should be respect and trust between researcher and the researched.

Additionally, and following on from the above, researchers and supervisors should avoid actions which have a deleterious effect for other researchers or which may undermine the reputation of their discipline.

10.5   Informed Consent

Many problems relating to ethical issues in research can be overcome in the research design by building in informed consent. The research should be based on full information being afforded to those targeted to participate and on their free agreement to participate.

Such information should include:
- the aims and nature of the research;
- who is undertaking it;
- who is funding it;
- its likely duration;
- why it is being undertaken;
- the possible consequences;
- how the results are to be disseminated;
- if there is a likelihood of data being shared with other researchers.

Participants should also be informed of their right not to participate. You will need to explain to the potential participants to what extent anonymity and confidentiality will be protected. It should be made known that such participants have the option of rejecting the use of data-gathering devices such as tape recorders and video cameras.

The above is not comprehensive and you will need to give full consideration in all cases. Particular sensitivity and care must be given where the target participants are young children, the elderly, the sick and the disabled or vulnerable groups such as those with learning difficulties.

Covert Research precludes informed consent and should be avoided. It should only be used in instances where you can clearly demonstrate that no alternative methods are possible and that data sought are of sufficient value to over-ride the requirement for informed consent. The Ethics Committee will require strong evidence supporting any such proposal, for example a sufficiently strong letter of support and recommendation from an appropriate professional or medical authority might be persuasive.

10.6   External Ethics Committees

The Central Office for Research Ethics Committee gives access to all the regional ethics committees and can be found on the Internet at:
www.corec.org.uk

10.7   Professional Association Ethics Codes

British Educational Research Association Ethical Guidelines
BERA, Commercial House, King Street, Southwell, Notts, NG25 0EH
www.bera.ac.uk

British Sociological Association Statement of Ethical Practice
British Sociological Association (1993), Mountjoy Research Centre, Stockton Road, Durham, DH1 3HR

British Psychological Society Statement of Ethical Principles
The Psychologist, June 1990, pp 269-272

Institute of Electrical and Electronic Engineers Code of Ethics
IEEE, 345 East 47th Street, New York 10017, USA

Institute for Certificate of Computer Professionals Code of Ethics
ICCP, 2200 E. Devon Avenue, Suite 268, Des Plaines, IL 60018, USA

Social Science and Humanities Research Council of Canada
1998 Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans
http://sshrc.ca

10.8   Selected Reference Texts

Bird, S.J. and Hoffman-Kidd, D. (eds) (1998) 'Whistle blowing and the Scientific Community' Science and Engineering Ethics, 4, 1

Bulmer, M (ed) (1982) Social Research Ethics, London: Macmillan

Burgess, R. (ed) (1989) The Ethics of Educational Research, Lewes: Falmer

Dejoi, R. et al (eds) 1991) Ethical Issues in Information Systems, Boston: Body and Fraser

Drowatzky, J.N. (1996) Ethical Decision Making in Physical Activity Research, Leeds: Human Kinetics

Elliot, D. and Stern, J.E. (1997) Research Ethics: a reader, Hanover: University Press of New England
Fielding, N. (1982) Observational research on the National Front, in Bulmer, M (ed), op cit

Finch, J. (1993) 'It's great to have some to talk to: ethics and politics of interviewing women' in Hammersley, M (ed) Social Research: Philosophy, politics and practice, London: Sage

Holdaway, S. (1982) 'An inside job: a case study of covert research on the police', in Bulmer, M. (ed), op cit

Homan, R. (1991) Ethics of Social Research, London: Macmillan

Humphreys, L. (1970) Tearoom trade: impersonal sex in public places, Chicago: Aldine

Kimball, A.J. (1996) Ethical issues in behavioural Research, Oxford: Blackwell

Lee, R. (1993) Doing Research on Sensitive Topics, London: Sage

May, T. (1993) 'Values and ethics in the research process', Social Research: Issues, methods and process, Buckingham: Open University Press

Penslar, R. (ed) (1995) Research Ethics, Bloomington: Indiana University Press

Roberts, H. (ed) (1981) Doing Feminist Research, London, Routledge

Rosnow, R.L. and Rosenthal, R. (1993) Beginning Behavioural Research: a conceptual primer, New York: Macmillan

Saunders, M. Lewis, P. and Thornhill, A. (1997) 'Negotiating access and research ethics', Research Methods for Business Students, London: Pitman Publishing

Shrader-Frechette, K. (1994) Ethics of Scientific Research, Lanham, Maryland: Rowman and Littlefield

Sieber, J.E. (1992) Planning Ethically Responsible Research, London, Sage

11   INTELLECTUAL PROPERTY RIGHTS

It is Cardiff Met's policy that postgraduate researchers have the same intellectual property rights as other members of staff. This does not diminish the rights of postgraduate researchers, but allows the sharing of intellectual property between all researchers, and ensures that postgraduate researchers benefit from the exploitation of shared intellectual property.

This section is not intended to be a definitive explanation of all of the implications of intellectual property. It serves as an introduction to the subject in order to raise your awareness of intellectual property and how it may affect you and your research.

11.1   What is Intellectual Property?

Intellectual property is the name given to information and knowledge that is owned by and has a value to a legal entity. A legal entity may be a person, a company or an organisation, such as your university.

Intellectual Property consists of intangible property made up of human knowledge or the results of human endeavour such as works of art, literature, songs, music, recipes, processes, mechanisms, products, formulae, chemicals, materials, therapies, etc.

There are essentially two types of recognition of intellectual property, authorship and ownership. The principal intellectual property right that we all have is the right to be recognised as the author or originator of a specific piece of work.

Secondary rights allow legal ownership of intellectual property, usually with significant commercial value. These bestow the right to protect and exploit ownership of intellectual property for financial gain.

11.2   Copyright

Copyright is a basic and automatic right. Anything that you do that is original and your own work is automatically your copyright. However, if this were to be disputed you may require a permanent, signed and most importantly, dated record.

Copyright is commonly associated with works of art, literature, songs & music, some designs, photographs and films. Although copyright does not necessarily have to be registered it can be assigned, bought and sold. There are also duration limits applied by international convention that vary according to the medium involved.

11.3   Registered Rights

Some forms of intellectual property can be assigned and registered through official mechanisms that entitle legal ownership. Typical examples are patents, design right and trade marks.

Patents are assigned through official national and international mechanisms that entitle legal ownership. Patents typically cover mechanisms, industrial and chemical manufacturing processes, pharmaceuticals, products, electronics, software and even human and animal genes.

Trademarks are also assigned and registered through official national and international mechanisms and cover logos, trade names, slogans and even jingles.

Registering these kinds of intellectual property requires first meeting certain defined requirements.

Most importantly the intellectual property must be registered, and is therefore publicly disclosed and published in return for the right to protect it legally for a specified amount of time. There are also other requirements that may affect the registration of intellectual property. For example there may be requirements to prove that you actually use the intellectual property.

In general registered intellectual property:
- requires disclosure or publication;
- has a finite time limit before the intellectual property becomes publicly available;
- costs large sums of money;
- is typically limited by country or region;
- provides legal protection and the right to make money from the intellectual property.

11.4   Secrecy

Certain forms of intellectual property can be very well protected by agreement and secrecy. Whether this is a practical option depends on the nature of the intellectual property and the ability to enforce and control the secrecy.

Secrecy between parties is often protected by legally binding contracts called non-disclosure agreements. It may also be controlled by employment contracts.

This type of protection is used to protect secret formulae, coded or hidden techniques, hidden mechanisms, industrial and chemical manufacturing processes, secret ingredients, recipes and software.

In general secret intellectual property:
- does not have to meet specific requirements;
- does not have to be disclosed or published;
- does not have to be used;
- offers indefinite time limits;
- costs little or no money (compared to patents);
- unlimited by country or region;
- may or may not provide legal protection.

11.5   Implications for Research

By definition research leads to the creation of new intellectual property. Most research is carried out in the public domain and therefore can only be protected to a limited degree.
However, registered and publicly disclosed intellectual property is a good source of information for research purposes. All forms of intellectual property are allowed to be used to a certain degree for review, reporting and research purposes. Be aware however, that certain rules and conventions may apply.

As a researcher you must:
- respect the intellectual property of others;
- respect and protect intellectual property of your collaborators;
- be aware of your own intellectual property;
- balance the needs of publication against protection;
- clarify ownership of intellectual property before disclosing;
- use non-disclosure agreements if necessary;
- seek permission before publishing if necessary.

In practical terms respecting the intellectual property of others comes down to good research practice such as avoiding plagiarism and copying (referred to as passing off) by using appropriate acknowledgements and references and following the accepted conventions of fair dealing. Fair dealing is the term often used to describe what may and may not be done with others intellectual property.

Intellectual property advice for researchers:
- be aware of your own intellectual property;
- discuss intellectual property with your supervisors;
- identify potential commercial value early;
- funding may affect intellectual property ownership;
- collaboration may affect intellectual property ownership;
- balance publication against protection;
- remember that most research is in the public domain;
- assess the potential commercial value of intellectual property before disclosure;
- elements of a thesis may be kept confidential under exceptional circumstances.

Clarify ownership of intellectual property that may be shared between

Yourself as a Cardiff Met postgraduate researchers	and	Cardiff Met
		Your supervisors
Yourself as a member of Cardiff Met staff		Collaborators
		Funding bodies

11.6   Sources of Information on Intellectual Property

Cardiff Met IPR Policy   https://tsr.cardiffmet.ac.uk/Units/RES/Pages/IP.aspx

Funding Council's IPR Policy Documents (available from individual councils)

IP Wales   www.ipwales.co.uk
UK Government IP Portal   www.intellectual-property.gov.uk
The Patent Office   www.patent.gov.uk

12   PRESENTATIONS

12.1   Introduction

As a postgraduate researcher you are expected to make regular presentations. These may take a variety of forms including presentations to colleagues in your School; participation in appropriate Cardiff Met Research Conferences; external seminars and conferences including those leading to refereed papers. Giving papers and making presentations on your research is an important aspect of working in an academic environment and of the research process.

You are also required to include details of the presentations you have given in your Candidate Reports. Presenting should not be done specifically for this purpose but should be part of your normal work.

12.2   Structuring and Delivering a Presentation

You should always introduce your topic and explain how it will be structured giving an opportunity for the audience to ask questions. It is good practice to use some form of visual aid, which may take the form of Over Head Projector, PowerPoint, slide shows or demonstrations.

Remember that visual materials are there to illustrate and reinforce your speech, not replace it. If using Over Head Projector or PowerPoint slides you should not cram too much information on each slide. The material should be appropriate for the audience, which will influence the level of specialist knowledge that you can assume.

You should organise your material so that it is structured, easy to follow and yet comprehensive.

You should always practice your presentation prior to delivery ensuring that it fits within the allocated time.

In answering questions you may wish to summarise your response and/or ask for clarification if you are unclear.

It is recommended that you rehearse your presentations in front of colleagues and supervisors. This is good practice and will allow you to gauge the time required and provide valuable feedback on your performance.

13. PLANNING THE THESIS

13.1 Components of the thesis

There is no best way of writing a thesis or one model for an appropriate format. However, certain aspects are conventionally found in a thesis and should only be deviated from after careful discussion with your supervisors. Indicative content is given below under four main headings.

1. Abstract/Summary

You are required to conform to the regulation about submitting an abstract or summary with your thesis. The regulations require that:
- both bound copies of the thesis include the summary;
- a single separate copy of the same summary should be submitted at the same time;
- the summary should be a piece of connected prose, not more than 300 words in length and it may be much shorter;
- the summary should be typed in black ink in at least 12pt font;
- the summary should be single spaced;
- the summary should be on A4 paper of good quality and sufficient opacity for normal reading.

When writing a summary you should bear in mind that this may be the only part of the thesis that is read by other research workers. It should be written in such a way as to help researchers in the same field decide whether to read the thesis and to give readers who are only marginally concerned in the subject enough information to make it unnecessary for them to read the work in full.

As a guide, the summary should:
- Set the context for the thesis and provide a short critical review of the relevant literature on which the study is built. It is clearly impossible to cite all the references used in the main thesis but it should concentrate on the key academic sources. Everything cited here should not only appear in the Introduction and/or literature review but also feature significantly therein. You may like to consider this to represent between 100-150 words of the summary.
- If the work is empirical in nature, the summary should provide a very brief overview of the key features of the methods used.
- Clearly indicate how the thesis represents a contribution to knowledge.
- Avoid abbreviations, cross referencing to sections of the thesis and references to the appendices

The summary should be self-explanatory thereby not requiring the reader to refer to the thesis in order to understand it. In some disciplines, the use of structured summaries is now preferred whereby the summary is broken down into sections with specific headings. You should discuss this possibility with your supervisor.

2. Main Body of Thesis

This is likely to cover most, if not all, of these aspects:

i.) Introduction
The first chapter should be an introduction to the thesis that should state very clearly the purpose of the project on which the thesis reports, the results, and a brief outline of the subsequent chapters. It is usual, somewhat paradoxically, to write the introduction after the thesis is largely complete in order that you are clear of what is being introduced.

ii.) Literature Review
Chapter Two should be a focused and critical background review of the relevant literature. This section should introduce the main topics of the research, the relevant theoretical ideas and clearly identify gaps in the current knowledge.

iii.) Method / Work Undertaken
A chapter on method used, what was used, why, what problems were experienced and how they were overcome.

iv.) Context
Depending on the subject it may be necessary to include a chapter that locates the research in its proper context e.g. social, historical, organisational, cultural, ethical, financial etc.

v.) Results
One or possibly two chapters that report on the research findings, clearly describing, using themes, what you have discovered and proposing reasons why this may be.

vi.) Conclusions
The conclusions set out the main findings of the thesis linking your literature reviews with the research findings so that a clear thesis can be identified through the whole work. On this information you can make your argument and assess the question you posed in you initial title. Remember to include what your findings contribute to both the general literature on the subject and the specialist field and/or practical problems that you have covered empirically. Include those results which surprised you and which may appear, at first sight, counter-intuitive to others. Do not forget to identify further avenues of development.

3. References / Bibliography
There should be a complete bibliography of all works that are referenced in the thesis whether as part of the literature review or as sources of information. This should be done in a recognised standard format. Take considerable care in the compilation of the bibliography and ensure that every work referred to in the texts is in fact listed in the bibliography correctly.

4. Appendices

Appendices to the thesis are legitimate but should be kept to an absolute minimum. Typical appendices are tables, graphs, surveys or notes that do not form part of the main thesis but the reader may wish to refer to for more detail.

13.2   Further Guidance

i.)   Avoid unnecessary footnotes.

ii.)   It is important that the thesis should be as much your own independent work as a formal examination script. A thesis should not merely consist of a patchwork of other people's thoughts and interpretations stitched together with a few threads of your own devising.

iii.)   The whole thesis should be written in good English or Welsh making the meaning at each point entirely clear to the reader. It should be free of spelling, grammatical or typographical errors. In this context the need for checking and re-checking the final draft cannot be emphasised enough. It is not your supervisor's role to check grammar. Your thesis may be failed for poor presentation and poor use of language.

iv.)   Although each chapter can be seen as a separate entity, each should link in order to tell one story. Keeping to the research aims and objectives aids this, as does linking paragraphs at the beginning and the end of chapters.

v.)   The process of writing is a constant stepping back from the detail, refining and sharpening statements that result from analysis and supporting them.

vi.)   The concluding chapter is what the work is all about. It brings together the focus of the literature review and conclusions of the analysis and your creativity and originality is displayed and justified.

vii.)   Avoid repetition; the only place where it is acceptable is the summary which is by definition a repetition in miniature of the text of the thesis.

viii.) Identify boundaries between sections

ix.)   Ensure that the evidence exists to justify your statements – unsupported statements may be targeted by examiners, and may expose weaknesses in your arguments.

x.)   Maintain a measured scholarly poise – never be apologetic. Express yourself confidently but with appropriate qualifications.

xi.)   Make sure you organise your word processing files sensibly. Pick a system and stick to it. Use commonly used freely interchangeable formats where possible. You may find that it is easier and quicker to create separate files for individual chapters, graphs, illustrations, appendices, etc. Take great care when using automatic systems for referencing, page numbering or captioning. If you place too much trust in them you may not notice errors. Avoid the use of colour unless it is absolutely necessary. You might find it helpful to use a bibliographic reference system such as ENDNOTE.

xii.)   Back Up - Ensure that at all times your works exists in three separate locations. Keep a working copy on your PC whilst maintaining regular back ups. These should be weekly (monthly at most) and should be kept in two different safe places (for example one on a home PC and another on CD in a colleague's office). This cannot be stressed too highly: theft, flood and fire do happen. Be prepared!

13.3   Recommended Reading

Bell, J. (1993) Doing Your Research Project, Milton Keynes, Open University Press
Howard, K. and Sharp, J.A. (1989) The Management of a Research Project (1st Edition), Aldershot, Gower
Phillips, E.M. and Pugh, D.S. (1987) How to Get a PhD, Open University Press
Fairbairn, Gavin J. and Winch, Christopher. (1996) 2nd edition. Reading, Writing and Reasoning: A Guide for Students. OU.

14   THE WRITING PROCESS AND REFERENCING

14.1   Conventions

Writing a thesis for a research degree is not quite like anything else you will have done before. There are some unwritten rules and standards that vary between disciplines and are for you to find out. A good way of doing this is to browse through some theses in your discipline area and to extract the commonalties. These might be to do with things such as structure, or terminology, but will certainly give you a hint as to whether use of first person (sometimes frowned upon!) is permissible, and if not how to get round it.

One common unwritten rule pertains to whom you are writing the thesis for. Whilst the answer is generally for you and other academics in the field, it must in the first instance be for your examiners. In relation to this, whether examiners can find anything else to criticise or not, they will always notice and comment on spelling, grammatical and typographical errors. Make sure, therefore that you read through and get someone else to proof read your thesis and sections of it.

You should also make sure that pagination is correct, that Latin phrases are in italics and that you adopt a standard system of referencing (see section on referencing below), that abbreviations and symbols are defined on first-time use and that a table of these is included.

14.2   Thesis Flow

MPhil and PhD theses are not the easiest documents to read, as they are necessarily long, technical, contain complex argument and analysis, refer forwards and backwards to other sections and contain detailed data. Your job is to make the thesis as readable as possible in spite of this. You should keep the reader informed via an introductory section at the very beginning of the thesis and at the start of each chapter.

It helps if anything that disturbs the flow of the thesis is lodged as an appendix, but care is needed here to save the reader from having to flick between chapter and appendix. In order to avoid this, you could include highlights or extracts from the appendix within the text. Appendices will include, for example, results tables, data lists or computer code.

You should also bear in mind that a thesis is rarely read in one sitting. Examiners are busy people and will wish to read and digest the thesis in sections so make sure you provide lots of opportunities for reading breaks within the chapters by splitting them into convenient sections.

It is likely that not everything you do in your research project belongs in your thesis, so be discriminating in relation to what you include. You may wish to move some work to an appendix. It is worth remembering that a clear diagram or photograph can save a thousand words.

14.3   Evidence and Opinion

Your thesis represents the write-up of a piece of academic research. You must be very clear in the text therefore not to mix up what is evidence from your own work with that of others and opinion, either yours or someone else's. Draw your conclusions from evidence only and do not include statements that are neither taken from your findings nor those of others (referenced) unless it is made clear that such statements are opinionative.

14.3.1 Checking the thesis through Turnitin

An electronic copy of the Research Degree theses is lodged in the Institutional repository after the examination process is completed. The e-copy is scanned through Turnitin by Registry before deposition to ensure that copyright infringements haven't occurred, and this process may reveal that a substantial portion of the thesis uses phrases or sentences that occur in published material accessible through the internet.

Turnitin takes a piece of work that a student has written and compares the text to a large database of other written work. This database includes a growing body of student work and external sources which has been submitted to the system in the UK over the last few years, published journals and peer-reviewed papers and millions of web pages, gathered daily and added to an archive.

The system looks for strings of words from the student work that matches those from an outside source and produces an originality report showing where these matches occur. Each report shows the percentage of text from the student work that matches an outside source. It is then up to the marker of the work to determine if this matching text represents plagiarism or not

If a sufficiently high proportion of the thesis appears to duplicate published material then it may be a cause for concern that you could be guilty of academic misconduct, and an investigatory committee could be set up to determine if this is the case. This would entail a suspension of your award, at least until the committee has completed its investigation.

Research Degrees Committee strongly recommends to supervisors and candidates that each draft chapter of the thesis is scanned through Turnitin before the thesis is assembled for submission so that any issues about copying the contents can be picked up at an early stage. Often this amounts to no more than using an author's own words from an identified publication, however this still needs to be carefully reviewed to ensure that the use of the words is properly identified.

Again, before the final version of the thesis is submitted as an e-copy, RDC advises that it should be re-scanned through Turnitin.

Supervisors and candidates can enrol on the Turnitin module in Blackboard to find out how to use the software.

14.4 Literature Review

As outlined in Section 7.4.3, a literature review is normally the first step in any research study. The importance of the review cannot be overstated. It is the foundation of the entire study and a poor review may be difficult or impossible to recover from in the study period allowed. A well-conducted and timely review will lead to increased confidence and definite goals being set for the rest of the study.

14.4.1 Possible Sources

There are a number of possible sources which you can search as part of your literature review. They are:

- Academic Journals   preferably international and peer reviewed
- Conference Proceedings   preferably international and peer reviewed
- Text Books   good for theory and historical perspective
- Book Bibliographies
- Newspapers   beware of bias and journalistic license
- The Internet   only from reputable sources, e.g. government
- Other theses
- Guides & Indexes
- Abstracts

There are cases where there is little previous literature. This could be because the subject is very new or that it relies on very new or rare technology. In established subjects it may be that the research question may be new or involve a totally novel approach. Alternatively, it may be the case that the topic is difficult or even impossible to investigate using empirical (i.e. direct, systematic, observable) methods. In these cases, you must determine that other research on the question is not 'hiding' in the library perhaps using different terminology. You should also look for similar approaches or equivalent studies that may have taken place in other subject areas. Many research projects rely on a cross-disciplinary approach or some degree of cross-fertilisation of ideas from one subject area to another. Consequently many researchers will have to engage with a broad range of academic disciplines, which can make the search very challenging. These methods do however serve the purpose of helping to clarify theory, suggesting an appropriate method and providing a conceptual foundation.

14.4.2   Length of the Literature Review

The literature review will require periodic updating and maintenance throughout the period of your study to ensure that it reflects new developments and remains up to date. However, there will inevitably come a time when enough has been done to provide you with a thesis appropriate for your research degree.

There is no general rule as to how long a review should be and no accepted number of references considered appropriate. However, through conducting your review you will know when enough has been done for your thesis. For example, you will eventually find that you keep seeing citations to literature you have already read. You will also begin to find that the key academic sources on a specific question are usually reasonably limited in number and often refer to one another.

14.4.3 Writing your Literature Review
Putting the existing literature together in summary form, showing how it relates to a new problem (or new interpretation of an old one) and identifying gaps and opportunities in the existing academic record is both a creative and demanding undertaking.

There are different approaches to the presentation of a critical literature review. Literature reviews can be
- Chronological - from the first work on the subject to the most recent
- Arranged by different methodological approaches
- Arranged by the theoretical approach of the authors reviewed
- Thematic – arranged according to themes within the literature
- In any other way which will help the reader to understand how your work relates to previous studies

Producing a good literature review is a skill that is at the heart of scholarship and every bit as demanding as a complicated statistical analysis or the designing of surveys. A good literature review is evaluative and often highly critical of earlier work and argues the strengths and weaknesses of existing (and alternative) approaches. Read previous theses in your subject and literature reviews in journals to help you develop a good format and style.

The literature review can be expected to occupy the initial six months of a typical three-year PhD study. However, it is crucial that the content is continuously and regularly maintained over the study period to remain up to date and relevant.

14.4.4 Organising your Literature Review
There are a number of approaches to organising the review but the trick is to access, understand, and think about a problem that interests you. Conducting a literature review will generate a lot of notes, references and paper copies. It is crucial that these are kept in a tidy and organised manner, as you will need to refer to them many times during your study. More information on how to organise your studies can be found in Section 9.4 of this handbook.

14.5   Referencing

There are several different recognised referencing systems used across academic disciplines. You should discuss the options with your supervisor to find the one most suitable for your dissertation. The most important thing is to be consistent in your referencing style throughout the dissertation and to ensure all cited works are traceable. Cardiff Met tends to use the Harvard system, unless an alternative is indicated, and details of this are given below in an extract taken from The British Psychological Society Style Guide.

Findings and assertions reported in the text should always be supported by a reference to their source. A single reference for each instance is preferred. If more than one reference could be cited, use the most recent or most accessible as an 'e.g.' reference. The most recent of a string of publications on the same topic will often itself contain references to the earlier ones.

If there is good reason to give more than one source, citations should be limited to a maximum of three for any single instance, using the 'e.g.' device if necessary.

14.5.1 Citation in text
The author–date system or Harvard system is the preferred method of citation at Cardiff Met.
The surname of the author(s) or editor(s), or the name of a corporate originator, and the year of publication are inserted in the text at the appropriate point.

In a recent study of reaction times Rabbitt (1980) found…
Rationality can be undermined by certain intuitions (Baron, 1994).
Stalking has been defined as unwanted contacts or intrusions on two or more occasions (Australian Bureau of Statistics, 1996).

References cited in the text must appear in the reference list (see section 14.5.2). Text citations should remain in quoted material, but it is not necessary to add the corresponding references to the reference list only on the basis of their appearance in a quotation.

a. Multiple citations
Give multiple citations chronologically for a single author: (Smith, 1999, 2001a, 2001b) but in alphabetical order for a multi-author list: (Brown, 2001; Jones, 1996; Smith, 1992)
The sequence is strictly alphabetical, even if a chronological sequence seems more logical.

In the last 25 years the department has carried out three major surveys (Arnold & Smith, 1988; Brown, 1999; Smith, 1981).

b. Multiple authors

If a work has two authors, cite both names every time and link them with an ampersand (*&*) if the citation appears in parentheses:
The original study (Smith & Jones, 1984)…
or with *and* if in running text:
The original study by Smith and Jones (1984)…
If a work has three or more authors, for both first and subsequent occurrences cite only the first author followed by *et al*.
Note: Italicise *et al*.

If the abbreviation *et al*. leads to a confusion between two groups of authors, e.g. Hunt, Hartley and Davies (1983) and Hunt, Davies and Baker (1983), then cite as many of the authors as necessary to distinguish the two citations. Hunt, Hartley *et al*. (1983) and Hunt, Davies *et al*. (1983).

When there are more than six authors, the corresponding entry in the reference list may be limited to give the surnames and initials of the first six authors followed by *et al*.

c. Same author and year
Works by the same author or authors and with the same year of publication are differentiated by adding the suffixes *a*, *b*, etc. to the year both in the text citation and the reference list. The suffixes are assigned alphabetically according to the words following the year in the reference list.

listed in reference list:

MacKay, T. (2000a) A millennium without illiteracy? Breaking the link between poverty and reading failure. Proceedings of The British Psychological Society, 8(2), 15.

MacKay, T. (2000b) Educational psychology and the future of special educational needs legislation. Educational and Child Psychology, 17(2), 27–35.

referred to in text as

MacKay (2000a, 2000b)

Where the authors are not identical but the text citation using *et al*. could lead to confusion, the citations should be differentiated by listing additional authors (as in paragraph 1(b)), not by using year suffixes.
listed in reference list

Cohen, S., Braithwaite, D., Reynolds, F., Jones, M., Smith, P., Arnold, W. et al. (1993)…
Cohen, S., Reynolds, F., Braithwaite, D., Jones, M., Smith, P., Arnold, W. et al. (1993)…

referred to in text as

Cohen, Braithwaite et al., 1993; Cohen, Reynolds et al., 1993

d. Specific parts of cited sources
Make citations of a particular page, figure, table, etc. at the appropriate point in the text rather than in the reference list.
When such citations appear in parentheses, use commas and not parentheses to set the date. (Stone, 1999, Table 2.4); (Hunter, 2001, pp.251–253)
Note: No space between pp. and the following number.

e. Punctuation in text citations
There is no use of the series comma (i.e. the comma before *and*, *&* or *et al.* except after a single name) thus:

Smith and Jones (2000) reported…
It has been reported (e.g. Smith & Jones, 2000)…
Smith et al. (2001) found…

and

Smith, Brown and Jones (2000) reported…
It has been reported (e.g. Smith, Brown & Jones, 2000)…
Smith, Brown et al. (2001) found….

f. Personal communications
Personal communications (letters, memos, e-mails, telephone conversations, etc.) do not provide recoverable data. They are therefore not included in the reference list and appear in text citations only. Give the initials and surname of the correspondent and as exact a date as possible.

J. Brown suggested (personal communication, 14 September 2000)…

It has been suggested (J. Brown, personal communication, 14 September 2000)…

g. Secondary sources
If a work is cited as discussed in a secondary source, give the name of the original author with a reference only to the secondary source.
> Rubin's study of romantic love (as cited in Sabini, 1992)…
The sole entry in the reference list here would be:
> *Sabini, J. (1992). Social psychology. New York: W.W. Norton.*

h. Legal cases
The parties in a case should be referred to in the following format:

Bolam v. *Friern Hospital Management Committee*
R. v. *Smith*

It is usual to add the year of the case in parentheses. In general this will suffice, and there is no need for an entry in a reference list. Note that the year will normally refer to the year of publication of a law report; many cases (particularly the significant ones most likely to be referred to) will have gone through various stages of interim judgements and appeals, each of which may have been reported in different years; frequently a case is decided in one year and reported the following year. If precision is needed or if a quotation from the judgement needs a full citation, there are standard legal formats for referring to legal cases that are too complex to set out here. Follow the format used in the legal source. For example, in the *Bolam* case referred to above a correct formal citation would be:

Bolam v. *Friern Hospital Management Committee* [1957] 1 WLR 582

This means that the judgement was reported in volume 1 of the Weekly Law Report series of 1957 starting on page 582. This particular case was also published elsewhere, so there are other ways of giving it a full reference. It is not necessary to give all the valid references.

Statutory material

- Statutory material may be referred to in text without needing a corresponding entry in the reference list. Refer to an Act of Parliament as follows (roman, date not set off by commas or parentheses):

Mental Health Act 1983

- Specific parts of an Act may need to be specified:

Statutory registration for psychologists was made possible by section 60 of the Health Act 1999. Statutory registration for psychologists was made possible by the Health Act 1999 (s.60).

- Statutory instruments (Orders in Council, Regulations) are sequentially numbered by year. The identifying number need not be given provided the title and year of the instrument are stated, but may be given in the text reference if felt necessary.

Immigration (Leave to Enter) Order 2001
Child Support (Miscellaneous Amendments) Regulations 1999

Or

 Immigration (Leave to Enter) Order (SI 2001/2590)
Child Support (Miscellaneous Amendments) Regulations (SI 1999/977)

- Specific parts of a statutory instrument may need to be specified:

When a person applies to enter the UK for a reason not specified by the immigration rules, under article 2(4) of the Immigration (Leave to Enter) Order 2001 the secretary of state may take into account any additional grounds that a person has for seeking leave to enter.

The Child Support Fees Regulations 1992 were amended by regulation 3 of the Child Support (Miscellaneous Amendments) Regulations 1992.

Note: The various subdivisions of Acts and statutory instruments have specific names (Part, Schedule, section, subsection, regulation, article, etc.). Care must be taken to use the correct terms.

j. Literary works
References to literary works will rarely need an entry in the reference list. Well-known works can be referred by merely giving the title in the text. A year in parentheses may be added for lesser-known works, or where the date has some extrinsic significance. Even where an extract from a literary work is quoted it is not usually necessary to give page numbers (or in the case of plays, act and scene numbers) or an entry in the reference list. However, it may be appropriate to do this where a literary work is the main subject being discussed.

k. Broadcast media
Television and radio programmes should be referred to only by title of programme, series or edition either in the body of the text or parenthetically. If relevant, the channel may also be given. The specific date of broadcast and channel should be added if a direct quotation or academic point is being made. There is no need to give a full citation in the reference list.

l. The Bible and other sacred works
References to specific parts of the Bible are always given in the text, not in a reference list. Give the name of the book (roman type) in full (i.e. not the standard abbreviation) followed by chapter and verse(s) in Arabic numerals separated by a colon.
Hebrews 13:8 1
Thessalonians 4:11
Ruth 3:1–18
Where a biblical passage is quoted, there is no need to give line numbers. Nor does the version quoted (e.g. *Hebrews 13:8 RSV* for the Revised Standard Version) need to be given unless there is a specific reason to include this information.

Treat references to other sacred texts similarly.

14.5.2 Citation in reference lists

The purpose of the reference list is to allow readers (or librarians) to find the original material. To allow them to do this it is essential to include the author or originator; year of publication; title of work and publication data for each item in the list.

Take care to check that all references cited in the text are included, and that dates and spellings of authors' names are consistent in the text and the list.

The main types of entry are listed here, with examples that will serve as patterns for analogous cases.

Entries in a reference list are in a letter-by-letter alphabetical sequence. That is, spaces between the elements of an entry, and all hyphens, periods and other punctuation marks are ignored for the purpose of deciding the filing order. Ampersands are ignored when they separate individual author names. Names with prefixes (e.g. de Gaulle, van den Boom) are filed under the initial letter of the prefix, regardless of capitalisation. Names beginning *Mac*, *Mc*, and so on, are filed strictly alphabetically, not as if they were all spelt *Mac*.

In a biographical or similar account it is not normally necessary to supply a full reference for books and texts mentioned as having been written or contributed to (or even having been read) by the subject of the account. Simply add the year of publication in parentheses after the first mention of the title in the text.

Myers established a laboratory at King's College London, published A Textbook of Experimental Psychology (1909) and lobbied…

Where there are more than six authors, you need give only the first six names followed by *et al*. If two such references shorten to the same form, give as many additional names of authors as is necessary to distinguish the two references.

a. Journal articles
Smith, A.B. & Clark, E. (1995). Unlimited thinking. Cognitive Psychology, 24, 9–15.

if in press:
Smith, A.B. & Clark, E. (in press). Unlimited thinking. Cognitive Psychology.

b. Other periodicals
Numbered by volume and part (treat as journal references)

Boynton, P. (2000). Women, psychology and success – Who's stopping us making it? [Interview with Pat Frankish]. Psychology of Women Section Review, 2(2), 41–47.
Hartley, J. & Jory, S. (2000). Lifting the veil on the viva: The experiences of psychology PhD candidates in the UK. Psychology Teaching Review, 9, 76–90.

Note: It is only necessary to give a part number (as in Boynton, 2000) where pagination is by part rather than by volume.

Numbered by issue

Plant, B. (2001, January). Disclosure of unused material. Forensic Update. Issue 64, pp.4–9.

Robinson, E. & Whitcombe, E. (2001, Winter). Source monitoring errors mislead older but not younger children. Developmental Psychology Forum. Issue 58, pp.9–12.

c. Books and monographs

Berkowitz, L. (1980). A survey of social psychology (3rd edn). New York: Holt.

if in press:

Berkowitz, L. (in press). A survey of social psychology (3rd edn). New York: Holt.

d. Edited books

Wall, T.D. (Ed.) (1987). The human side of manufacturing technology. Chichester: Wiley.

e. Chapters in edited books

Petrie, K. (1981). Life stress and illness: Formulation of the issue. In B.S. Dohrenwend & B.P. Dohrenwend (Eds.) Stressful life events and their context (Rev. edn., pp.345–401). New York: Wiley.

if in a separately titled volume in a multi-volume work:

Auerbach, J.S. (in press). The origins of narcissism and narcissistic personality disorder: A theoretical and empirical reformulation. In J.M. Masling & R.F. Bornstein (Eds.) Empirical studies of psychoanalytic theories: Vol. 4. Psychoanalytic perspectives on psychopathology. Washington, DC: American Psychological Association.

Note: For books that are in press, page numbers are not available.

f. Republished works

Freud, S. (1984). The unconscious. In A. Richards (Ed.) The Pelican Freud library: Vol.11. On metapsychology: The theory of psychoanalysis (pp.159–222). Harmondsworth: Penguin. (Original work published 1915)

Jaspers, K. (1963). General psychopathology (M. Hamilton & J. Honig, Trans.). Baltimore, MD: Johns Hopkins University Press. (Original work published 1913) Note: In text citations give both original and later dates: Freud (1915/1984); Jaspers (1913/1963).

g. Magazine articles

Concar, D. (2002, 16 March). Corporate science v the right to know. New Scientist, pp.14–16.

h. Newspaper articles
Smithers, R. (2001, 3 August). Teachers on TV 'shown as idle drunks'. The Guardian, p.11.

without named author:

Tests annulled after cheating. (2001, 27 July). The Times Educational Supplement, p.4.

Note: In a parenthetical text citation use a shortened form of the title: ('Tests annulled', 2001).

i. Letters to the Editor
Ahern, C. (2002, 10 September). Trusting drugs [Letter to the editor]. The Independent, p.17.

Pilgrim, D. (2001). Engaging with biology [Letter to the editor]. The Psychologist, 14, 179.

Note: Words that describe form are enclosed in square brackets.

j. Official reports
Association of Chief Officers of Probation (1997). Position statement on electronic monitoring. London: HMSO.

Presidential Commission (1986). Human factors analysis. In Report of the Presidential Commission on the Space Shuttle Challenger Accident (Vol. II, Appendix G). Washington, DC: US Government Printing Office.

Quality Assurance Agency for Higher Education (2001). The framework for higher education qualifications in England, Wales and Northern Ireland. Gloucester: Author.

k. Society Reports, guidelines, etc.
British Psychological Society (1999). Dyslexia, literacy and psychological assessment. Report of a working party of the Division of Educational and Child Psychology. Leicester: Author.
British Psychological Society (2000). Code of conduct, ethical principles and guidelines. Leicester: Author. Division of
Clinical Psychology (1995). Professional practice guidelines. Leicester: British Psychological Society.

l. Unpublished theses/dissertations
Beck, G. (1992). Bullying amongst incarcerated young offenders. Unpublished master's thesis, Birkbeck College, University of London.

m. Conference papers, etc.
Papers in published proceedings

Cynx, J., Williams, H. & Nottebohm, F. (1992). Hemispheric differences in avian song discrimination. Proceedings of the National Academy of Sciences, USA, 89, 1372–1375.

Deci, E.L. & Ryan, R.M. (1991). A motivational approach to self: Integration in personality. In R. Dienstbier (Ed.) Nebraska Symposium on Motivation: Vol. 38. Perspectives on motivation (pp.237–288). Lincoln: University of Nebraska Press.

Note: Treat regularly published proceedings as periodical references (as in the first example above).

Unpublished papers presented at a meeting

Lanktree, C. & Biere, J. (1991, January). Early data on the Trauma Symptom Checklist for Children (TSC–C). Paper presented at the meeting of the American Professional Society on the Abuse of Children, San Diego, CA.

n. Government publications

Department of Health & Home Office (2000). Reforming the Mental Health Act. Part I: The new legal framework. White Paper. Cm 5016-I. London: The Stationery Office.

Hunt Report (2000). Research and development for a first class service: R&D funding in the new NHS. Department of Health: HMSO.

Scottish Office (1998). Meeting the childcare challenge: A childcare strategy for Scotland. Cm 3958. London: The Stationery Office.

Note: It is not necessary always to give the command paper number. If it is given, the publisher's details may be omitted, but the command paper reference should be given accurately, as different formats refer to different periods (Cmd: 1919–1956; Cmnd: 1956–1986; Cm: 1986 to the present).

o. Unpublished/submitted/in preparation papers

Black, P.T. (1999). Educational level as a predictor of success. Unpublished manuscript.

Black, P.T. (1999). Educational level as a predictor of success. Manuscript submitted for publication. Black, P.T. (1999). Educational level as a predictor of success. Manuscript in preparation.

Note: The year is that of the draft referred to. In text citations use the year, not 'in preparation', 'submitted', etc.

p. Limited circulation publications

Breast Cancer Care (2001, May). Breast cancer and you: Coping with a diagnosis. (Available from Breast Cancer Care, 210 New Kings Road, London SW6 4NZ)

q. Press releases

Mental Health Foundation (2002, 30 May). Mental Health Foundation breaks new ground with early stage dementia website [Press release].

r. Foreign-language books, title translated into English

Klix, F., Kossakowski, A. & Mäder, W. (Eds.) (1980). Psychologie in der DDR – Entwicklung, Aufgaben, Perspektiven [Psychology in the GDR – Development, tasks, perspectives] (2nd edn, rev.). Berlin: VEB Deutscher Verlag der Wissenschaft.

Note: Use any accents and capital letters for foreign-language words as in the original (e.g. initial capitals for all nouns in this example).

14.5.3 Citing documents published on the internet

The recent rapid expansion of the number and variety of documents available over the internet has meant that systems of citation are only slowly settling to standardised forms. Complicating factors are that website addresses may change and that information found at a given address may change.

Many internet sources need not be given full academic-style references. In such cases the website addresses and any other information necessary to the context may be given in the main text.

If a document is known to be also available in ordinary printed form, then only its print form need be cited in a reference list. The recommendation is to add '[Electronic version]' after giving a journal paper title referenced in standard print form but viewed in its electronic form. This is because versions may differ in some ways (e.g. there may be additional data in the electronic version).

Where an internet citation must be given, the principle is that enough information should be provided for retrieval of the source. The minimum information needed is

- document title or description;
- website address (of the specific document rather than a home or menu page);
- date of retrieval.

The author or originator of a document and the date of publication or update may also be given.
Most website addresses are available via hypertext transfer protocol (http). In these cases omit the protocol and its associated colon and slashes (http://) from the cited address. Other protocols (e.g. https, ftp) need to have their differentiating characters cited. The letters *www* cannot safely be omitted, as many website addresses do not begin this way.
Line breaks can be a problem, especially as the hyphen is a functional character in internet addresses. If an address needs to be broken, avoid breaking directly before or after a full point or hyphen. If possible break either side of a forward slash or underscore.

avoid:

www.bps.org www.

www.bps.org.uk. sub-syst/subsystems_div1.cfm

www.bps.org.uk/subsyst/ subsytems_div1.cfm

www.bps.org.uk/sub -syst/subsytems_div1.cfm

preferred:

bps.org.uk/sub-syst/ .uk/sub-syst/subsytems_div1.cfm subsytems_div1.cfm

a. Online journal article (available also in print)

Hughes, L.E. & Wilkins, A.J. (2002). Reading at a distance: Implications for the design of text in children's big books [Electronic version]. British Journal of Educational Psychology, 72, 213–226.

b. Internet-only journal article

Frederickson, B.L. (2000, 7 March). Cultivating positive emotions to optimize health and well-being. Prevention and Treatment, 3, Article 0001a. Retrieved 20 November 2000 from journals.apa.org/prevention/volume3/pre0030001a.html

c. Non-periodical document

European Union (n.d.). Draft charter of fundamental rights of the European Union. Retrieved 10 June 2002 from ue.eu.int/df/default.asp?lang=en

National Autistic Society (n.d.). About the NAS. Retrieved 14 February 2002 from www.nas.org.uk/nas/index.html

Note: Where no publication date is given, use *n.d.* instead of the year.

d. News item

Hopkins, N. (1999, 6 February). When rage is part of the package. Guardian Unlimited. Retrieved 14 May 2002 from www.guardian.co.uk/Archive/Article/0,4273,3817782,00.html

Physical illness link to suicide risk (2002, 7 June). BBC News. Retrieved 10 June 2002 from news.bbc.co.uk/hi/english/health/newsid_2031000/2031041.stm

Note: Where no author is given, use the title of the item to start the reference. In text the citation could be: ('Physical illness link', 2002).

e. Message posted to an online discussion group

Klein, K. (2002 , 19 April). All out of sorts. Message posted to groups.yahoo.com/group/ autismandenzymes/message/7

14.5.4 Quotations

Short quotations can be incorporated in the text within quotation marks. Longer quotations are set off from the main text as freestanding blocks without quotation marks.

Quotations of up to 40 words will generally be incorporated in the text, but whether to incorporate in text will depend on the layout and format of the page on which it is to appear. It may also depend on the content. For example quotes and comments in interviews or news stories will usually be set within the main text.

a. Changes to cited material

Direct quotations must be cited word for word

Where any incorrect spelling, grammar or punctuation might confuse readers, (or to indicate authorial or editorial awareness of a mistake) use the word *sic* in square brackets immediately following the error.

'A number of them has [*sic*] been involved in research into…'

The first word of a quotation may be changed to a lower case or capital letter to fit the sentence construction (a) below. Alternatively, such a change may be indicated by placing the changed letter in square brackets (b).

Original (from Davies & Thasen, 2000, p.425): 'Until such time as automatic image processing reaches acceptable levels of efficiency, identification of persons from CCTV footage based purely on alleged physical resemblance needs to be treated with caution.'

(a) Davies and Thasen (2000) concluded that 'until such time as automatic image processing reaches acceptable levels of efficiency, identification of persons from CCTV footage based purely on alleged physical resemblance needs to be treated with caution' (p.425).

or

(b) '[I]dentification of persons from CCTV footage based purely on alleged physical resemblance needs to be treated with caution' was the conclusion reached by Davies and Thasen (2000, p.425).

Another way to deal with beginning a quotation other than at the start of the source sentence is by use of an ellipsis. See section b.

The punctuation mark at the end of a quoted extract incorporated into a sentence may also be changed or omitted to fit the syntax. Other punctuation, spelling, etc. should follow the original, even if it is incorrect.

'[I]dentification of persons from CCTV footage based purely on alleged physical resemblance needs to be treated with caution,' wrote Davies and Thasen (2000, p.425).

Any changes made to a quotation (e.g. italicising a word for emphasis,) must be explicitly indicated by a comment within square brackets immediately following the italicised word.

Smith (1989) concluded that 'in general the *morning* [emphasis added] is the best time for strictly mental work' (p.149).

Material inserted to clarify the quotation should be placed within square brackets. Words in parentheses belong to the original.

Myers (2000) concluded that 'these groups [repressors and the truly low anxious] react very differently on the three systems of anxiety (verbal, behavioural and physiological)' (p.403).

b. Quotes with omissions

If omissions are required then a three-point ellipsis is used to indicate missing text from quoted extracts. Spacing of the ellipsis should be as follows:

'At the end of an extract…'

'At the end of a question…?'

'…at the beginning of an extract.'

'In the middle of a sentence…no space either side.'

'The end of a sentence is missing… And a new sentence follows.'

'The end of a question is missing…? And a new sentence follows.'

'The end of a sentence is missing…and the beginning of the next sentence missing, but the

whole quotation makes sense as a complete sentence.'

'The end of a sentence is missing… [T]he beginning of the next sentence is missing but is grammatically separate from the first.'

'One sentence ends. …beginning of next sentence is missing.'

'One sentence ends. … Then text is missing before another complete sentence starts.'

There is never any need to use an ellipsis where a quoted extract or phrase is incorporated into a sentence.

The researchers found that 'more than half of the target group self-reported significant levels of childhood trauma'.

And finally… a three-point ellipsis can also be used as a literary device to introduce a topic or to leave a thought suspended.

Note: Most word-processing applications have a specific symbol for an ellipsis. Using this symbol rather than three full stops will prevent the dots in the ellipsis breaking across lines.

c. Punctuation with quotations

i. Quotations in running text

Can be set in two ways:
- with a colon introducing one or more complete sentences (i.e. complete grammatically, not necessarily complete sentences from the original)

Davies and Thasen (2000) concluded: 'Until such time as automatic image processing reaches acceptable levels of efficiency, identification of persons from CCTV footage based purely on alleged physical resemblance needs to be treated with caution.' (p.425.)

Davies and Thasen (2000) concluded: '…identification of persons from CCTV footage based purely on alleged physical resemblance needs to be treated with caution.' (p.425.)

- by incorporating in a sentence

Davies and Thasen (2000) concluded that 'until such time as automatic image processing reaches acceptable levels of efficiency, identification of persons from CCTV footage based purely on alleged physical resemblance needs to be treated with caution' (p.425).

Davies and Thasen (2000) concluded that 'identification of persons from CCTV footage based purely on alleged physical resemblance needs to be treated with caution' (p.425).

Where more than one sentence is quoted, the extract should always be introduced by a colon. It is not possible logically to incorporate more than one sentence in a sentence.

Note: The ellipsis (…) is used to indicate missing text only at the start or end of a quotation introduced by a colon. Do not use an ellipsis at the start or end of a quotation incorporated into a sentence. In either case an ellipsis may be used in the middle of a quotation.

The original terminating punctuation must be kept in quotations introduced by a colon. The citation or page reference that follows will then need a full stop inside the closing parenthesis (see above). In quotations incorporated in a sentence the original terminating punctuation is omitted (unless the terminating punctuation is a question mark or exclamation mark). The citation or page reference that follows will then need a full stop (or comma, colon or semicolon) outside its closing parenthesis (see above). Or if no page reference is given, the full stop or other punctuation immediately follows the closing quotation mark:

Davies and Thasen (2000) concluded that 'identification of persons from CCTV footage based purely on alleged physical resemblance needs to be treated with caution'.

If the terminating punctuation of a quotation incorporated in a sentence is a question mark or an exclamation mark, this must be placed inside the closing quotation mark (because it belongs to the quotation, not to the surrounding sentence). If the sentence containing the quotation then ends at the same place, no full point is needed after the closing quotation mark.

…questions such as 'How large is the universe?' and 'Does chaos rule the cosmos?' Not far down the list was the question…

This convention is to avoid a rather fussy three punctuation marks in a row, two such marks being enough to mark the end of a sentence. But if the quotation does not end at the same place as the sentence, this may not be avoidable.

…questions such as 'How large is the universe?', 'Does chaos rule the cosmos?' and 'What is consciousness?'

Page references usually follow the quotation. Where a quotation is incorporated into a sentence that is a direct question, placing the question mark outside the closing parenthesis of the page reference (or citation) separates it from the text to which it belongs. Placing the question mark after the closing quotation mark (not within, as it was not part of the original quoted material) separates the quotation from its reference. The preferred solution is to place the reference elsewhere, recasting the sentence if necessary.

Why did Davies and Thasen (2000, p.425) conclude that 'identification of persons from CCTV footage based purely on alleged physical resemblance needs to be treated with caution'?

not

Why did Davies and Thasen (2000) conclude that 'identification of persons from CCTV footage based purely on alleged physical resemblance needs to be treated with caution' (p.425)?

and not

Why did Davies and Thasen (2000) conclude that 'identification of persons from CCTV footage based purely on alleged physical resemblance needs to be treated with caution'? (p.425.)

ii. Block quotations

Longer quotations that are printed as freestanding blocks should not be written as a continuation of an introductory sentence. The original initial capitalisation and terminating punctuation is kept. If such a quotation begins mid-sentence, an ellipsis (…) must indicate this and the first word is not capitalised (unless it was capitalised in its own right in the original).

The citation should follow the extract in parentheses without any terminal punctuation either inside or outside the closing parenthesis.

> *Until such time as automatic image processing reaches acceptable levels of efficiency, identification of persons from CCTV footage based purely on alleged physical resemblance needs to be treated with caution. Moreover, the training of video operators should take account of the accumulated research which points to the importance of human factors governing the deployment and effectiveness of video technology. (Davies & Thasen, 2000, p.425)*

Note: Block quotations may be distinguished typographically (e.g. by smaller type size or italics).

15. VIVA VOCE EXAMINATIONS

15.1 Purpose

On completion of their thesis, all candidates for MPhil and PhD awards are assessed via a *viva voce* (oral) examination. The *viva voce* is an established means of assessment for UK research degree students. It follows a preliminary examination of the thesis carried out independently by the examiners. All UK universities and higher education institutions use a preliminary examination followed by a *viva voce,* to assess research degrees and are governed by the relevant institutional regulations.

The *viva voce* is an oral defence of your thesis and its purpose can be summarised as follows:

It helps the examiners determine whether you have fulfilled the requirements for the award and whether the thesis is of an appropriate standard.

It provides a mechanism to ensure that the work is your own.

It helps the examiners determine how far you are able to talk about your research project and enables them to seek clarification on your research methods and findings.

It gives you the opportunity to explain any issues about your work that examiners might have identified.

It provides a means of identifying any changes required to the thesis or further investigation required prior to completion.

15.2 The Examining Board

The Research Degrees Committee will assess the nominated examining board to ensure they are appropriately qualified and will inform Academic Registry when the examining board is approved.

After you submit your thesis, Academic Registry will make the arrangements for your viva voce examination in consultation with your Director of Studies and you will receive confirmation of the arrangements made.

The Examining Board includes academics in your specialist field of research that are appointed by Cardiff Met. There will normally be an External Examiner (i.e. not from Cardiff Met and not usually from other Institutions of the University of Wales Alliance) and an Internal Examiner (i.e. from Cardiff Met). Depending on circumstances, there may be variations to this.

An experienced member of Cardiff Met staff nominated by the Dean of your School will chair the Examining Board. Your Director of Studies is not eligible to be an

Examiner or a Chair, though she/he (or your second supervisor) may be present – subject to your agreement - during the *viva voce* examination.

15.3 Preparing for Your *Viva*

You should have a mock *viva* prior to your examination so that you know what to expect, including the format and type of questions that may be asked. Your Director of Studies should organise this for you but make sure you take it seriously. The examiners may well ask you different questions from the ones you expect, and it is therefore important that in consultation with your Director of Studies you try and predict the topic areas, which are most likely to form the discussion. You may also wish to compare notes with other postgraduate researchers who are preparing for or have recently been examined.

You need to ensure that you thoroughly read and re-read your thesis making notes as appropriate. Be prepared to acknowledge where you might have improved your thesis. You should also ensure that you are conversant with the work of others in your field and related fields of study and that you have kept up-to-date. Be particularly careful to read recent publications by the External Examiner.

15.4 The Viva Voce Examination Process

The format and duration of the examination process varies but would normally be for two-to-three hours. You will have received the programme in advance of your examination and you will also have been notified of any changes in advance.

The examiners will have read your thesis thoroughly prior to the examination and will have already submitted their preliminary observations. The report will usually highlight any areas in which the examiner wishes to seek clarification and may identify the examiner's initial recommendation regarding the likely outcome of the examination.

Depending on the nature of your research, it may be appropriate for you to demonstrate certain aspects of your research at the Viva (i.e. through computer software, the exhibition of visual materials or scientific equipment). Sometimes having read the thesis, the examiners will request it - however, you and your supervisors may also suggest this. It is also important that you concentrate on the necessary preparation for your *viva* and not become overly concerned with administrative aspects since your time can be used much more productively.

Apart from demonstrating your research methods as above, you may be asked to give a short presentation or oral overview of your research. Be prepared just in case.

The examiners will ask you probing questions about your thesis. You should not be discouraged by this; it is an important aspect of the examination process. These questions may be very specific, minor or indeed very complex. Take your time to answer the questions fully and to the best of your ability.

In answering the examiners' questions you should aim to do the following:

- Try to remain calm, answering questions calmly and as fully as you can. Don't be afraid to take notes of a particular question, to jot down points, or indeed to provide the examiners with graphs or sketches, etc.

- Demonstrate your understanding of research in your chosen field and of appropriate research methods, perhaps justifying the methods you adopted.

- Seek clarification of the question if you find it to be unclear.

- If your answer starts becoming unstructured and/or you have forgotten what you were seeking to convey, do not be afraid to acknowledge this and start again.

- Do not be afraid to defend your views or challenge those of the examiner if you have a different interpretation, but ensure that you can substantiate your views by referencing to appropriate evidence or literature. However don't be confrontational – be prepared to concede points of detail if necessary.

At the end of the examination you and your Director of Studies or Supervisor will probably be asked to leave the room whilst the examiners discuss your performance and to decide on your overall result. The examiners also use such a meeting to compile their report of the examination, which is a university requirement. This may take some time. You should try not to worry whilst this process is being completed but make sure the examiners know where you are waiting. At this stage, it is important that you remain on the premises and in reasonable proximity to the examination room.

15.5   Possible Outcomes

You will be called back to meet the examiners to receive the results of your examination. A summary of the possible outcomes is as follows:

  i.   Pass   recommendation for the degree for which you were registered and examined

 ii.   Pass   subject to amendments to the thesis

iii.   Resubmit for the award

iv.   Pass for a different award (i.e. MPhil instead of PhD)

 v.   Resubmit for a different award (i.e. MPhil instead of PhD)

vi.   Fail   with no opportunity to resubmit

At Cardiff Met the majority of outcomes are in category i and ii, although if substantial changes are required, usually taking the candidate more than 12 weeks to complete, then the decision by the examining board may be category iii, resubmission. In this case the examiners will re-examine your thesis and you will have to pay a re-examination fee. In rare circumstances, where the viva itself has not been satisfactory you may have to undertake another viva. Up to 2 years are permitted between the first viva and resubmission. At the re-examination, only options i,ii,iv and vi are open to the examiners.

If the decision is that you have passed subject to the completion of amendments then you will usually be allowed up to 12 weeks to complete the amendments. You will be told how long is being allowed when you are informed of the decision after the viva, and again when you get written confirmation through Academic Registry. The time allowed starts from the date the letter from Academic Registry is sent.

If personal factors (work, family matters, health or holidays) mean that you do not think you can complete the changes within the allowed time, you should discuss this with the examiners when they tell you the outcome. The 12-week time allowed is indicative, but can be changed on the recommendation of the Board. In any case you can always send the revised copy for checking before the end of the permitted period.

The revised thesis may be checked by either or both of the examiners, or by the Chair of the Board before being accepted as satisfactory. Be very careful

15.6   Notification of Your Results

Whilst the examiners will notify you informally at the end of the examination process official written communication from the university takes a little longer. This is because the recommendations of the examiners have to be officially ratified by the university. Academic Registry will ensure that all the relevant procedures have been adhered to and the examiners' recommendations are fair and consistent.

You will receive a letter from the Academic Registry confirming the outcome of the examination. Where amendments are required, these will be detailed together with the deadline for receipt of amendments. In the case of amendments you need to ensure that you submit them within the stipulated time-scale, as it will jeopardise your result if you do not. If for any reason you should become ill or suffer from other extenuating circumstances which prevent you from submitting your amendments or resubmitting your thesis you still need to notify your Director of Studies at the earliest opportunity and in advance of the submission date.

You should only make arrangements to submit your thesis in permanent binding following confirmation that you have met the requirements for the award. If you have been required to modify your thesis or resubmit it you should wait for official confirmation from Academic Registry that the examiners have approved the thesis. Following official confirmation of your award, you should send three copies of the thesis in permanent binding to Academic Registry.

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Recommended Reading

Pat Cryer: The research student's guide to success, 1996, Open University Press

Estelle M Phillips and Derek S Pugh: How to Get a PhD - A Handbook for Students and their Supervisors, (third edition), 1987, Open University Press

16. MASTER OF RESEARCH AND PROFESSIONAL DOCTORATES

Professional Doctorates are characterised by a substantial formal coursework requirement in addition to a substantial research project. Candidates are required to make an original contribution to learning, or to have developed new applied knowledge appropriate to the workplace, most especially to the development of products, processes and procedures.

The Master of Research Degree is awarded to candidates who have completed the necessary preparatory study for a Professional Doctorate and who do not wish to continue their studies but prefer instead to write up their work in a Dissertation. MRes students will be able to demonstrate that they have systematically acquired and understood a body of knowledge, and have a critical awareness of current problems and/or new insights.

16.1 Induction

A postgraduate researcher enrolled on a Professional Doctorate programme may undertake Postgraduate Researchers Induction, however where there is overlap with the Professional Doctorate induction he/she may not be required to attend the full Postgraduate Researchers Induction. The postgraduate researcher will be notified of the appropriate Induction requirements by the programme director prior to enrolment.

16.2 The Formal Programme

Each Professional Doctorate or MRes degree requires that postgraduate researchers complete satisfactorily a number of designated modules, details of which should be available in the appropriate course handbook.

16.3 Examination of Formal coursework

The work completed by postgraduate researchers undertaking the MRes programme will be assessed by an internal examiner appointed by the host school for each postgraduate researcher, and by an external examiner who will be responsible for the external examination of all modules.

For advanced work, the School Professional Doctorate Committee will be responsible for monitoring the supervision and progress of candidates. The School's Director of Research and Graduate Studies is responsible for
 co-ordinating meetings of the Professional Doctorate team to consider:
- Applications for admission to D level study and scrutiny of academic references
- Scrutinizing proposed supervisory arrangements for submission to RDC
- Considering and approving negotiated learning contracts for submission to RDC
- Monitoring reports for submission to RDC

16.4 Research Proposal

Professional Doctorate students are required to develop a research proposal before undertaking their individual research project. This proposal is considered by the School Professional Doctorate team before submission for approval by RDC.

Procedures and requirements for monitoring progress and for examination of the research project of Professional Doctorate students, once they have been accepted for D-level study are the same as for other postgraduate researchers.

17. PROFESSIONAL DEVELOPMENT PORTFOLIOS

The Professional Development Plan or Portfolio (PDP) is designed to be a part of your Student Progress File as defined by the Quality Assurance Agency for Higher Education and as required by relevant professional bodies and regulatory authorities. The initiative is fully supported and encouraged by Cardiff Met.

The PDP is meant to include a record of your personal views and critical reflection of the learning experience associated with your degree. For postgraduate researchers taking MPhil or PhD degrees, your supervisory team will support the development of your PDP, and will formally review it from time to time during the year at supervisory meetings. The PDP forms part of your work of which progress is assessed by the supervisory team when they make the recommendation that you should be permitted to re-enrol each year.

In Professional Doctorate programmes the PDP forms part of the formally assessed components of your coursework in relation to the module entitled Professional Development Portfolio alongside your programme of study. You will receive additional guidance on PDPs when you enrol on this module.

Since various professional bodies have uniquely different requisites with respect to the formats of PDPs, it is not possible to arrive at a common framework for such a document. A starting-point in the PDP could be the Research Student Skills Record and Log-book, where you can look at your present and developing skills in relation to the skills expected in a Research Degree graduate. The Skills Record and Log-Book can be found on the SharePoint site
http://mysites.staff.uwic.ac.uk/personal/sm17038/Shared%20Documents/Forms/AllItems.aspx:

.You can down-load it to your own file.

PDPs may be expanded to include a reflective diary as well as a record of courses attended, skills gained and plans for the development of skills for and beyond the PhD. Formal reviews with your supervisory team of your progress during your studies will also help you evidence your development. They provide a very valuable resource for developing professional Curriculum Vitae, making job applications, as well as providing evidence of professional development for professional bodies.

18   USEFUL CONTACTS

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                             Studies
Telephone: 029 20 417025
Email: sfleming@cardiffmet.ac.uk

Jeff Alder   Graduate Studies Officer
Telephone: 029 20 416787
Email: jalder@cardiffmet.ac.uk

For all matters relating to enrolment:

Enrolment Unit - Academic Registry
Llandaff Campus, Western Avenue, Cardiff, CF5 2YB

Telephone: 029 2020 5669
Email: enrolment@cardiffmet.ac.uk

Schools

Cardiff School of Art & Design
Llandaff Campus, Western Avenue, Cardiff, CF5 2YB

Prof. Steve Gill   Associate Dean (Research)
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School of Management
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The National Centre for Product Design & Development Research (PDR)
Llandaff Campus, Western Avenue, Cardiff, CF5 2YB

Prof. Andrew Walters   Director of Research
Telephone: 029 20 6786
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19 ACADEMIC ASSOCIATE COMMITTEE

The Academic Associate Committee is organised and run by postgraduate researchers representing all of Cardiff Met's Schools and independent Research Centres. The Terms of Reference of the committee are:

- To appoint two student members to Research Degrees Committee
- To appoint one student member to Research & Enterprise Board
- To meet regularly to review academic issues
- To promote social and related activities for the postgraduate researcher community
- To represent the interests of the postgraduate researcher community within Cardiff Met and externally.

The rules for the election and operation of the committee are:

(i) Postgraduate researchers in each School and independent research centre (currently PDR) elect two of their number to represent their School. At least one of those seeking election from the Schools should be a full time postgraduate researcher.
(ii) The term of office for elected representatives will be one year, with a maximum number of 3 terms.
(iii) The Committee will elect a Chair from its number. The Committee will also appoint a secretary and other officers as necessary.
(iv) The committee will focus mainly on research issues and therefore will only comprise postgraduate researchers.
(v) The committee will not include any members of Cardiff Met staff except for those who are also enrolled as postgraduate researchers at Cardiff Met.
(vi) The committee sets its own agenda.

20 RESEARCH GOVERNANCE,

20.1 Introduction:

As public institutions Universities are accountable for the activities of their staff and students, and are expected to ensure that the professional conduct of staff and students conforms to acceptable standards.

In research, external organisations have co-ordinated the development of ethical statements and codes of practice which act as references for Universities in developing their own internal codes. For example, the Universal Ethical code for Scientists can be found at:

http://www.berr.gov.uk/dius/science/science-and-society/public_engagement/code/page28030.html

Elsewhere in the research studies manual you can find the Cardiff Met requirements for approval of research involving human participants, which forms part of Cardiff Met's framework for research governance. This section deals with other aspects of Cardiff Met's policies for research governance and misconduct.

20.2 Governance:

Good governance of research is intended to ensure that research projects are carried out properly and ethically, and reported properly. All researchers are responsible for ensuring that their conduct conforms to the standards required by Cardiff Met. Postgraduate Researchers and Supervisors of postgraduate research have additional responsibilities to conform to standards of good governance of research. This means that postgraduate researchers need to keep their supervisors fully informed of all their activities, and give them full access to their research materials so that they can properly fulfil their supervisory obligations. Supervisors have an obligation to ensure that, as far as they reasonably can, the postgraduate researcher has carried out the research project in conformity with all the requirements for good research practice.

20.3 Research Misconduct

Cardiff Met has its own policies on Research Misconduct, and defines misconduct, and sets out the procedures for investigating allegations of misconduct as follows::

Definitions of misconduct

Research misconduct includes the following, whether deliberate, reckless or negligent:
- failure to obtain appropriate permission to conduct research;
- deception in relation to research proposals;
- unethical behaviour in the conduct of research, for example in relation to research subjects;
- unauthorised use of information which was acquired confidentially;
- deviation from good research practice, where this results in unreasonable risk of harm to humans, other animals or the environment;

- fabrication, falsification or corruption of research data;
- distortion of research outcomes, by distortion or omission of data that do not fit expected results;
- dishonest misinterpretation of results;
- publication of data known or believed to be false or misleading;
- plagiarism, or dishonest use of unacknowledged sources;
- misquotation or misrepresentation of other authors;
- inappropriate attribution of authorship;
- fraud or other misuse of research funds or research equipment;
- attempting, planning or conspiring to be involved in research misconduct;
- inciting others to be involved in research misconduct;
- collusion in or concealment of research misconduct by others."

Procedure in the case of suspected research misconduct

Cardiff Met has a responsibility to investigate allegations of research misconduct fully and expeditiously. It also has a responsibility to protect researchers from malicious, mischievous, or frivolous allegations.

All those to whom this policy applies and who have reasonable concerns in respect of any research activity should report any incident of misconduct, whether witnessed or suspected. Members of staff and students are encouraged to raise concerns about suspected research misconduct in confidence under Cardiff Met's *Whistleblowing Policy*. Staff who may be unclear about what might constitute research misconduct, either in general or in the context of a specific case, may seek advice from the designated Research Misconduct Advisor.

Allegations of research misconduct should be directed to a Designated Person (nominated by the Vice-Chancellor). The Designated Person will undertake an initial investigation to establish whether a *prima facie* case of misconduct exists.

In the event that a *prima facie* case is deemed to exist, it will be referred to the Vice-Chancellor (or properly nominated deputy). The Vice-Chancellor may take immediate action under the appropriate disciplinary regulations, or, if the Vice-Chancellor considers it appropriate to do so, he or she may first appoint a panel to investigate the allegations.

A panel shall normally consist of three members: someone unconnected with the allegation who is a member of the school where the allegation has arisen, a member of Cardiff Met from outside the school and a lay member of the Governing Body, who shall chair the panel. At least one member should have expert knowledge of the area of research involved. The individual or individuals against whom the allegation is made shall be informed in writing of the nature of the allegation, of the decision to appoint a panel and details of this and subsequent processes. They shall be given the opportunity to comment on the proposed membership of the panel.

The panel shall take all reasonable steps to preserve the anonymity of the person or persons accused and the person or persons making the allegation, unless this would compromise the investigation. All reasonable steps must be taken to ensure that the investigation is undertaken as expeditiously as possible. The panel may seek legal advice wherever appropriate.

The panel shall require the production of such records as are necessary to enable the investigation to proceed and shall secure their safekeeping. The panel may interview the person or persons accused and the person or persons making the allegation, together with anyone else who may have relevant information. Anyone attending for interview may be accompanied by a friend or representative. The panel shall ensure that the person or persons accused shall have full access to the evidence being presented against them.

The panel shall prepare a report setting out the evidence received, accounts of any interviews conducted and the panel's conclusions. The person or persons accused of research misconduct shall have an opportunity to comment on the report. The report and any comments received from the person or persons accused shall be submitted to the Vice-Chancellor. The panel may also make recommendations to promote best practice in the conduct of research and any such recommendations shall be brought to the attention of the Governing Body and Academic Board.

On receipt of the report, the Vice-Chancellor shall proceed as follows:
i. In the event that the panel has found no evidence of misconduct, the complaint shall be dismissed.
ii. In the event that a complaint is upheld, but the offence found to be insufficiently serious to warrant formal disciplinary proceedings, the matter may be referred to the head of department or other appropriate individual for resolution.
iii. If the investigation has uncovered prima facie evidence of serious misconduct, then the matter shall be dealt with under the appropriate disciplinary procedures. Action may be taken in respect of members of staff under the *Disciplinary Procedure for Members of Staff*. Action may be taken in respect of students suspected of research misconduct under the *Student Disciplinary Regulations, Unfair Practice Regulations* or *Examination Regulations.*

In cases where the outcome implicates someone who is not subject to Cardiff Met's disciplinary procedures, the Vice-Chancellor shall bring the report to the attention of any appropriate disciplinary or other body.

If the panel finds the allegation to have been malicious or mischievous in nature, the matter may be referred to the Vice-Chancellor to consider whether disciplinary action should be taken against those making the allegation.

Where the research is funded in whole or part by an outside grant, the Vice-Chancellor shall have regard to the guidance issued by the relevant funding body. The Vice-Chancellor shall ensure that any such body is given appropriate and timely information as to the instigation and progress of an investigation and any referral under disciplinary regulations.

In the event of a finding of misconduct, where the person responsible is subject to the regulation of a professional body the Vice-Chancellor shall consider whether it is appropriate to inform the professional body of any finding.

Where the person responsible has published research, especially research to which the misconduct relates, the Vice-Chancellor shall consider whether it is appropriate to inform journal editors or others of any finding.

20.4. Authorship of academic publications.

One aspect of Research Governance which is receiving increased attention is the criteria for authorship on academic publications. This is an area where conventions have developed haphazardly in different discipline areas, and in different countries. Cardiff Met's Research and Enterprise Board has set out the following principles for Schools and researchers to use in making decisions on authorship.

1. It is generally agreed that authorship requires a genuine and significant contribution to a publication, and the ability to take responsibility for the publication. Contributions may be to the conceptualisation, planning, conduct, or analysis of the research, or to the writing of the publication. The addition of authors who do not fulfil these criteria, or the omission of authors who do fulfil these criteria would be considered unethical by most learned societies, and might be grounds for a research misconduct complaint at Cardiff Met.

2. Where the research in question forms an important part of a postgraduate researcher's degree proposal, then the expectation is that the postgraduate researcher will conduct the research, analyse the results and write the publication.

3. First authorship should generally go to the person who has been responsible for conducting the research, analysing the results and writing the publication. It would be inappropriate for a supervisor to deny a postgraduate researcher the opportunity for first authorship on the spurious grounds that it was the supervisor's entitlement, or because the idea for the research originally came from the supervisor.

4. All people who have significantly contributed to the research (see 1 above) should have their contribution acknowledged, either by being offered authorship or by acknowledgement of their help in appropriate detail in the acknowledgements section of the paper.

5. As a rule, significant assistance of an essentially unoriginal or technical nature should be included in the acknowledgements. This includes granting access to equipment, donation of materials, carrying out routine laboratory analysis of materials, advice on an aspect of methodology, and discussions about a part of the project.

6. Where members of the supervisory team have been closely involved in the conceptualisation and planning of a project, as well as in the supervision of the conduct and analysis of the research, they should normally be invited to be authors on publications that report this work.

7. It is a matter of academic judgement whether a contribution is sufficient to warrant acknowledgement or authorship, and of the relative position of authors in a publication. In instances where authorship is contentious, a case may be put forward to a School arbitration panel.

8. The most common convention for order of authors is (from first to last): Postgraduate researcher (if relevant), postdoctoral fellow (if supervising project), other authors in order of the importance of their contribution. In some disciplines the senior author is by convention last if she or he is not the main author.

9. Where a postgraduate researcher has not contributed significantly to the planning of a project in the early stages of his or her candidacy (for example, in carrying out a pilot study designed by a supervisor) then it may be appropriate for a supervisor to

write up the work and be first author, and for the postgraduate researcher to be second author.

10. Where the postgraduate researcher is carrying out a part of a project to be reported together with other parts not carried out by the postgraduate researcher, then the issues surrounding authorship are more complex. Generally the principle of authors being listed in the order of the importance of their contribution should apply, with the author with overall responsibility for the construction and publication of the work being first author.

APPENDIX 1   JOINT RESEARCH COUNCIL STATEMENT ON SKILLS TRAINING

Skills training requirements for research students: joint statement by the research councils/AHRB

Introduction

The research councils and the Arts and Humanities Research Board (AHRB) play an important role in setting standards and identifying best practice in research training. This document sets out a joint statement of the skills that doctoral research students funded by the research councils/AHRB would be expected to develop during their research training.

These skills may be present on commencement, explicitly taught, or developed during the course of the research. It is expected that different mechanisms will be used to support learning as appropriate, including self-direction, supervisor support and mentoring, departmental support, workshops, conferences, elective training courses, formally assessed courses and informal opportunities.

The research councils and the AHRB would also want to re-emphasise their belief that training in research skills and techniques is the key element in the development of a research student, and that PhD students are expected to make a substantial, original contribution to knowledge in their area, normally leading to published work. The development of wider employment-related skills should not detract from that core objective.

The purpose of this statement is to give a common view of the skills and experience of a typical research student, thereby providing universities with a clear and consistent message aimed at helping them to ensure that all research training is of the highest standard, across all disciplines. It is not the intention of this document to provide assessment criteria for research training.

It is expected that each council/board will have additional requirements specific to their field of interest and will continue to have their own measures for the evaluation of research training within institutions.

(A) Research skills and techniques - to be able to demonstrate:
1. The ability to recognise and validate problems and to formulate and test hypotheses.
2. Original, independent and critical thinking, and the ability to develop theoretical concepts.
3. A knowledge of recent advances within one's field and in related areas.
4. An understanding of relevant research methodologies and techniques and their appropriate application within one's research field.
5. The ability to analyse critically and evaluate one's findings and those of others.
6. An ability to summarise, document, report and reflect on progress.
(B) Research environment - to be able to:
1. Show a broad understanding of the context, at the national and international level, in which research takes place.
2. Demonstrate awareness of issues relating to the rights of other researchers, of research subjects, and of others who may be affected by the research, eg confidentiality, ethical issues, attribution, copyright, malpractice, ownership of data and the requirements of the Data Protection Act.
3. Demonstrate appreciation of standards of good research practice in their institution and/or discipline.

4. Understand relevant health and safety issues and demonstrate responsible working practices.

5. Understand the processes for funding and evaluation of research.

6. Justify the principles and experimental techniques used in one's own research.

7. Understand the process of academic or commercial exploitation of research results.

(C) Research management - to be able to:

1. Apply effective project management through the setting of research goals, intermediate milestones and prioritisation of activities.

2. Design and execute systems for the acquisition and collation of information through the effective use of appropriate resources and equipment.

3. Identify and access appropriate bibliographical resources, archives, and other sources of relevant information. Use information technology appropriately for database management, recording and resenting information.

(D) Personal effectiveness - to be able to:

1. Demonstrate a willingness and ability to learn and acquire knowledge.

2. Be creative, innovative and original in one's approach to research.

3. Demonstrate flexibility and open-mindedness.

4. Demonstrate self-awareness and the ability to identify own training needs.

5. Demonstrate self-discipline, motivation, and thoroughness.

6. Recognise boundaries and draw upon/use sources of support as appropriate.

7. Show initiative, work independently and be self-reliant.

(E) Communication skills - to be able to:

1. Write clearly and in a style appropriate to purpose, eg progress reports, published documents, thesis.

2. Construct coherent arguments and articulate ideas clearly to a range of audiences, formally and informally through a variety of techniques.

3. Constructively defend research outcomes at seminars and viva examination.

4. Contribute to promoting the public understanding of one's research field.

5. Effectively support the learning of others when involved in teaching, mentoring or demonstrating activities.

(F) Networking and teamworking - to be able to:

1. Develop and maintain co-operative networks and working relationships with supervisors, colleagues and peers, within the institution and the wider research community.

2. Understand one's behaviours and impact on others when working in and contributing to the success of formal and informal teams.

3. Listen, give and receive feedback and respond perceptively to others.

(G) Career management - to be able to:

1. Appreciate the need for and show commitment to continued professional development.

2. Take ownership for and manage one's career progression, set realistic and achievable career goals, and identify and develop ways to improve employability.

3. Demonstrate an insight into the transferable nature of research skills to other work environments and the range of career opportunities within and outside academia.

4. Present one's skills, personal attributes and experiences through effective CVs, applications and interviews.