PART THREE - ACADEMIC MATTERS – RESEARCH GUIDELINES
(UPDATED AUGUST 2021)

Postgraduate Research (PGR) ePortfolio

Research degrees are highly regarded by employers and academics. The essential purpose of a research programme is a period of training in research and the generation of an original piece of work. During your studies, you will develop a range of personal and professional skills. These skills will prove invaluable for the transition onto your next career.

The purpose of the PGR ePortfolio is to provide a record of your personal and professional development at Newcastle University.

The PGR ePortfolio, which comprises NU Reflect and the PGR CoP system is designed to assist you to get the most from your postgraduate experience, helping you to plan and reflect upon your research and how it will relate to future aspirations. It will help you to identify areas of strength and those areas you feel need more attention, while improving your research and generic skills and identifying opportunities for personal development.

By completing your PGR ePortfolio, you will be able to build on the learning and results you achieve, which will provide an ongoing record that can contribute towards your personal growth and career planning. Your PGR ePortfolio will include relevant information on both of the following;

- The formal processes and milestones of your Research Programme
- Your individual Personal Development record

You will be responsible for the generation and maintenance of your PGR ePortfolio, for which you will be expected to show commitment, planning, action and evaluation/ reflection.

1. What is my PGR ePortfolio?

The PGR ePortfolio is used as a personal development record, but also records the formal processes associated with a research degree as listed below:

- Full documentary record of the approval process of your research project
- Full documentary record for the annual progress review each academic year
- Recording of the formal student/supervisor monthly engagements
- Full documentary record of the approval of thesis title and nomination of examiners
- Full documentary record of any change of circumstances requests (e.g., interruption, extension, outside study)

These guidelines refer to how the PGR ePortfolio supports personal development only. All students are encouraged to maintain a personal development record in PGR ePortfolio primarily because it allows individuals to be 'in charge' of their own development.

The PGR ePortfolio will also:

- Provide a record of your personal and academic development
- Help you plan and reflect on your research
- Identify areas of strength and where you need more support or training
- Record the acquisition of skills and self-development, which will be useful for CV preparation

- Help you to understand and learn from 'life' experiences and how these can contribute towards your future prospects by providing examples of skill developments
- Allow opportunities for reflection and self-evaluation on your progress and future needs
- Introduce the concept of continuous professional development
- Help you to demonstrate and be aware of all the intrinsic skills your research degree will allow you to develop

All your portfolio content is downloadable and portable at the end of your time at Newcastle and will be invaluable in preparing your next career move.

2. Personal Development Plan (PDP)

The Learning and Teaching Support Network is a nationwide organisation that promotes high quality learning and teaching in higher education defines personal development planning (PDP) as *'a structured and supported process undertaken by an individual to reflect upon their own learning, performance and/ or achievement and to plan for their personal, educational and career development'.*

This process will help you highlight areas of strengths and areas for improvement by mapping your current skills against the Vitae Researcher Development Framework (RDF).

This can be developed by completing a Training Needs Analysis (TNA) on NU Reflect and designing personal objectives to create a personal development plan in conjunction with your supervisory team. The Annual Progress Review panel will want to see evidence that this has been done.

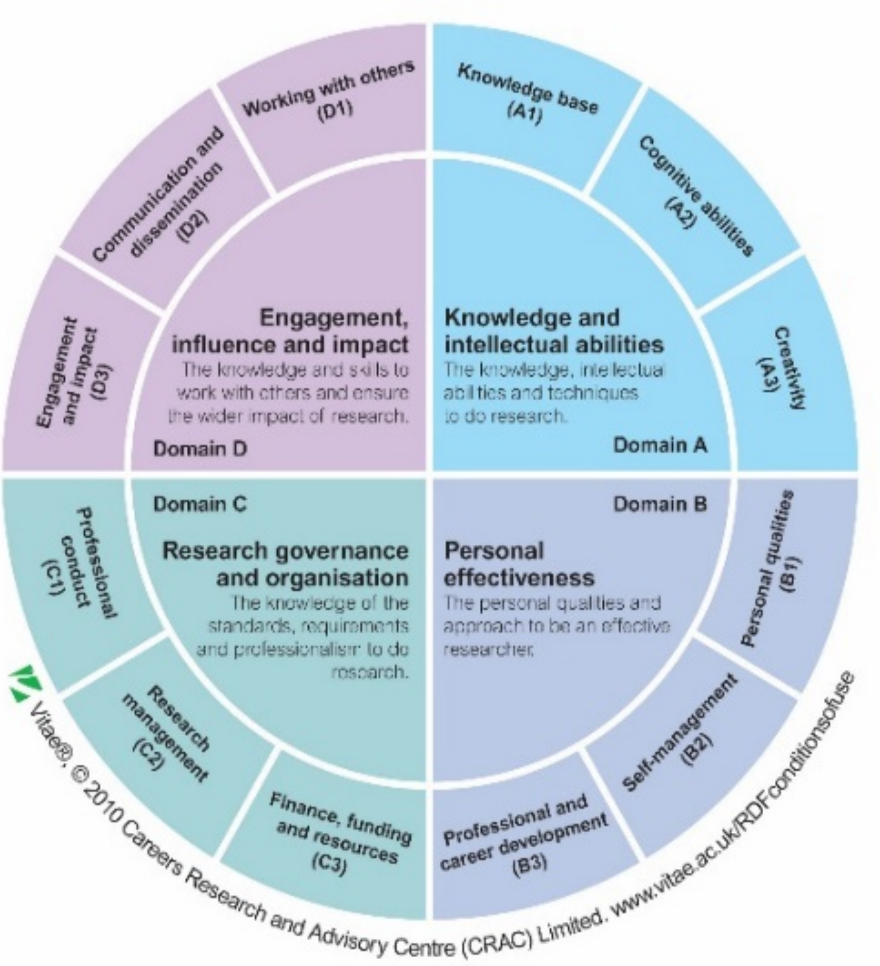
The PGR ePortfolio should include a description of the skills developed, cross-referenced to the Researcher Development Framework. The professional standard for recording your skills development is set out and the following is a list of 'essentials' that should be recorded in your ePortfolio:

- Lab meetings, seminars, conferences attended *N.B. Postgraduate researchers are required to contribute to the research environment by attending appropriate internal and external events.*
- Any training courses attended including Faculty Researcher Development Training programme courses, which are automatically recorded in the PGR ePortfolio.
- Abstracts presented at local, national and international meetings with other relevant information (poster, oral presentation, presenting author etc). *N.B. You are normally required to give at least one formal presentation per year on your work.*
- Publications, including manuscripts in press and abstracts where published.
- Exhibitions and/or performance including venue, location and duration, indicating whether it is a commission or competitive selection process
- Work experience and other information relevant to your future career (teaching/ demonstrating, work placements with industry/ business etc, time spent within other academic institutions.)

2.1 What Skills?

The following is a summary of the skills defined by the Researcher Development Framework, that you are expected to develop over your research degree. Some of the skills areas will overlap:

Researcher Development Framework (RDF)



The RDF descriptors) are structured in four domains and twelve sub-domains which encompass what researchers need to be effective in their approach to research, when working with others and in contributing to the wider society and environment:

A: Knowledge and Intellectual Abilities
B: Personal effectiveness
C: Research Governance and Organisation
D: Engagement, influence and Impact

In conjunction with the skills above, the University encourages you to: develop relevant academic networks, attend seminars and conferences, present papers, publish papers,

exhibit and perform work, support your own career development, and contribute to your research environment by attending appropriate internal and external events. All three Faculties offer extensive Researcher Development and Research Training sessions and you should include these in your PDP.

2.2 Creating a PDP

To create a PDP, you will need to assess your skills abilities, identify your specific needs/ skills gaps and then decide what form of training can be used to meet these needs. Training can be both formal (courses/workshops) and informal (supervisors/research colleagues) and can include aspects of your research, i.e., attending seminars, conferences etc. You will be expected to audit your skills and update your PDP annually. Your PGR ePortfolio should be continually updated with information on training related to both aspects of your research and your transferable skills. By setting goals and targets in your PDP it can keep you focussed on developing your skills. Continual reviewing and reflection will help you to determine whether you are effectively meeting these goals when used in the PDP process.

1. ***Identify goals*** – Completing your research degree and meeting the training requirements of the Researcher Development Framework.
2. ***Determine the skills required*** - Assess your skills in relation to the RDF and note areas where you need to develop or learn a new skill/ technique
3. ***Identify Training and Development Needs –*** *This is known as a* **Training Needs Analysis** (TNA) and is key to your development. The TNA should be carried out early in your research degree programme and at least annually thereafter. Identify workshops or other activities based on gaps in your skills or areas where your skills could be improved.
4. ***Create a PDP*** – The programme of workshops and other activities that you identify become your own PDP.
5. ***Record Training*** - Build a record of your skills achievement and skills profile in PGR ePortfolio
6. ***Evaluate and Review*** – At each stage of your research determine whether you are making progress towards your goals and re-evaluate your skills

2.3 Timescales: When to use your PGR ePortfolio

Your role is to reflect on and evaluate your progress, therefore it will be important that you maintain and keep appropriate records. The PDP should be started at the beginning of your research, building on the information, experience and results you gain as you progress through your research degree. The Annual Progress Review Panel will review the research training that you have taken as part of your Annual Progress review, in relation to Faculty Research Training requirements and your own PDP and TNA. At each Annual Progress Review, your progress review panel will also discuss barriers/recommendations for self-development and training. *Please remember the generic/transferable skills aspect of your ePortfolio is not a test – it is your assessment of your development.*

3. Feedback

To assist and improve the provision and quality of your Faculty Research training it is important to provide feedback on your experiences and s feedback form will be provided after session.

Guidelines for Research Students and Supervisors

Introduction

The purpose of these guidelines is to:

- Outline Newcastle's practice and expectations of Research Students and Research Supervisors
- Provide good practice for Research Student's on managing their doctoral studies and for Research Supervisors supervising Research Students

Where reference is made to any named University role, such references are to be read as including reference to their nominees.

These guidelines use Academic Unit as an overarching term for School and Institute.

Summary of Newcastle Practice

These guidelines describe the essential elements of PGR student/Supervisory Team, student/University relationships and detail the minimum requirements that a PGR student and Supervisory Team will be expected to comply with during a research programme at Newcastle.

1. It is the responsibility of each Head of Academic Unit or nominee (usually the PGR Director/PGR Co-ordinator) in consultation with the proposed Academic Supervisor to decide whether to recommend the admission of an applicant to undertake postgraduate research in an Academic Unit. In reaching this decision the Head of Academic Unit or nominee should consider:

a) Whether the candidate is appropriately qualified for the proposed subject of study and whether adequate academic references have been received;
b) Whether the appropriate resources (e.g., library, computing, laboratory, studio/ workshop facilities or technical assistance) will be available;
c) Whether, on the information available, the subject of study is suitable for the degree for which the candidate is to be registered;
d) Whether it can reasonably be expected that the subject of study will be completed within the timescale prescribed;
e) Whether proper supervision can be provided and maintained throughout the research period;
f) Whether an appropriate programme of training and guidance in research can be offered to the candidate.

2. At the commencement of the research programme, PGR students will have a formal induction at both Faculty and Academic Unit level.

3. The Supervisory Team will contribute to this induction by having a detailed discussion with the PGR student during which they will ensure that the PGR student has received, understood, and accepted the expectations of the research programme, as well as the scope of the proposed programme of work and an initial definition of the subject of study with particular emphasis on:

- The importance of completing the programme in the time available;
- The standard of work that will be expected from the PGR student (students are advised to read successful theses available in the Library as a guide to what is expected);

- The importance of PDP and students expected commitment to it.

Following this discussion, a formal Learning Agreement should be completed by both the PGR student and the Supervisory Team (in the PGR CoP system) within one month of registering on the programme. The Graduate School will record completion of the Learning Agreement on the PGR student's record.

The Supervisory Team and the PGR student should also discuss the following, which should form the basis of the PGR student's project proposal, which will need to be approved before candidature is confirmed:

a) The overall timetable for the planning and completion of the programme of work, including any period of preliminary reading and the writing of the thesis. This should be recorded by the PGR student in the Personal Development Plan (PDP) within NU Reflect;
b) Any programme of training and guidance in research;
c) Guidance about the use of literature, other sources of information, including other members of staff, and about attendance at appropriate courses and meetings of learned societies;
d) Appropriate guidance should be provided by the supervisor to enable the PGR student to avoid any possible concern about plagiarism or the fabrication of research results.
e) Good practice in relation to research data management, including the storage and retention of research data;
f) Constraints, other than time, which may affect the programme of work, such as costs and the need to design and build equipment and any ethical concerns;
g) An initial consideration of potential issues of confidentiality or intellectual property;
h) A programme of regular meetings between the Supervisory Team and the PGR student to monitor progress on the research and to review the details of the overall timetable for the programme of work;
i) The submission of written work and/or the presentation of seminar papers while the research is in progress and the possibility of presenting work at meetings of learned societies and/or of submitting it for publication.
j) Where the PGR student has a formal sponsorship, the Supervisory Team and the PGR student should discuss terms and conditions of the sponsorship, to ensure they are understood.

4. PGR students are expected to:

- Maintain regular contact with their Supervisory Team
- To seek the advice of their Supervisory Team on the planning of work and other matters, including the use of suitable techniques
- Present written work as appropriate
- Raise any problems and difficulties to the attention of their supervisors, which a student believes may have an impact on progress, which includes: domestic, social, financial or health factors
- Manage and develop their PDP

5. Supervisory Teams are expected to:

- Maintain regular contact with their PGR student and provide advice on work planning;
- Request written work as appropriate and provide the PGR student with constructive comments and review practice-bases outputs/work (where appropriate);
- Take an active interest in the PGR student's PDP and offer help and guidance in achieving development goals;

6. Approximately once a month, PGR students will have a formal meeting with at least one member of their Supervisory Team to review progress and are required to record and maintain records of these supervisory meetings in NU Reflect. There should normally be three meetings during the year with the full Supervisory Team.

7. PGR students should also submit a project proposal for approval (on the PGR CoP system) within three months of registering on the programme. This should address the practicality of any fieldwork and whether there are any constraints, dangers or ethical concerns. Progression on the programme will be dependent upon acceptance of the project proposal by an independent school panel. Please note that before any fieldwork or outside study is conducted an Outside Study Form must be submitted and approved by the Dean of Postgraduate Studies.

8. Progress on the programme will be formally monitored through an Annual Progress Review (APR) (note that programmes with an initial taught component will have alternative monitoring arrangements, at least initially, e.g., Integrated PhD, Professional Doctorates). Each year, PGR students and Supervisory Teams will be required to submit a report on the progress of the research, which will be considered by an impartial APR Panel. (The APR forms are completed on the PGR CoP system.)

9. As part of the APR, PGR students will be required to produce at least one substantial piece of work (e.g., literature review, experimental write-up, creative output), in order to help assess their ability to proceed successfully through the programme. PGR students may be required to make a presentation of this work to other staff and/or students.

10. The APR report forms completed by the PGR student and the Supervisor Team will be considered by an impartial APR panel, which will consider all the evidence, including the annual report from the supervisory team, and determine whether progress indicates that the research project will meet the standards for the award. The APR Panel will make one of the following recommendations, as well as providing a report on progress:

1. Proceed – that the PGR student's performance is satisfactory, and they can proceed to the next stage.
2. Proceed with Concerns – the APR Panel has some concerns, which the PGR Student and Supervisory Team should note, however the overall performance is satisfactory, and the PGR Student can proceed to the next stage.
3. Re-Assessment - that the PGR Student's performance is unsatisfactory and that a further progress review should be held normally within two months to determine whether progress on the programme will be recommended;
4. Downgrade to MPhil (for Doctor of Philosophy students only) - that the PGR Students performance is unsatisfactory and that a submission for a Master of Philosophy examination is recommended instead of a submission for a Doctor of Philosophy examination;
5. Termination - that the PGR Students performance is unsatisfactory and that no

submission for a Master of Philosophy or Doctor of Philosophy examination is recommended. The PGR student will not be permitted to continue as a registered student for either degree and registration will be terminated.

Further progress on the programme of study is subject to approval by the Dean of Postgraduate Studies.

11. If at any stage throughout the period of study a PGR student feels that the standard of supervision received is inadequate or has been unable to establish an effective working relationship with a Supervisor/Supervisory Team, these issues should first be raised with the Supervisory Team, Director of Postgraduate Studies/ PGR Co-ordinator/ or Head of Academic Unit. If it has not been possible to resolve these difficulties, a PGR student should contact the relevant Graduate School or Dean of Postgraduate Studies for advice and mediation. A PGR student may also consult directly with the Graduate School, the Faculty's Postgraduate Tutor or Dean of Postgraduate Studies in confidence, without delay. The APR also provides a PGR student with an opportunity to raise any issues. If there are any issues a PGR student wishes to discuss, but not include in the progression report, the relevant Graduate School should be consulted in confidence for advice.

12. If at any stage throughout the period of study the Supervisory Team feel that the progress of a PGR student is unsatisfactory or that the standard of work generally is below that expected, they should inform the PGR student in writing of the reasons for this opinion and the student shall be given the opportunity of an interview with the Supervisory Team. Following this notice and any interview, the Supervisory Team may decide to monitor progress and/or attendance; additionally, or alternatively, the Supervisory Team may require the submission of written work in addition to that already prescribed by their project proposal and plan. If the PGR student's progress has not improved within such a period as shall be specified in the written notice, the Supervisory Team shall notify the Head of Academic Unit and submit a report for review by an impartial APR Panel. The APR Panel will make a report to the Dean of Postgraduate Studies on the PGR CoP sytem. Alternatively, following the written notice and any interview, the Supervisory Team may immediately notify the Head of Academic Unit and submit a report for review by the APR Panel.

13. From time to time it will be necessary to deal with supervisory changes where colleagues are no longer available, though normally staff on study leave will continue their supervisory duties. Where it becomes impossible for an Academic Unit to continue to provide direct supervision – for example because of the departure of the only member of staff able to supervise a particular topic – the matter should be drawn to the attention of the Head of Academic Unit or Director of Postgraduate Study/ PGR Co-ordinator The student should be consulted about any changes, and alternative supervisory arrangements should be put in place in good time and the Graduate School informed so that formal approval may be sought from the appropriate Dean of Postgraduate Studies.

14. A PGR student is required to maintain high standards of academic conduct and to avoid conduct amounting to the fabrication of research results or plagiarism.

a) The fabrication of research results includes: claims, which cannot reasonably be justified, to have obtained specific or general results; false claims in relation to experiments, interviews, procedures or any other research activity; and the omission of statements in relation to data, results, experiments, interviews or procedures, where such omission

cannot reasonably be justified.

b) Plagiarism is the unacknowledged use of another person's ideas, words, or work. At one extreme, plagiarism is simply a form of cheating, such as where the whole or a significant part of work submitted towards an examination or degree is the unacknowledged work of another, copied slavishly from a book, research paper or electronic sources such as the internet. At the other extreme, plagiarism may occur accidentally, through poor standards of scholarship, or may concern insignificant parts of submitted work.

c) If a PGR student is unclear as to what use may be made of the work of others in the field without raising concerns about plagiarism, then the PGR student should consult the supervisors. In most cases, the adoption of appropriate standards of scholarship will avoid such concerns. The following general guidelines may assist (and further guidance is available here):

   i. Passages copied verbatim from the work of another must be enclosed in quotation marks. A full reference to the original source must be provided. The substitution of a few words in an otherwise verbatim passage will not obviate the need to use quotation marks and to provide a full reference.
   ii. Students must always give due acknowledgement to the sources of ideas or data which are not their own and are not truly in the public domain (for example, because they are novel or controversial) or are not widely held or widely recognized.
   iii. Ideas and data which are the student's own or are truly in the public domain may be included without attribution but should be expressed in the student's own words.
   iv. Students must take care to distinguish between their own ideas or work and those of others. Any ambiguity in such a distinction could give rise to a suspicion of plagiarism.
   v. Where the student's work is the result of collaborative research, the student must take care to acknowledge the source of data, analysis or procedures which are not their own.
   vi. Research data management policy and code of good practice

15. The retention of accurate and contemporaneous records of primary experimental data and results is of the utmost importance for the progress of academic enquiry. A PGR student should maintain these records in a form that will provide clear and unambiguous answers to questions concerning the validity of the data or the conduct of the work that might arise at a later date. Such questions can arise during the course of subsequent investigations by the PGR student, colleagues, and others; accurate contemporaneous records are invaluable when this happens. In addition, errors detected following publication of experimental or other research results could be mistaken for misconduct if a PGR student cannot provide an accurate record of the primary data. It is important that a PGR student and their work should be protected from such misunderstanding.

The following guidelines will assist PGR students in this regard:

a) Records of primary experimental data and results should always be made using indelible materials. Pencils or other easily erasable materials must not be used. Where primary research data and results are recorded on audio or video tape (e.g., interviews), the tape housing should be labeled as set out in (d) below.

b) Complete and accurate records of experimental data and results should be made on the day they are obtained, and the date should be indicated clearly in the record. When

possible, records should be made in a hard-backed, bound notebook in which the pages have been numbered consecutively.

c) Pages should never be removed from notebooks containing records of research data. If any alterations are made to records at a later date, they should be noted clearly as such, and the date of the alteration should be indicated.

d) Machine printouts, photographs, tapes and other such records should always be labeled with the date and with an identifying reference number. This reference number should be clearly recorded in the notebook referred to above, along with other relevant details, on the day the record is obtained. If possible, printouts, photographs, tapes and other such record should be affixed to the notebook. When this is not possible (e.g., for reasons of size or bulk), such records should be maintained in a secure location in the University for future reference. When a 'hard copy' of computer-generated primary data is not practicable, the data should be maintained in two separate locations within the University, on disk, tape or another format.

e) When photographs and other such records have been affixed to the notebook, their removal at a later date for the purpose of preparing copies or figures for a thesis or other publication should be avoided. If likely to be needed, two copies of such records should be made on the day the record is generated. If this is not practicable, then the reason for removing the original copy and the date on which this is done should be recorded in the notebook, together with a replacement copy or the original if this can be re-affixed to the notebook.

f) Custody of all original records of primary research data must be retained by the principal investigator, who will normally be the supervisor of the research group, laboratory, or other forum in which the research is conducted. An investigator may make copies of the primary records for his or her own use, but the original records should not be removed from the custody of the principal investigator. The principal investigator is responsible for the preservation of these records for as long as there is any reasonable need to refer to them, and in any event for a minimum period of 10 years.

16. Supervisory Teams will advise PGR students on the thesis in general e.g. on content, presentation and organization, however, they will not act as a proofreader. While they may read all or part of the first draft of the thesis and offer advice, thereafter it is the responsibility of the PGR student to revise the thesis and to decide when to submit.

NOTE ON HEALTH AND SAFETY

17. Supervisory Teams are responsible for ensuring that PGR Students under their supervision follow the agreed University and, where appropriate, Academic Unit safety policy and procedures. Full details of the University's safety policy are available on the University's Occupational Health and Safety Service (OHSS) webpages and from the Academic Unit's designated Safety Officer.

Good Practice for Research Students

Where reference is made to any named University role, such references are to be read as including reference to their nominees.

These guidelines use Academic Unit as an overarching term for School and Institute.

Introduction

While the knowledge and skills that you gained as an undergraduate and/or in studying for a taught Master's degree have given you a background in your subject and perhaps some experience of and insight into the process of research, they may not necessarily have equipped you to successfully study for a research degree. As Salmon (1992: 51) has put it:

> *'Unlike a certificate, a diploma, a Bachelor's or a [taught] Master's degree, a [research degree] does not merely entail the consideration of already existing work within a pre-arranged structure but demands the creation of a personal project. To undertake [a research degree] is therefore to define oneself as having a contribution to make to the understanding of the area concerned.'*

In seeking to make that contribution, you will have the advice, encouragement and support of your Supervisory Team, of academic colleagues in the field, and of your fellow postgraduates, but ultimately the responsibility is yours. You may have to create the project; you will certainly have to undertake the research; you have to write it up as a dissertation or thesis; you have to complete on time and submit; possibly in the case of a Master's degree and certainly in the case of a Doctorate, you will have to defend your work in an oral examination; and if you do all of these things to the satisfaction of your examiners, you will be awarded the degree.

The purpose of these guidelines is to assist you to reflect on good practice in studying for a research degree. The guidelines are not intended to be prescriptive or exhaustive, just to indicate what has been identified in the literature and elsewhere as good practice. But a number of the matters covered do relate to the University's requirements of its research students, which are formally set out in its *Guidelines for Research Students* and Research Supervisors, and it is essential that students read these as well.

The guidelines attempt to set out good practice in:

1. Establishing and maintaining a good relationship with your supervisors
2. Approaching a research degree
3. Preparing for research
4. Where appropriate, choosing a topic
5. Producing an initial research proposal and plan
6. Writing regularly
7. Dealing with academic problems
8. Dealing with non-academic problems
9. Reviewing the progress of the research
10. Framing your thesis
11. Writing your thesis
12. Preparing for examination
13. Publishing, networking, and developing your career.

1. Establishing and Maintaining a Good Relationship with Your Supervisors

Your relationship with your supervisors is crucial to the success of the research project, and you need to start it off well and maintain it over time. As Cryer (2001 p58) has put it:

> *'The relationship between a research student and a supervisor can be a precious thing. Supervisors and research students work closely together over a number of years. Mutual trust and respect should develop, along with a working relationship that can continue, as between equals, long after the completion of the research degree. It is in your own interests as a research student to develop and nurture this relationship. At the very least, only a highly unusual student successfully completes a research degree if the relationship with the supervisor is poor.'*

Starting off well involves, firstly, making an early appointment to see your Supervisory Team in the first few days after your arrival; secondly, being clear about your respective roles and responsibilities; and thirdly establishing ground rules to govern your future relationship.

Until you have met with your Supervisory Team, it is not possible to even begin the preliminary work on the project. While it can sometimes seem that, with one, two, or three years stretching ahead, the matter is not urgent, in reality, the time soon passes, and it is vital to meet with your Supervisory Team as soon as possible.

At the meeting, your Supervisory Team will welcome you and, in many cases, devote at least some time to discussing your respective roles in the relationship so that you both know what to expect of each other. This is vital because, as Delamont *et al.* (1997, p 14) have put it:

> *'Relationships [between supervisors and students] have to be worked at and discussed, because most of the later problems stem from a failure to set out the expectations that both parties have for the relationship.'*

In general terms, supervisory support can include:

- Assistance with the choice of topic;
- Critical and constructive feedback on the work produced;
- Advice on the sources or literature used;
- Guidance on the methodology or techniques used and the approach to data collection;
- Discussion of evidence and results;
- Reading drafts and commenting on issues of substance.

Supervisors will not:

- undertake the actual research itself
- write or significantly re-draft papers or chapters
- conduct a detailed proof read of the thesis

In pointing out that it is up to you to do these things, the Supervisory Team is not being difficult, but realistic; a research degree is an award for successfully completing a personal research project, and for that to be the case you have to do the research, write it up, and make sure that the spelling, grammar, and punctuation are correct.

There are different models of Supervisory Team within the University. In joint supervision, the supervisory responsibilities are shared equally between members of the Supervisory Team. In other styles of supervision, different members of the Supervisory Team may have different roles. There may be, for example, a lead supervisor and a co-supervisor responsible

for a smaller element of the planned research; or a lead supervisor and an advisor responsible for, and able to deal with, general and pastoral responsibilities. Since arrangements may vary the Supervisory Team must agree a clear distribution of responsibilities at the outset of the research and update this if arrangements change. It is important for the student to be aware of who will 'lead' on which aspects of the research project.

As well as having clear expectations about your respective roles, it is also important that you and your Supervisory Team discuss ground rules for working together. These might be as below:

You agree to:

- turn up on time for supervisions and give as much notice as possible of cancellations
- be properly prepared for your supervisions
- write regularly and share the draft materials/creative practice output
- maintain the highest standards of academic conduct, as set out in section 14 of the University's *Guidelines for Research Students and Supervisors*
- maintain contact with your Supervisory Team, particularly when studying outside the University
- undertake the tasks agreed to the best of your ability within the allotted time

Your Supervisory Team agree to:

- hold regular supervisions and give as much notice as possible of cancellations
- review promptly work or creative outputs
- give written feedback

All of you agree to:

- treat supervision in a business-like way with an agenda
- keep records of supervisions detailing what was discussed, what targets were agreed, and when they were to be achieved by

Of course, as with any relationship, that with your Supervisory Team has to be worked at and maintained over time. In the early days, you are likely to be heavily dependent upon your Supervisory Team as you begin to find your feet in research. Once you have found your feet, your Supervisory Team will expect you to become more independent, and your relationship should develop into a dialogue in which you engage in academic debate on a basis of increasing equality. By the time you are nearing completion, you will come to know more about the work than your Supervisory Team but will still be dependent upon their expertise to advise whether the research project has reached the stage at which it should be submitted for the degree or whether further research and/or re-writing is required.

It happens that, occasionally, what should be the natural transition from dependence to relative independence does not transpire, either because the student remains over-dependent upon the supervisors or the latter is unwilling to 'let go'. Because of these possibilities, it is useful, over the course of a research degree, for you and your Supervisory Team to discuss your evolving relationship at regular intervals. This gives the Supervisory Team a chance to flag to you that they think that you are more than ready to spread your wings and fly alone, or you the chance to ask for more space to take the research in your

preferred direction.

Very rarely, research students find that they are unable to work effectively with their supervisors, and the relationship is in danger of breaking down. (See Section 11 of the Guidelines for Research Students and Supervisors for more information.)

Reviewing Practice
Are you clear about what you can expect of your Supervisory Team and what they can expect from you? Have you established ground rules for your future professional relationship? Do you have arrangements for regularly reviewing your relationship with your Supervisory Teams?

2. Approaching a Research Degree

In order to be awarded a research degree, you have to satisfy the examiners that you have fulfilled the requirements for that degree as laid down in the University's regulations and as applied in your own subject. It is vital that, at the very start of your studentship, you are aware of what those requirements are to avoid latter errors. As one of the research students interviewed by Delamont *et al.* (1997 p 16) in their study of PhD students put the matter:

> *'A lot of mistakes I've made are the result of not asking questions and people not putting me right. They presume I must know…I didn't know the PhD was meant to be an argument… [that] it's meant to say something. I thought it was one of those old-fashioned monographs, a collection of information. When I was an undergraduate I used to think a PhD was one of those articles you read in the journals, a 10,000 word article, I used to think they were PhDs.'*

Clearly, if the student had clearly understood from the start what a PhD was, then these mistakes could have been avoided.

It is therefore worth spending some time looking at what will be the end product of your studies. Your starting point should be to unpack the University's and, where appropriate, the individual research degree's formal requirements for whatever research degree you are registered, these can be found in the University and Degree Programme regulations. You should read these carefully and, preferably, discuss them with your Supervisory Team so that you have a clear idea of what they mean.

While all research degrees have to meet the University and, where appropriate, the individual research degree programme requirements, they do this in very different ways, depending upon the discipline in which they are undertaken. It is therefore vital that you also have a clear understanding of what the relevant research dissertation or thesis in your discipline is like at the start of your studies. Your Supervisory Team should recommend you look at a couple of theses in the same or in cognate areas to your own, and you would be well advised to do this and discuss key issues – for example in the case of PhD theses what made them original or how much of the thesis was publishable – in a supervision.

3. Preparing for Research

Most new research students naturally perceive research to be as it is written up in articles and books, which portray it as a seamless unrolling of (for example), theory, hypothesis, method, data collection, data analysis, results, and conclusions. But the published account is only the visible part of the iceberg; beneath it lies the nine-tenths of blood, sweat, toil,

and tears, including the ideas that were discarded, the investigations that ended up in blind alleys, the correlations that were in the wrong direction, the experiments that gave negative results, and sometimes the sheer fluke that led to the substantive advance. Research can, for much of the time, be a messy, difficult, and frustrating process as any researcher, including your supervisors, will tell you.

But you can minimize, if not eliminate, the frustrations of research by thorough preparation at the start. In particular, you can ensure that you are familiar with the resources available to support your project, that you are familiar with the processes of research in your discipline and that you are personally organized to undertake the project.

You need to be familiar with the resources available to support your research, both material and human. The former includes the library, centrally and locally provided computing facilities, and any specialized equipment needed for your project; the latter includes academic staff and fellow researchers and research students in your Academic Unit. You will be provided with opportunities to attend induction sessions relating to all these resources, and it is vital that you take advantage and make sure that you know what is available, how to access them, and how to use them in ways that are conducive to the health, safety, and welfare both of yourself and others. In the latter context, you should read about the University's Health and Safety Policy referred to in Part One of this Handbook and the relevant Academic Unit health and safety policy and, if appropriate discuss this with your Supervisory Team.

You also need to be familiar with what is involved in the research process and with good practice in doing research in your field, including the ethical issues that should be addressed. You must find out about the research training programme and attend; this is your opportunity to be informed about what is involved in research in your discipline by academic staff who are not only knowledgeable about the processes of research but also about the practice. As well as attending faculty events and, where appropriate, training programmes in your Academic Unit, you will also find it helpful to read through one or more of the general texts about research (see for example Cryer 2000; Leonard 2001; Phillips and Pugh 2000; Wisker 2001) or ones relating to specific disciplines where your Supervisory Team may be able to help with references.

As well as being familiar with the resources and the research process, you also need to be well-organized personally in terms of time, working conditions, and research materials.

With regard to time, as a full-time postgraduate research student you probably have more control over how you spend your time than at any other period in your working life. While this can be exhilarating, it can also, as Welsh (1979 p 33) has put it, 'be all too easy for the postgraduate to spend his [her] time pottering about' and fall behind in meeting what are tight deadlines to complete the project. If, for this reason, time management is vital to full-time students, this is even more the case with part-time ones who may well be combining a job and/or a family with their research. For this reason, it is well-worth adopting explicit time management techniques (see for example Cryer 2000 pp 91-106, Graham and Grant 1997 pp 42-45).

With regard to working conditions, the demands of research are, or can be, very intense, and you need an appropriate working environment in which you can read, reflect, think,

evaluate, and write. You need to establish what facilities are available in your Academic Unit or, if you undertake work at home, create a suitable space.

With regard to research materials, this covers both data and results generated during the research and sources such as books, articles, papers, and other theses. In terms of data and results and the outcome of practice-led research, particularly in experimental research, it is of the utmost importance that these are recorded and maintained in such a way that they can vouch for the accuracy and authenticity of your research. You must read, and follow to the letter, the University's requirements for the retention and storage of data as set out in Section 15 of its *Guidelines for Research Students and Supervisors*.

In terms of other sources, it is important that you index and store them so that they are immediately accessible when needed – there is nothing more frustrating than being in full flow writing up a piece of work and then being unable to find the source for that seminal point which, you have just realized, will tie the chapter together. You should assume that anything that you read may well find its way into the dissertation or thesis, take full details of the reference (preferably in a database organized in terms of whichever referencing system you will use for the final work), and put any materials into a filing system with an index which makes it easy to retrieve.

Last, but not least, there is the obvious point that, where data and or sources are stored electronically, they must be backed up with a second copy kept in another place. Research can be frustrating enough without losing weeks or sometimes months of work through failure to back up a file.

Reflecting on Practice
Are you fully aware of the range of resources available to support your research project? Have you developed the skills to use them effectively? Are you aware of health, safety and welfare policies? Do you understand what is entailed in the research process in your subject? Are you managing your time effectively? Do you have adequate facilities for your research? Do your arrangements for retaining and storing data meet the University's requirements? Have you organized your references and sources so that you can access them quickly? Do you regularly back up your work? Do you keep the copies in another place? Are you keeping records of and or documenting practice-led outputs?

4. Choosing a Topic

In many cases, and particularly in engineering and the sciences, students are often recruited to research a particular topic which has been pre-defined by the Supervisory Team. But, occasionally in these fields and frequently in others, students are recruited on the basis of their interest in working in a broadly defined area of the subject, which has to be narrowed down sooner or later to a specific topic. This can be a very difficult time for research students; as one of the research students interviewed by Delamont *et al.* (1997 p 27) said about their search for a topic:

> *'…the whole thing seemed very daunting, you don't know where your niche is, or even if there is one for you.'*

So, you can spend valuable time searching for a niche and then, when you think that you have found one, the topic turns out to be far too ambitious. So, you find yourself thrashing

around in a seeming intellectual vacuum again, and so it goes on.

It is important to remember that this is by no means abnormal and that you should receive strong support at this stage from your Supervisory Team. What they might do (or what you can do yourself) is to take an apparently promising project and subject it to the six key tests:

(i) Is it worth doing?
(ii) In principle, could it be done?
(iii) Could it be done within the time available?
(iv) Do you have, or could you acquire, the knowledge and skills to do it within that time?
(v) Would it sustain your interest?
(vi) If you did complete it successfully, would it meet the requirements for the research degree?

It may take several iterations before both you and your Supervisory Team are confident that you have a topic which will meet these key tests, and which will give you a starting point for your research. It should, however, be noted that it is only a starting point; as the research develops it may change, and the final topic may be different from that with which you started out. This is by no means abnormal, but it is important, in consultation with your Supervisory Team, to keep track of the evolution of the topic and ensure that the result will still pass the six tests.

Reflecting on Practice
Does your topic fulfil the six tests set out above? Have you discussed this with your supervisors? If it has changed, does the revised topic still meet the tests?

5. Producing your Research Proposal and Plan for Project Approval

It is a requirement of the University's *Code of Practice for Research Degree Programmes* that research students should, in conjunction with their Supervisory Team, produce and agree their research proposal and plan for formal project approval within the first three months of registering on your research degree programme. The project proposal, plan and Supervisory Team will be considered by a Project Approval Panel, and then the Head of Academic Unit, prior to formal approval by the Dean of Postgraduate Studies.

In some cases, the research proposal may have been pre-approved (e.g., in a Research Council application), but it should still be submitted together with a project plan and a supervisory team list to the Project Approval Panel to ensure that the project is achievable within the timescales allowed and to confirm that sufficient resources are available within your Academic Unit.

At their simplest, research proposals and plans set out what research students are proposing to do in their research projects, and when they are proposing to do it by.
With regard to a research proposal, a simple guide to drafting one might be to try and address the eight key questions of:

What is the topic of my research?

What have others written/created on this topic?

Where appropriate, what conceptual/theoretical/creative frameworks might be useful in approaching my research?

↓

What method or methods might be useful in undertaking that research?

↓

How could I go about designing the research?

↓

How could I collect my data?

↓

How could I analyse my data?

↓

How might my findings contribute to knowledge in this field?

In addition, there may be specific guidelines from your Academic Unit and/or your Supervisory Team which should be followed in writing a research proposal. The draft proposal should then be shown to, and discussed with, your Supervisory Team and amended in accordance with their comments before submitting your research proposal and plan for formal Project Approval.

With regard to an initial research plan, this involves unpacking what the tasks will be and assigning target time values to them which will enable you to complete on time. So, for example, for a three-year PhD in the social sciences, the initial research plan could be as below:

Month	Research tasks	Writing tasks
1	Reading around the research topic	Mini-reports on aspects of the research topic – identify a possible academic contribution
2	Narrowing down the research questions	Short-list of questions
3	Obtain Project Approval	Outline research proposal and plan/timetable
4-5	More detailed scoping and reviewing of literature	Literature evaluation
6	Reading on concepts, methods and techniques	
7	Finalising concepts, methods and techniques to be applied	Full research design
8	Preparation of pilot study (if relevant)	
9	Administration of pilot	
10-11	Preparation of main study	Evaluation of pilot study
12-24	Data collection	Field work reports
	Data coding	Reports
	Data analysis	Analytical reports
	Data interpretation	Preliminary conclusions

25-31	Reworking previous chapters of thesis	
32		First full draft of thesis
31-34		Revised draft of thesis
36	Submit	

Once you have an initial research plan, then it is important to discuss it with your Supervisory Team, check that it is realistic in terms of the allocation of time to task, and if necessary, amend it.

It should be stressed that, as with the topic, both the initial research proposal and the plan may well be subject to change over the course of the research as the focus perhaps changes as do activities and in consequence the timings. This is normal and not, in itself, a cause for concern – the proposal and the plan are intended as a flexible framework and not as a cage. But it is important that, at regular intervals during the research project, you and your supervisors review the proposal and the plan and update them to reflect the evolution of the research project. This should help you to keep track of where the project has been and where it is going and, most crucially, whether you may need to step up a gear to keep the project to time.

Reflecting on Practice
Have you, in conjunction with your Supervisory Team, agreed an initial research proposal and a research plan? Do you review them regularly with a view to updating them and keeping the research project on track?

6. Writing Regularly

As you begin to make progress with your research, you should put pen to paper as soon as possible for four reasons. Firstly, it enables you to keep a record of what you have done from the start to serve as a basis for later work. Secondly, it encourages you to reflect on what you have done so far and think about where you will go from here. Thirdly, it gives your supervisors the chance to see what has been done, and to advise you about how to proceed. This is crucial, and it is a University requirement, that research students following programmes that will take more than one year of study should produce at least one substantial piece of written or creative work in their first year. Fourthly, it gets you into the discipline of academic writing at an early stage rather than leaving it until later when it is more difficult to acquire.

But, in some cases, students are reluctant to produce written work. Research (see for example Graham and Grant 1997, Delamont *et al*. 1997; Murray 2002) suggests that there are two major factors which constrain research students from writing. One relates primarily to lack of experience of writing regularly at all, of producing longish pieces of work, or of producing academic writing with its demands of precision, clarity, organization and explicit structure. The other factor is confidence. Whereas, as undergraduates or postgraduates, students outlined and discussed the work of other people, as research students their writing becomes, or should become, a presentation of their own views, ideas, thoughts, etc. This can leave students feeling very exposed and, particularly if their standard is published work, very dissatisfied with what they have achieved. For these reasons, they may be psychologically reluctant to write.

One way of ensuring that you write regularly is, as Blaxter *et al*. (1996* pp 5-59) have suggested, to keep a research diary on a daily basis recording what you have done, time spent on it, analysis, and speculation. This gets you into the habit of writing regularly, recording, and reflecting, and can provide a useful basis upon which to construct longer pieces of work.

In constructing longer pieces, you can make what may seem a Herculean task more manageable by breaking it up into smaller ones. So, initially, you might write a one-page abstract of the chapter setting out its aim (purpose), content (what it would cover), and possible conclusions (what it would add). With that thought through and discussed, the next stage would be to write a synopsis fleshing out the abstract and setting out headings and sub-headings to be used. Then, with a framework established, you can fill it in piece by piece until you have a draft chapter.

In order to improve your academic writing, you can read books on the subject (for example: Dunleavy 2003; Murray 2002), ask your supervisors for examples of such writing from the literature in the field, or even pair up with another research student who will undertake to read drafts and suggest improvements in return for similar support from you for their efforts.

In terms of overcoming psychological reluctance to write, you can, as Murray (2002) has suggested, 'free-write', i.e., write it down as it comes without any attempt to structure or present it for an academic audience. This takes the pressure off you and although, at the time, you may feel that it is worthless, you can be surprised to return to it later and find that it does take you forward.

Additionally, and provided that you warn your Supervisory Team beforehand that it is a free-written draft, it can be useful to show it to your Supervisory Team and gain some feedback. Supervisory Teams are aware from their own experiences that virtually all research starts-off very rough-hewn and will allow for this, and of course most would prefer a 'messy' draft of a chapter from one of their research students rather than nothing at all.

It may be noted that, while writing is a necessary task for all research students, it is inherently a more difficult one for students whose first language is not English and who have perhaps been educated within different styles of academic discourse. Your Supervisory Team may be able to assist by discussing examples of writing with you, your faculty may offer a programme and, In-Sessional English language courses are available, which can provide support with your academic writing in English.

Reviewing Practice
Have you started writing as early as possible in the research project? Are you writing regularly? Are you showing your written work to your Supervisory Team? Would you find it useful to have some assistance with academic writing in English?

7. Dealing with Academic Problems

While you can be well prepared for research, it is frequently the case that, at some point during the project, you experience academic problems of one kind or another. Common ones include:

- **Drifting from the topic**
  As the research progresses, highways and byways of new exploration open up which

just have to be investigated because they could be vital. So, you become lost in the maze of possibilities and unable to establish where you should be at that stage of the project.

- **Difficulties with the methodology/methods**
  Particularly in the arts and humanities and social science, the section of your thesis on methodology/methods can require you to grapple with a whole range of unfamiliar philosophical, theoretical, empirical and experimental problems, and it can be frustrating to try and identify, tackle, and resolve these, particularly when you want to undertake the substantive research.
- **Problems with the substantive research**
  You can expect a range of problems to occur as you undertake the substantive research – evidence that you can't obtain as easily as you hoped, experiments that don't work, apparently promising lines of enquiry which turn out to be dead ends, simulations which don't run properly – the list is endless.
- **Drowning in data**
  You collect masses and masses of data, start playing around with them, and find all sorts of interesting things that can be investigated in and around the topic and then even outside it. As a result, you are unable to discriminate between what to concentrate upon in your research project and what to leave out.
- **Unexpected results**
  With the substantive research accomplished, you find results which you did not expect – the evidence which is contradictory, the experiments which yield negative results, the cast-iron assumptions which are apparently falsified, the simulation results which defy predictions, variables which behave badly etc. etc.

If you hit problems of these kinds or others, it is important that you are not afraid to admit, not least to yourself, that you are in difficulties. Research students tend to have previously sailed easily through undergraduate and taught postgraduate programmes and it can, to say the least, be a shock to be brought shuddering to a halt while engaging in research. Students may find it hard to admit this for reasons which Atkins (1996* p 2) has termed 'Top Gun' syndrome whereby:

> *'...students are seen...as the best and the brightest. Significant academic achievement has led them to their current place. They are thus unable to admit faults or shortcomings for fear of 'showing themselves up' in the...academic community. It becomes better to struggle on with barely a clue about what is going on than to admit...that one does not know what is happening.'*

If you have problems, you should acknowledge them secure in the recognition that this happens at one time or another to all researchers as well, i.e., it is all part and parcel of doing research.

In terms of resolving problems, you might start by trying to think through how you can overcome them yourself. If you feel that you are drifting aimlessly in terms of the topic, you might re-visit your research proposal and plan and re-assert the initial focus of the research; if methodology is a problem, look at other books or theses in the area for models of how to proceed; if one avenue of the substantive research has been blocked off, look for another; if you are drowning in data again go back to the research proposal and plan to re-focus the

analysis; for unexpected results, see if there is a substantive explanation – many important contributions to knowledge have come from the explanation of apparent inconsistencies.

You may also wish to consider sharing the problem with a fellow-research student, particularly perhaps one who is further on in his or her studies and who may be able to offer advice based on their own experience. Some Academic Units encourage such a collective approach to problem solving by pairing research students so that they can support each other. Alternatively, if you are part of a research group, it may be that one of your colleagues can assist.

You should, of course, ask for assistance from your Supervisory Team. As experienced researchers, they will be familiar with the problems of research both generally and in the specific subject area and should at least be able to help you to think through the problem and to suggest ways in which you might go about resolving it.

Reflecting on Practice
What academic problems might you expect to meet during your research project?
How would you go about resolving them?
What sources of support are available to help you resolve academic difficulties?

8. Dealing with Non-Academic Problems

As well as experiencing academic problems of one kind or another, research students may also experience a range of non-academic problems arising from their situation. Three common ones are self-doubt, isolation, and boredom.

You may, particularly in the early stages of a research degree, experience bouts of self-doubt. These can arise from the situation of a research student; as one of the respondents to Delamont *et al's* (1997: p 27) survey put the matter:

> *'…you are suspended between a student who just absorbs things and an academic who produces [them], and that [leads to] all kinds of paranoias or neuroses.'*

Self-doubt often takes the form of anxiety about whether you will be able to make a successful transition from being primarily an absorber of, to being a contributor to knowledge, and it can be associated with a reluctance to write or at least to submit written work to your supervisors in case it is 'not good enough'.

It is worth noting that such self-doubt is not uncommon, and that dealing with it is part and parcel of the experience of being a research student. In terms of how to deal with it, the key thing is to write or make– no matter how mundane you think that the piece or chapter is – and show the work to your supervisors. While you are, of course, bound up in the research, and are often unable to judge the contribution that you are making – in time even the most original insights come to seem commonplace to their creators – your Supervisory Team have a greater degree of objectivity. They are far better placed to ascertain how you are progressing, and to offer guidance and support for your work.

As well as self-doubt, one of the most consistent findings of the literature on research students over the past three decades (see for example: Becher 1994 143; Cryer 2000; Delamont *et al.* 1997; Leonard 2001; Phillips and Pugh 2000; Rudd 1975; Rudd 1985) is that research students can feel isolated.

At school and as undergraduates or postgraduates on taught programmes, you study a common syllabus in the company of your peers. But, as a postgraduate research student, unless you are working on a group project or in a large and active research school, you find yourself working on your own project and often without the company of others. This can lead to intellectual isolation – you are the only one in the world working on this topic – and social isolation at the workplace as you plod away on your own in the library or the laboratory. Here, Cryer's (2000 p 41) advice is pertinent:

> *'...you should put effort into warding off isolation. You need to be on the constant lookout for people who both know enough about your field to be able to discuss it meaningfully and have the time to do so.*
> *You may find such people in your family, your social group, or in your department... However, if you have to go outside into a national or an international arena, so be it. Overcoming isolation or potential isolation must be a major objective for all research students.'*

A third common feature of the life of the postgraduate student which has been identified in the literature (see Phillips and Pugh, 2000, pp 77-78) is the tendency towards boredom. This tends to happen when you are well into your research, and have reached a stage where, as Cryer (2000 p171) puts it, *'your work genuinely is excessively routine and monotonous'*. So, you're churning it out day after day, and you become bored with the whole thing and ripe for distractions which will take your mind.

There is no simple neat solution to this problem – if you want to complete you have to continue the research – but it can be beneficial to either do something else (write or re-write an earlier chapter) or even, with the approval of your Supervisory Team, take a short break.

While these, of course, are non-academic problems arising out of being a research student, you may encounter other difficulties of a personal, social, and financial character that have a bearing upon your research. You should certainly alert your Academic Supervisor, who is your personal tutor, to any such difficulties that you may be experiencing, or if you feel this is inappropriate, then you also have access to the full range of University support services outlined in Part One of this Handbook.

9. Reviewing the Progress of the Research

One of the key tasks of research students is to review the progress of their research. This involves variously self-review, formal reviews with your Supervisory Team, and participating in Academic Unity and University review procedures.

Research students are under considerable pressure variously from sponsors, bank managers, the University, and Academic Units to complete their degrees within the allotted time. Your chances of completing on time or as near as possible will be significantly enhanced if you treat the research as a project and actively manage it to meet the deadline. The skills that you need to do this may well be imparted in your research training programme or, if not, you can consult one of the texts, e.g. (Cryer 2000; Graham and Grant 1997; Phillips and Pugh 2000).

Either way, you should find that one of the critical recommendations is that you should treat your research plan not as an exercise to be completed at the start of the project and then filed away, but as a 'live' document to be reviewed and updated frequently and regularly

over the duration of the project. You should, then, consult it regularly; update it in the light of your progress to date; consider the implications for the completion of the research; and, as far as possible, act to keep the project on track. It may be noted that such self-review will not only help you to finish your research degree as soon as possible, but also enhance your project management skills and your attractiveness to employers.

As well as self-reviewing, the University requires that you also formally review your progress with your full Supervisory Team at least once per term, i.e., three times per year. It is important that you treat these supervisions in a professional way as an opportunity to discuss the progress of your research with your supervisors and that you keep a record of what was discussed and what action points were identified.

As well as student and Supervisory Team review, Annual Progress Panels will also have formal procedures, usually involving the submission and/or presentation of pieces of work for annual progress review. It is worth noting that, while these review procedures are intended to assure the University that your progress is satisfactory, they are also intended to be helpful to you. They give you the opportunity to gain feedback on your work from senior researchers in your Academic Unit.

Reflecting on Practice
Do you have a strategy for personally reviewing the progress of your research project at regular intervals? Do you approach supervisions to review your progress in a business-like way?

10. Framing Your Thesis

After spending the best part of one, two or three years of your life training to do research and then undertaking the actual research for your project, you are then faced with what is the last major task of producing your thesis. This task is absolutely crucial because, as Cryer (2000 p177) has put it:

> *'The thesis is the culmination of [the] research student's entire research programme, and it is on the thesis that he or she will be examined and judged.'*

This, of course, raises the question of 'what is a thesis?' While there is no objective definition of a thesis and there are variations between what is expected in different disciplines, one common factor is, as Barnes cited Blaxter *et al*. (1996* p 27) has put it, that:

> *'A [thesis] is far more than a passive record of your research and generally involves presenting an argument or point of view. In other words, it must say something and be substantiated with reasoned argument and evidence.'*

So, producing your thesis involves more than throwing everything you have done into the pot and hoping for the best; it has to involve a case or point of view and be substantiated with reasoned argument and evidence.

This can be difficult to do because, to put it at its simplest, often we cannot see the wood (the thesis) for the trees (the mass of writings creative work and materials we have accumulated over the course of the research). So, in order to produce a thesis, we need to know the shape of the wood, i.e., a framework for our thesis.

There are many ways of developing a framework for your thesis, and it is worth consulting your Supervisory Team about suitable approaches. A practice-based PhD student should

consult subject-specific guidelines as there is a different relationship between the creative work and the critical, contextual writing (written element) than there is in a traditional PhD by thesis. One possibility suggested in the literature (see for example Cryer 2000; Taylor 2002) is for you to think of yourself as an explorer who has undertaken a journey and who is writing a guidebook. As the author of the guidebook, you need to explain:

- where you started from
- what other guidebooks you read
- why you decided to undertake the journey
- how you decided to approach the journey
- the route you decided to follow
- for the Doctoral degrees, the original discoveries you made on the way
- where you arrived at the end of the journey
- how it differed from the starting point
- where you would go from here in future

You can literally map this on a couple of sides of paper, and then re-trace the journey. At each stage you need to ask the questions; What is it vital to say to take the reader on to the next stage?; What it is important but not vital?; What is neither important nor vital? By this process, if necessary, repeated several times, you should be able to distil the essence of the thesis (the vital) and separate it from the important and the relatively unimportant.

With, hopefully, a stripped-down and clear route, you can then begin to fill in each stage of the journey in terms of key topics which you have to address, which you use to flesh out your map. You can then apply the same tests as above – are they vital, important, or neither – and go through a similar iterative process. Then, within the topics, this can be repeated with sub-topics until, eventually, you have a complete map of the thesis.

Such an approach has a number of advantages. Firstly, it gives you an overall framework for your thesis; secondly, it divides the writing into manageable tasks; thirdly, and vitally, it can be discussed with your Supervisory Team before writing up; fourthly it highlights the key things you need to bring out in terms of discoveries (originality), added knowledge and understanding (the differences between the start and end point), and future research in the area (where we go from here); and finally may translate into the structure for a thesis. So, for example, in the case of many PhDs, the translation is:

'Journey'		**Thesis**
Starting point	-	Introduction
Guidebooks	-	Literature review
Reasons	-	Trigger
Approach	-	Methodology
Route and discoveries	-	Substantive research chapters
Arrival	-	Analysis and results
Differences	-	Added knowledge
Future	-	Directions of research

11. Writing Your Thesis

Once you have established a basic framework, you still, of course, have to write the thesis. Here the three key issues to consider are; who am I writing for? (audience); how do I actually

go about writing it? (drafting); how do I make sure that it reads well? (presentation).

A research thesis, like any other piece of writing, is a form of communication, and it is necessary to consider in advance the audience that you are addressing and how you might meet their needs. Here, Cryer (2000 p 178) has some good advice:

> *'The crucially important audience for theses are external examiners. Think of them as individuals who are exceptionally busy and grossly underpaid and who therefore have to read theses quickly. They will expect them to be well-structured and to be argued coherently to make the case for certain solutions to specific research problems. Irrelevancies will irritate, as will having to tease out meaning that research students should have extracted themselves. Think of them also as individuals who are very able and experienced in the general area, which means that the background material should be as concise as is consistent with showing that it is known.*
>
> *'However, no external examiner can be an expert in your work. By the time you finalise your thesis, you and you alone are the world's expert. So the aspects that make your work significant and original and worthy of a PhD…need to be argued coherently; each step needs to be spelled out, the outcomes must be stated unambiguously, and all their implications identified and discussed in depth.'*

So, for your examiners, the thesis needs to be:
(i) well-structured
(ii) argued coherently
(iii) relevant
(iv) concise in the literature review
(v) expansive and detailed on areas in which the thesis makes a significant and original contribution to knowledge.
Clearly (i) to (iv) above apply to all research degrees, while (v) applies particularly to Doctoral degrees.
(i) and (iii) above clearly have a bearing on what you write; (ii) has a bearing on what you include when you write, and (iv) and (v) have a bearing on the proportion of the thesis taken up by each heading. So, for example for Doctoral degrees, you should certainly not aim for half of your thesis to be taken up by the literature review, a further quarter by the methodology, and only a quarter for the original scholarship.
What it can be useful to do is to produce a rough distribution of how much should be devoted to what part of the thesis. Such a distribution, produced by the University of Warwick as a guideline for PhD students (cited Blaxter *et al*. 1996* p 217) are set out below:

	% of thesis
Introduction	10
Literature review	20
Methodology	15
Research findings	20
Discussion	20
Conclusions	5
Bibliography	10

While the percentages may vary in different cases, it is crucial to plan them with the needs of the audience in mind.

With the needs of your audience in mind, it is then possible to proceed to drafting. One of the (few) common factors in the research degree experience is that it almost always takes far longer to write up the thesis than had been planned. The reason for this is that, when we finally write up, we have finished the substance of the project and now have, or should have, the benefit of hindsight, which leads us to change, amend, and modify the draft. While this is an entirely legitimate and valuable part of a research degree – it is in fact learning from what we have done – it can result in considerable delays in producing a first rough draft.

You should then review this yourself. Here it can be very useful to look at the *Handbook for the Examiners of Research Degrees*, which sets out the criteria the Examiners will apply to your thesis. You should apply these then, if necessary, re-draft the thesis and ask your Supervisory Team for comments. Following that, you should re-draft in the light of their comments, review it again yourself, and so the cycle continues until a final draft emerges.

As well as meeting requirements for the substance of the research degree, it is also vital that the draft is well-presented, for two reasons. Firstly, while good presentation cannot rescue a poor thesis, it may help a marginal one, i.e., the examiners may be inclined to take a more charitable view if the thesis is easily readable and, as far as possible, error-free. Secondly, inadequacies in expression and errors in spelling and grammar are one of the most common reasons for the referral of theses, i.e., for these being accepted subject to minor corrections. It can be extremely galling to have to spend a month or two correcting elementary mistakes and errors, not just to you but to your internal examiner who will be landed with the task of checking that your errors have been corrected before the degree can be awarded. **It is important that you get this right before you go further.**

You should:

- ensure that you have expressed yourself as clearly and concisely as possible (reading out loud can often help to identify over-long sentences and unnecessary padding)
- check the grammar and the spelling (it is your responsibility to do this and not that of your Supervisory Team)
- check that you have the right words (spell checkers can tell you whether the word is spelled correctly but not if it is the right word in the first place)
- check the footnotes/endnotes, quotations, citations etc. both in the text and in the bibliography (remember, your examiners will check a sample)

Given that many of us can be blind to our own deficiencies and errors, it can be very helpful to ask a friend with some expertise in the area to comment on the comprehensibility of the draft and to also ask them to check it for errors.

With this done, it is back to your Supervisory Team for a final re-read and, hopefully, the green light to go ahead and submit the thesis for examination. If your Supervisory Team still have reservations, you can still submit – ultimately it is your decision – but you would be well advised to consider this very carefully for fear of falling at the final fence.

In preparation for submission you should check the University's Submission of Work regulations.

Reviewing Practice
Are you clear about the audience for which you are writing? Have you decided upon an appropriate balance between the lengths of the various parts of the thesis? Have you reviewed your thesis using the Handbook for Examiners? Has your Supervisory Team seen the draft? Have you taken their comments on board? Have you asked their advice about submission? Have you checked the University's requirements in terms of the submission of theses?

12. Preparing for Examination

Following submission of the final title of the thesis, examiners are appointed, normally one internal and one external examiner. In the case of Master's research degrees, the process of examination normally involves the assessment of the dissertation or thesis by the examiners and in the case of Doctoral and MPhil degrees, University regulations require an oral examination, i.e., a viva.

Oral examinations are comparatively rare in undergraduate and taught postgraduate programmes; in most Universities, they are only held if there is some doubt about the class of degree to be awarded, although in some they are mandatory for the award of a First.

But, of course, oral examinations are compulsory for the award of the Doctoral degrees. The implication of this is, of course, that candidates starting PhDs/MDs often have little or no experience of oral examinations. While they gain some by defending their work at progress reviews, this is still a far cry from the full rigour of a formal oral examination.

This might be of little consequence if, as in many other European countries, the oral examination was a public affair and they could go along and experience what happened. However, the British oral examination rarely gives access to people other than the examiners. Again, this might not matter if there were published guidelines for the oral examination a, but this is not always the case. So, as Burnhan (1997 p 30) has put it '...*what occurs in the lengthy "judgely huddle"* from which postgraduates emerge either victorious or distraught is a mystery'.

In consequence, as Delamont *et al.* (1997 p 148) have written:

> *'The [PhD] student may well fear and dread the [viva] examination. Even when the student is outstandingly competent, and however excellent the thesis may be, the process of examination is a stressful one...most [candidates] feel worried by the indeterminacy of [the viva]'.*

However, you can prepare for your viva in six main ways.

1. It is important to understand what oral examinations are about, i.e., their purposes, procedures, and outcomes. These are explained in detail in the University's *Handbook for Examiners of Research Degrees* and you will find it helpful to discuss these with your Supervisory Teams.
2. You need, of course, to be thoroughly familiar with your thesis. While this may seem strange since you wrote it, it is amazing how quickly you can forget what you have written, and you do need to re-read it. Often, you will find typos and other errors you have missed earlier – if so, list them and take them with you to the oral examination to show your examiners that you are aware of them.
3. You need to keep up to date with the literature/practice in your area in the hiatus

between submission and the viva. If a key paper comes out during that period, your examiners may ask you about it and about any implications for your work, and it obviously creates a good impression if you are aware of it.

4. As well as being prepared for questions concerning new literature, it can also be useful to anticipate the sorts of questions you might be asked and at least think about how you will answer them. There are some fairly obvious general ones (e.g., 'Why did you do this topic?' 'Why did you study here?' 'What would you have done differently if you were doing the research now?' 'What do you think the implications of your work are for the field?') for which you can prepare.
5. You can ask your Supervisory Team to arrange a mock oral examination in which colleagues who are experienced in examining question you on key parts of the thesis and afterwards give you feedback upon your performance. Such an opportunity, which a number of faculties provide as part of their progress monitoring procedures, is invaluable in enabling students to prepare themselves both intellectually and psychologically for what is to come.
6. On the day itself, you need to be prepared for the experience. You should go to the oral examination as well-rested and fed as possible, and appropriately attired – it is a formal occasion so you need to be well-dressed but as you will be sitting down for a couple of hours and possibly more you need to feel comfortable as well. You should take with you:
   - a copy of your thesis (preferably loose bound so you can find pages quickly)
   - pen and paper if you need to jot questions down or possibly draw diagrams
   - where appropriate, a list of corrections
   - copies of any original results, print-outs, or raw data which may be helpful in substantiating key points made in the thesis

Following Cryer (2000 p 197), you should:

- be composed when you enter the room
- sit squarely on the chair, not on the edge
- ask for anything not to your liking in the room to be changed, e.g., your seat moved out of sunlight
- wait for questions to be asked of you by the examiners
- show that you are listening attentively
- ask for clarification if questions are unclear
- take whatever time you need to answer them
- defend your thesis without becoming wholly defensive, i.e., be prepared if necessary to concede points
- be scholarly in your approach, i.e., give answers weighing the pros and cons before reaching balanced conclusions

When the examiners have finished their questions, they may well ask if there is anything you wish to say; this is an opportunity for you to clarify or expand upon any answer which you felt did not do you justice or raise any other matters concerning the examination.

At the end of the oral examination, you will be asked to leave while the examiners deliberate, and afterwards you will normally be called back, to be informed of the examiners' recommendation.

In many cases, the recommendation will be to award the degree subject to making minor corrections (usually spelling and grammar) to the satisfaction of your internal examiner. In others, it will be award subject to making minor revisions within six months, and in a few making major changes ones within twelve months. While these recommendations may be disappointing, it is important to remember that the examiners' expectation is still that you will eventually pass, and they are required to specify what you need to do to make the grade. Other outcomes, i.e., the award of a lower research degree or a fail, are mercifully rare. But, if this does happen and you have reason to believe that this relates to unfairness in the examination procedure, you have a right to appeal, and details of the University's appeals procedure are set out in Part Four of this Handbook.

But, in the vast majority of cases, you should only need to do one thing after the oral examination - celebrate.

13. Publishing, Exhibiting/Performing, Networking, and Developing Your Career

There are three other areas of good practice for research students, namely publishing, networking, and developing your career.

If at all possible, you should try and publish, exhibit/perform your work during your studies; this can help to mark out your academic territory, bring you into contact with others in the field, boost your self-esteem –- it is a coup to be published when still a graduate student –- and provide a better platform for employment, particularly in the research field inside or outside the universities. Your Supervisory Team should be able to advise you about whether your work should be published and, if so, how to go about it.

Also, you should consciously network within the academic and/or professional community relating to your field. Academia is heavily dependent upon networking informally and formally, in the latter case through professional associations and conferences. You should try and establish your own informal networks, and participate in the professional ones, e.g., the postgraduate sections of professional associations. Such networking will bring you into contact with others in the same field, help to prevent isolation, offer you opportunities to attend conferences and give papers, and finally enable you to acquire skills which will stand you in good stead in your career, inside or outside academia (see for example Blaxter *et al*. 1998* pp 55-77). Again, your supervisors can help with contacts and advise on professional association memberships, etc.

Last, but by no means least, you should, from the beginning of your research project, be conscious of the need to develop skills and plan for your future career. Your primary objective as a research student is, of course, to gain a research degree, and this will be valuable in seeking employment. But, in today's labour market, you also need to have the key – transferable – skills which are demanded by employers. You should use your Personal Development Plan (PDP) to highlight areas of strengths and areas for improvement by mapping your current skills against the Researcher Development Framework developed by Vitae.

You can learn about the skills demanded by employers, as early as possible in your studentship, by attending training and development events organized by the University's Careers Service see which can be used as a benchmark against which you can develop them over the course of your programme.

So, at the start of your programme, you should look at the list and see which skills you have acquired already and which you will need to acquire over the remainder of your studies. You should then check out which of these skills you will acquire by attending Researcher Development Programme events over the course of your research training and discuss with your Supervisory Team the other skills that you will acquire by undertaking your research. You should then audit your skills and identify any gaps – a common one for research students particularly in the humanities and social sciences is team-working – and make plans to fill them. Your Supervisory Team will be of assistance in this regard, as will the postgraduate adviser in the Careers Service.

While all the key skills are important, it is worth highlighting the acquisition of one in particular, namely effective oral presentation skills. Such skills are vital in the academic context (a number of academic units ask research students to make oral presentations as part of their procedures for progression and of course you need them to make presentations to seminars and conferences) and for employment in virtually any field. You should take every opportunity to develop these skills through the Researcher Development Programme, by reading the relevant literature (e.g., Cryer 2000) and by asking your Supervisory Team or other colleagues to listen to a mini-presentation and give you feedback.

As well as actually acquiring skills for employment, you also need to be able to document their acquisition, which can be done on your PGR ePortfolio. Either way, if you can demonstrate to employers that you have acquired the appropriate skills, this will greatly enhance your chances of gaining the good job, which you deserve for all of the work and effort you have put in over the course of your research degree.

Reviewing Practice
Have you discussed possible opportunities for publications with your Supervisory Team? Have you taken steps to establish informal networks in your subject community? Have you joined the relevant subject associations? Have you attended Careers Service events on career planning and development? Have you reviewed your skills against the University's template? Have you made efforts to fill any gaps?

Conclusions

Research degrees are unique in so far as, rather than working within a pre-established framework, you often have to create and always undertake and manage a project to its conclusion. This is not an easy task but, in so far as your research will advance and/or contribute to the sum of knowledge and understanding in your subject, a worthwhile one. Hopefully these guidelines have helped to unpack what you need to do to succeed in gaining a research degree, given you indicators of good practice, and assisted you to reflect upon your effectiveness as a research student.

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Good Practice in Research Supervision

Where reference is made to any named University role, such references are to be read as including reference to their nominees.

These guidelines use Academic Unit as an overarching term for School and Institute.

Introduction

Research supervision has been characterized by Brown and Atkins (1988, p 115) as

> *'...probably the most complex and subtle form of teaching in which we engage. It is not enough for us to be competent researchers ourselves – although this is vital. We need to be able to reflect upon research practices and analyse the knowledge techniques and methods which make them effective. But there is a step even beyond this. We have to be skilled in enabling our research students to acquire those techniques and methods themselves without stultifying or warping their own intellectual development. In short, to be an effective research supervisor, you need to be an effective researcher and an effective supervisor.'*

As a member of the academic staff at Newcastle, you will be an effective researcher; the aim of these guidelines is to assist you to reflect on good practice in supervising research students. The guidelines are not intended to be prescriptive nor exhaustive, just to indicate what, within the literature, has been identified as good practice. But some of the matters covered do relate to University requirements, and this document should be read in conjunction with the University's *Code of Practice for Research Degree Programmes* which sets out the formal framework for research supervision.

The guidelines attempt to set out good practice in relation to fifteen key components of research supervision, namely:

1. Establishing and maintaining a professional relationship with the student
2. Helping to induct them into research
3. Where appropriate, assisting with the choice of a topic
4. Where appropriate, helping them devise a research proposal and plan
5. Supporting the initial stages of the research project
6. Encouraging students to write/make
7. Assisting with academic problems with the research
8. Assisting with personal and social problems affecting the research
9. Giving feedback and reviewing the progress of the research project
10. Monitoring the progress of the research
11. Advising on drafts of the thesis
12. Advising on submission
13. Assisting on preparation for examination
14. Assisting with career development, networking, and publication
15. Working with Supervisory Teams

1. Establishing and Maintaining a Professional Relationship with the Research Student

The relationship between a supervisor and a research student is a professional one, and it is vital that it is started off on an appropriate footing. As Delamont et al. (1997, p 14) have put

it:

'You need to sort out a good working relationship with your supervisee. Relationships have to be worked at and discussed, because most of the later problems stem from a failure to set out the expectations both parties have for the relationship. A few supervisions devoted to discussing the best ways to work together will not be wasted.'

Newcastle University approaches this by requiring supervisors and students to sign a learning agreement setting out the expectations of each other, as in the example below.

The **research student** agrees to:

- turn up on time for supervisions and give as much notice as possible of cancellations
- be properly prepared
- write regularly and share the draft materials
- maintain the highest standards of academic conduct, as set out in section 14 of the *Guidelines for Research Students and Supervisors*
- maintain contact
- undertake the tasks agreed to the best of their ability within the allotted time

The **research supervisors** agree to:

- hold regular supervisions and give as much notice as possible of cancellations
- review promptly submitted work or creative outputs
- give written feedback

Both agree to:

- treat supervision in a business-like way with an agenda
- keep records of supervisions detailing what was discussed, what targets were agreed, and when they were to be achieved by

In general terms, supervisory support can include:

- Assistance with the choice of topic;
- Critical and constructive feedback on the work produced;
- Advice on the sources or literature used;
- Guidance on the methodology or techniques used and the approach to data collection;
- Discussion of evidence and results;
- Reading drafts and commenting on issues of substance.

Supervisors will not:

- Undertake the actual research itself;
- Write or significantly redraft papers or chapters;
- Conduct a detailed proof read the thesis.

At this stage also, you may wish to make it clear in what circumstances you would or would not expect credit to be given in any publications arising from the research.

While this process of establishing a professional relationship is important for all students, it may be particularly helpful to international students, who may have culturally defined notions of what they can expect from their supervisors. As Ryan (2000, p:69) has put it:

'...international students...are likely to expect a hierarchical relationship with their supervisor where the supervisor exercises tight control over the research. Many international students will expect their supervisor to take the initiative and adapt a role close to being a guide and/or parent. They may expect the supervisor to make major contributions towards the research and the thesis. They will be expecting clear direction and guidance from their supervisors, whom they will hold in great esteem, and they often have very high expectations of the relationship.'

In such cases, it can be useful to spend some time discussing a student's expectations of the roles of the supervisors and of what you can offer in order to clarify the relationship. Such discussions should emphasise the additional support available to international students in the early stages of their research, as well as the need for them to take the initiative in undertaking and completing the research project.

By these means, clear expectations should be established for what is to come at the start of the research. But, as with any relationship, the supervisor-supervisee one changes, or should change, over time. Ideally, it should start as a master -apprentice relationship and end up as almost equal colleagues.

Clearly, this implies a process of development over the course of the supervision from the Supervisory Team playing a directive role and setting tasks for the student to do at the start towards encouraging the student to become an autonomous researcher and increasingly recognizing their capacity to make an independent contribution to knowledge and understanding in the subject. However, as Cryer (2000, pp 5-7) has pointed out, this does not happen automatically. Students may need to be weaned away from dependence upon their Supervisory Team, while the latter may need to adjust to the idea of the student abandoning the nest and beginning to fly on their own. So, it is important for the Supervisory Team to periodically check where the balance lies, whether it is appropriate for this stage of the research, and if not, what can be done to correct it.

Reflecting on Practice
What methods do you use to establish a professional relationship with the student at the start of the programme? What is the appropriate balance between dependence and independence over the course of the programme? How often do you review that balance? What can you do if it is wrong?

2. Inducting Students into Research

Many students coming through to research will have undertaken short research projects either as undergraduates or as postgraduates and will be required to undertake training in research during their first year of study. There is also now a substantial literature on undertaking a research degree to which students can be directed; examples include Cryer (2000), Leonard (2001), Phillips and Pugh (2000), and Wisker (2001). However, while previous experience and the literature yield insights into research, they may not prepare students for it fully, in five respects.

Firstly, students are often still not fully aware of what they are letting themselves in for, i.e., a research degree. Again, the point is well made by one of the PhD students interviewed by Delamont et al. (1997, p 16):

'A lot of mistakes I've made are the result of not asking questions and people not putting

me right. They presume I must know…I didn't know the PhD was meant to be an argument…[that] it's meant to say something. I thought it was one of those old-fashioned monographs, a collection of information. When I was an undergraduate I used to think a PhD was one of those articles you read in the journals, a 10,000 word article, I used to think they were PhDs.'

Clearly, if the student's supervisors have explained what a PhD was, pointed the student in the direction of a few successful theses, and discussed why they were successful, the mistakes which marred the student's experience could have been avoided.

The second way in which students may be unprepared for research stems from the way in which it is written up in books and papers in journals, namely as a seamless progression from initial idea to an addition to knowledge and understanding. But what is published is only the visible part of the iceberg; the other nine-tenths – the ideas that were discarded, the investigations that ended up in blind alleys, the correlations that were in the wrong direction, the experiments that gave negative results, the sheer fluke that led to the substantive advance – rarely see the light of day. So, it is scarcely surprising that many students expect their research to progress without incident and, when it does not, blame themselves.

Here, the Supervisory Team has a key role in forewarning and forearming. This may take the form of directing students towards accounts of research as it really happened, pairing them with students further down the line to discuss the problems they had experienced, or even self-disclosure by the supervisors. What can be useful is for the Supervisory Team to keep all of the materials relating to a particular research project from first scribbles to final paper, and take the student through the process, disasters as well as triumphs. Such exercises can prepare them for what is to come and can have the added bonus of demonstrating how to go about problem-solving in your subject.

Thirdly, students may not be aware or fully aware of what is entailed in maintaining the highest standards of academic conduct in undertaking their research, in particular with regard to the fabrication of results or plagiarism. A few minutes spent discussing this with the student can be helpful, and it is recommended that this is done.

Fourthly, the Supervisory Team should spend some time at the start of the project discussing the storage and retention of research data with their students. Failure to store and retain data can, at worst, mean that experiments etc. have to be replicated, at best that progress is halted until missing data is eventually found. In this context, it can also be useful to encourage students right from the start to take full references for everything that they read in such a form that they can later be easily transferred to the text or the bibliography of their thesis. Again, this can save many hours hunting for page numbers etc. at the writing-up stage.

Fifthly, the Supervisory Team is responsible for ensuring that research students follow agreed University and, where appropriate, Academic Unit health and safety policies and procedures, and these should also form part of the student's induction into research. Again, on international students, it is worth quoting Ryan, (2000, p 73):

'A common problem is that supervisors assume too much of student's research knowledge. But some international students will have very little knowledge of how to conduct research....'

Supervisory Teams might consider going through one of the texts described above (e.g., Cryer 2000) with international students, and devising mini-research projects that contribute to the PhD that are designed to enhance their experience of research.

Reflecting on Practice
Do you ascertain at the start of the programme what the student knows about the degree they are about to embark upon? How to you make them aware? How do you alert the student to the trials and tribulations of research? How can you ensure that international students have an adequate induction into research?

3. Assisting with the Choice of a Topic

In many cases, and particularly in engineering and the sciences, students are often recruited to research a particular topic which has been pre-defined by a supervisor (see e.g., Delamont et al. (2000), Becher et al. (1994)). But, particularly in the arts, humanities and social sciences, students are recruited on the basis of their interest in working in a broadly defined area of the subject, which has to be narrowed down sooner or later to a specific topic.

Bright students who have sailed through their previous careers with effortless brilliance may have unrealistic expectations of what they can achieve in their research degrees.

These can often be adjusted by asking them to look through the titles of MPhils or PhDs in their subjects which illustrate the narrowness of most (if not all) research topics. But even when they have abandoned seeking a cure for the common cold or a fundamental change in our interpretation of civilisation and adopted a more realistic project, they will still need help and guidance.

Moses (1992, pp 11-12) has characterized the process of selecting a topic as involving the five stages of:

(i) determining a general area of interest
(ii) critically reviewing the literature
(iii) identifying potential 'triggers' for projects
(iv) evaluating their suitability, and
(v) choosing at least a starting topic.

While the general area of interest should be known, Supervisory Teams can assist students by disclosure – talking through their own experiences – and/or exercises designed to model the rest of the process. Students can be asked to read (say) a review article (which can provide valuable training in critical evaluation) and asked to identify a couple of possible 'triggers' for research projects. A supervision can then be devoted to discussing the key questions relating to suitability:

- is this topic worth doing?
- how, in principle, could it be done?
- could it be done within the time available?
- what additional knowledge and skills would be required to tackle it?
- would it sustain interest?
- if completed, how might it meet the requirements for the award?

With, hopefully, an understanding of the criteria, students can then be asked to do this 'for real' and write brief reports, upon which supervisors can give oral or written feedback.

Eventually, this iterative process should lead to the identification of a topic which will, at least, form a focus for starting the research.

Reflecting on Practice
Do you provide students with a framework for choosing a topic? Would disclosure of your own experiences be helpful? Can you identify review papers in your subject which could be used to generate topics for exercises?

4. Producing the Research Proposal and Plan for Project Approval

It is a requirement of the University's *Code of Practice for Research Degree Programmes* that research students should, in conjunction with their Supervisory Team, produce and agree their research proposal and plan for formal project approval within the first three months of their research degree studies. The project proposal, plan and supervisory team will be considered by an impartial Project Approval Panel, and then the Head of Academic Unit prior to formal approval by the Dean of Postgraduate Studies.

In some cases, particularly in science and engineering, research students are recruited to implement research proposals which have already been planned and scheduled. Nevertheless, in such cases a project plan and Supervisory Team list must still be submitted to the Project Approval Panel to ensure that the project is achievable within the timescales allowed and to confirm that sufficient resources are available within the Academic Unit.

Where the project is not pre-determined and planned for them, students need to manage their research projects actively. Otherwise, they can drift for months during the first year of research, and this is a major cause of drop out and also of non-completion within three or four years. Given the financial pressures on students – particularly international ones funded only for the stated duration of the programme – and of course Research Council sanctions on subjects with low completion rates within three or four years (see e.g., Joint *et al.* 2002), it is vital that they are clear about what they are doing and when they should be aiming to do it by. For these reasons, the University requires that Supervisory Teams work with students to produce a research proposal and a plan.

With regard to developing the research proposal, the Supervisory Team can assist students by asking a fairly simple series of questions. For example: What is the topic?; Why is it important?; What have others written on it?; What would the research seek to add?; What method or methods would be useful in undertaking the research?; How could the research be designed?; How will data be collected?; How will it be analysed?; How, in principle, might results add to knowledge and understanding in this field? In addition, it is still useful to show students a good research proposal and take them through it step by step so that they have a clear exemplar to follow.

With regard to planning the research, in principle it seems simple enough to plot the tasks identified in the research proposal against time. In practice, it is extremely difficult to predict in advance even approximately how long things are going to take, particularly if students have limited research experience, and the results can be over-optimistic to say the least.

Here, the Supervisory Team should help students to appreciate the pitfalls of planning a research project. One method for doing this has been developed by Delamont *et al.* (1997). Students are given Gantt charts for research projects in their subject which deliberately over-

represent the time to be allotted for some aspects of the research process and under-represent the time needed for others. They are then asked to consider the realism or otherwise of these projections, to discuss them, and to re-plan the research. This technique can be extremely effective in stimulating students to think about the relationship between time and task and in enabling them to plan their own research.

Supervisory Teams should also encourage students to revisit and update both their research proposal and plan frequently. Research topics can change markedly over the course of a project, and research plans need to be modified in response to this and other factors. Discussing and updating the research proposal and the research plan, will ensure that both supervisors and student are clear about where the research has got to, and what needs to be done to complete it.

Reflecting on Practice
Is there a good research proposal you could show to research students? Could you develop research plans for discussion with students?

5. Supporting the Initial Stages of the Research Project

Especially in disciplines where students have created their own research project, they are then faced with detailed preparatory work on the literature, the methodology, and the design of the research.

All of these can pose serious problems for students at the start of their projects. On the literature, students may need help in finding it if they are not familiar with the location of sources in the field, with learning how to read it critically, with note-taking, and with referencing. In some subjects, there are established and relatively less contested methodological approaches but in many subjects, students are faced with a range of different potential approaches and may have to grapple with a range of difficult philosophical, theoretical, and empirical matters. In virtually all subjects, designing a major research project is a difficult exercise for the uninitiated, with each potential design associated with opportunities and limitations which can have profound implications for outcomes.

Such matters are dealt with in general through Faculty Researcher Development Programmes, and it is clearly important for Supervisory Teams to be aware of the content of these in ascertaining the support needs of their students. In addition, the Supervisory Team still has a role to play in relating general features of literature evaluation, methodology, and research design to the student's topic. For example, setting an exercise for students to find a key reference in their field, produce a critical review, evidence it from their notes, and cite sources correctly, can help them to evaluate the literature; pointing students in the direction of good discussions of methodologies in books, theses and papers in their topic area can assist with the adoption of a methodology; and asking for short briefing papers on the advantages and disadvantages of different designs can provide a basis for discussion and clarification of the options.

By these means, students can be supported through what can be the very difficult initial stages of their research project. The avoidance of mistakes at this early stage, e.g., in the design of the research, can save much time and grief further down the line.

Reflecting on Practice
In what ways do the Faculty Researcher Development Programmes support students to acquire the necessary knowledge and skills in terms of evaluation of the literature, methodology and research design? How can you assist the student to acquire these in the context of their project?

6. Encouraging Students to Write

As students begin to make progress with their projects, they need to be encouraged to write as soon as possible, for four reasons. Firstly, it enables them to keep records of what they have done from the start to serve as a basis for later work. Secondly, it encourages them to reflect on what they have done so far and think about where they will go from here. Thirdly, it gives the Supervisory Team the chance to see what has been done, and to advise them about how to proceed. Fourthly, it gets students into the discipline of academic writing at an early stage rather than leaving it until later when it is more difficult to acquire.

But, as most experienced supervisors will testify, students are frequently extremely reluctant to produce written work. Research (see e. g. Murray 2002) suggests that there are two major factors which constrain research students from writing. One relates primarily to lack of experience of writing regularly at all, of producing longish pieces of work, or of producing academic writing with its demands of precision, clarity, organization and explicit structure. The other factor is confidence. Whereas, as undergraduates or postgraduates on taught programmes, students outlined and discussed the work of other people, as research students their writing becomes, or should become, a presentation of their own views, ideas, thoughts, etc. This can leave students feeling very exposed and, particularly if their standard is published work, very dissatisfied with what they have achieved. For these reasons, they may be psychologically reluctant to write.

Supervisory Teams can help students overcome these problems in a number of ways. With regard to writing regularly, Blaxter et al. (1996, pp 59-57) suggest that students should be encouraged to keep a research diary on a daily basis recording what they have done, time spent on it, analysis, and speculation. This gets students into the habit of writing regularly, recording, and reflecting, and gives them a basis upon which to construct larger pieces of work.

With regard to writing longer pieces, Supervisory Teams can help students to make the task more manageable. So, initially, they might request a one-page abstract of the chapter setting out its aim (purpose), content (what it would cover), and possible conclusions (what it would say). With that thought through and discussed, the next stage would be to ask for a synopsis fleshing out the abstract and setting out headings and sub-headings to be used. Then students can be encouraged to fill in the framework piece by piece until they have a draft chapter.

With regard to academic writing, students can be variously referred to books on the subject (e.g., Dunleavy (2003), (Murray 2002)), given examples of such writing from the literature in their field, or even paired with a mentor in the form of a student further on with their research who will undertake to read drafts and suggest improvements. Supervisory Teams can refer students to the University's Writing Development Centre for further guidance and support.

In terms of overcoming psychological reluctance to write, supervisors can, as (Murray 2002) has suggested, reduce anxiety levels by giving the student explicit permission to submit a 'messy' draft for comment on the understanding that it will be treated as a first stab and not as the definitive submission. Further, it can be worth pointing out to students that virtually all contributions to knowledge and understanding start off as fairly rough-hewn stones which are then polished usually by several sets of hands before they become the perfect gems of publications. As suggested earlier, the message can be reinforced by showing students earlier drafts of supervisors' own papers.

Again, here it is worth considering the particular problems faced by non-native speakers of English. To quote Ryan (2000, p 74):

> *'Many international postgraduate students will have had very little experience in any kind of extended writing, and may have previously only been required to take lecture notes. They may therefore resort to an oral style, or may use writing styles that are favoured in their own country. [For example]...The use of proverbs, stories and literary illusions...are commonly used in Asian and African writing to demonstrate one's educational level and accomplishment, to win the reader over to the author's point of view, and to establish credibility. Classical sayings or poetic phrases will be used to make the writing look 'well-educated' and to establish empathy. The writing process takes a more circuitous approach, where the reader is gradually taken along a journey where the argument, or the main thesis, is only found at the very end. The thesis will begin by saying what the topic isn't before writing about what it is.'*

This, of course, is the antithesis of academic writing as practised in the West, and here there is a particular need to help international students to appreciate what is involved and help them to adjust.

By these means, Supervisory Teams can try to fulfil one of their principal responsibilities, encouraging students to write early and often.

Reflecting on Practice

Are your students writing early enough? Are they writing regularly enough? If not, how can you assist them to overcome the barriers to writing? How can you assist non-native English-speaking students to improve their writing?

7. Assisting with Academic Problems

Research is, as argued earlier, an inherently difficult activity and it can almost be guaranteed that, at some point, students will be faced with problems. Such problems may include, for example, exploring the highways and the byways of the topic and drifting too far away from the original focus of the research, setbacks in collecting data, inconsistencies in findings, problems with the status of results – the list is endless.

The nature of intervention in such situations is a matter of fine judgement, but Supervisory Teams should try to suggest ways in which the student can, by their own efforts, resolve the crisis.

Again, there is a good example of such thinking in Delamont *et al.* (1997, p 77), in this case covering the familiar scenario where a research student has collected a vast amount of data and is unable to organize it in a coherent way, i.e., the student is 'drowning in data'. Rather than leaving them to flounder or going out with the lifeboat, Delamont et al suggest that the

supervisors should arrange for the student to prepare a seminar paper or write a working paper re-stating the central questions of the research, establishing what needs to be evidenced to answer them, and re-evaluating the contribution that the thesis will make to knowledge and understanding. This, they argue, provides an opportunity for students to re-focus the research, discard extraneous material, and hopefully avoid writing the 'everything but the kitchen sink' thesis which might be referred because of inadequate discrimination of evidence.

Reflecting on Practice
What sorts of academic problems are research students likely to come up against in your subject? In what ways do you think that you could help without compromising the independence of the research?

8. Assisting with Non-Academic Problems

Research students can experience non-academic problems which can affect their research. At Newcastle, Academic Supervisors are also personal tutors to their research students, and hence the role can extend to assisting with personal and social problems as well. Supervisors thus need to be equipped to deal with problems in the same way as for undergraduate tutees although it is worth noting that there are a number of additional arrangements to support students including a Faculty Postgraduate Tutor in each faculty. Of course, there are also a range of University services for research students with which supervisors need to be familiar, and which are set out in Part One of this Handbook.

In addition to particular problems, it may be noted that one of the most consistent findings of the research literature on research students (see the summary in Delamont *et al*. 1997, p 96) is that they suffer, to a greater or lesser degree, from intellectual and social isolation. But, as the authors point out, while a degree of intellectual isolation is inherent in undertaking an original research project, '*...there is no reason for this...to be accompanied by social or emotional loneliness*' and indeed this can be detrimental to the success of the research. So, it is important for supervisors to ensure that there are opportunities for students to mix with others. These might include a regular postgraduate seminar, a postgraduate society, common development and training programmes, or participation in conferences or professional associations.

Again, in this context, it is worth stressing that particular consideration needs to be given to supporting international research students. They are more likely to feel socially and culturally isolated than home students, and they may find it more difficult for ask for support from supervisors or to make friends with fellow students. It is, as Ryan (2000 p 81) has argued, important to ensure that staff take an interest in the well-being of international students and assist them to join social networks. Also, where international students are accompanied by their families, consideration also needs to be given to involving family in social activities. They can feel marooned in an alien environment, and it is important to include them in school social activities and point them in the direction of relevant institutional societies and clubs.

Reflecting on Practice
What additional support is available to research students in your Academic Unit, the

Faculty, and the University? Do you actively seek to encourage your research students to mix with others? Do you pay particular attention to the needs of international students and, where appropriate, their families?

9. Giving Feedback

Once students are writing, making and showing work in progress to you, you need to give them feedback. As Brown and Atkins (1988, pp 134-37) have pointed out, students need feedback for four main reasons, namely:

- **to enable them to appreciate standards**

Feedback gives the student a feeling for the standards against which their work will be judged. Students are unlikely at the start or in the early stages in particular to be fully aware of the standards that they are expected to attain (see Becher *et al*. 1994, p 134) and even reading successful theses in cognate areas may give them little indication of what to aim for at an intermediate stage of the research project. One of the key functions of the supervisors is to enable students to appreciate the standards which they are expected to attain. As Phillips and Pugh (2000, pp 23-24) have put it:

> *'[Students] cannot get a PhD unless [they] know what the standards are...it is a vital responsibility of [the] supervisor to ensure that [they] are given every opportunity to become familiar with appropriate professional standards. It is only through this that [they] will be able to recognise and achieve them.'*

Hopefully, as students learn from feedback, they should begin to internalize the standards and become able to assess their own work critically. This, of course, is part of becoming a successful researcher.

- **to improve their skills**

Feedback can also assist in developing students' skills, including methodological skills (e.g., research design, data collection, data analysis, data interpretation) and writing skills. Students may or may not have the expertise to design and implement their research projects, and one of the functions of feedback is to advise on these matters and, in the case of shortfalls, assist the students to acquire relevant skills. Similarly, students' skills in academic writing are likely to require development, and this is part of the function of feedback.

- **to give them a sense of achievement**

A further, and often neglected, reason for feedback is to give the student a sense of achievement. As Brown and Atkins (1988, p 136) have put it:

> *'Students need to know that their work is valued and that their supervisors are genuinely interested in it.'*

Being encouraged or praised is crucial to motivating students, particularly in the early stages before (hopefully) success becomes apparent and becomes an internalized driver in itself.

- **to deepen their understanding**

The final reason is to assist students to deepen and develop their understanding of the problem or topic that they are researching through discussion at all the stages from inception through to completed drafts.

But, if these objectives are to be achieved, feedback must be given in appropriate ways that will elicit a positive rather than a negative response from the student.

Suggestions include:

- thinking about an appropriate setting for the feedback

The setting for the feedback can have some bearing on how it is received. If you sit behind your desk with the student on the other side – particularly if they are on a lower level – then the signal is one of formal interaction between a superior and an inferior. If you are side by side in armchairs, the signal is more one of a discussion between colleagues.

- opening by setting out expectations for the session

It can be useful at the start to set out your expectations for the session. In particular, you should make it clear that the primary objective is to enable further progress in the research project (see Phillips and Pugh (2000, p 174)). It also can be helpful here to make it clear that, where appropriate, you will expect students to challenge your views and opinions, and that this is a normal and essential part of the process.

- summarizing your understanding of the material submitted

One of the most useful things that a supervisor can do is to summarize your understanding of the material that the student has submitted. 'So, it seems to me that the central thrust of what you are saying is....'

- checking your understanding with the student

Once you have summarized, it can be very useful just to check that your understanding is the same as that of the student – 'Have I got that right?' This not only reassures students that you are taking their work seriously but offers an opportunity to correct any misapprehensions at the start of the session.

- identifying the strengths of the work

You can then identify what you saw as the strengths of the work submitted, which is an opportunity for praise. 'What I thought was really interesting was... what I most enjoyed reading was...'

- identifying the areas for attention

You can identify the areas for attention in ways that are constructive and positive rather than destructive and negative, e.g., 'why did you try to solve the problem using method X rather than method Y?' rather than 'Didn't you realise that you could have avoided these difficulties with method Y?'

- inviting the student to respond

Once you have identified the areas, then you can ask the student to respond. Here, it is very important that you allow the student to engage with the matters that you have raised, and it must be recognized that they will need time to respond to queries about their work. You must also be prepared to listen carefully and check that the student has understood the point being made.

- summarizing the discussion

When the points have been exhausted, then it is important to summarise the discussion. You may try to draw the threads together and then check it with the student or, alternatively, you may ask the student to summarize.

- maintaining a record

Finally, for the benefit of both the student and yourself, there should be an agreed written record. Normally, this would be written by the student, copied to you, if necessary amended, and then agreed jointly.

By extending the work of Partington et al. (1993, p 78) to the case of supervisor feedback, it can be said that you should avoid acting:

- **as an inquisitor**

Who behaves like a TV interviewer quizzing a politician during an election campaign, rapidly shooting out hostile questions, interrupting the answers, and generally trying to score points. Such an approach may intimidate the students so that he or she is unable to respond or anger them to the extent that the session becomes an adversarial confrontation.

- **as a committee person**

Who takes the student through the material page by page questioning each matter as it arises rather than synthesising points into key issues relating to the research.

- **as a hobby horse rider**

Who has strong feelings or prejudices about one area of the submitted work and keeps returning to questions on this while neglecting other aspects of the research.

- **as a kite flyer**

Who has identified a – usually fairly tenuous – link between the work submitted and another subject and persists in exploring this to the detriment of the substance of the research.

- **a reminiscer**

Who continually regales the student with stories of their own research career to the detriment of feedback on the material submitted.

Reflecting on Practice
What arrangements do you make for ensuring that feedback to research students is prompt? How do you ensure that feedback is constructive? Do you maintain written records of feedback given to research students?

10. Monitoring Progress

Clearly, one of the key tasks of a Supervisory Team is to monitor the progress of the research project formally in accordance with University requirements.

With regard to monitoring progress with the student, the University requires that the research student should have a formal meeting with at least one member of their Supervisory Team at least 10 times per year, approximately monthly, to review their progress and that the details should be recorded by the student on NU Reflect. At least 3 of these meetings each year should include the full Supervisory Team. All formal supervisions should be undertaken in a business-like way, with a date, time and agenda agreed with the student. Supervisors should ensure that, as far as possible, they should not be disturbed while they are meeting with the student.

In addition to monitoring progress formally with the student, the Supervisory Team must submit an annual report on the student's progress, as part of the student's formal annual progress review on the PGR CoP system.

Reflecting on Practice
Do you meet your research students approximately once per month to monitor their progress? Do you do this systematically? What Academic Unit/Faculty requirements are there for monitoring student progress? Do you meet the University's requirements for

annual monitoring?

11. Assisting Students to Complete

After students have persevered through academic and possibly personal problems and completed the basic research, they then enter a new tunnel called 'writing up' their thesis. While students may have conscientiously written up draft sections and chapters as they have gone along, they now face the task of putting it together as a whole and creating a thesis.

This would be easy if it were just a matter of throwing together what has already been written and adding linking sections but demand rather more. As Barnes (cited Blaxter et al. (1996, p27)) has pointed out, '...a thesis is far more than a passive record of [the] research and generally involves presenting an argument or point of view. In other words, it must say something and be substantiated with reasoned argument and evidence'.

Students can find it difficult to translate their work into a thesis, and here the supervisor may be able to assist by giving them a framework within which to work. One suggestion (see e.g., Cryer 2000, Taylor 2002) is to ask students to think of themselves as explorers who have undertaken a journey and who are writing a guidebook for others to follow.

As guides, they need to explain where they started from, what other guides they read, why they decided to undertake the journey at all, why they went off in a particular direction, what their route was subsequently, what they discovered on the way, where they arrived at the end of the journey, how it differed from the start, and where they would go in the future. They can be asked to map this on a few sides of paper, thinking carefully about what information must be imparted to enable someone to follow, what should be imparted, and what may be interesting but not strictly necessary.

The Supervisory Team can then give feedback on the map, both on the overall clarity of the guidebook and upon the priorities assigned to particular stages in the journey. By this means, students can begin to construct a coherent outline of the thesis.

Once the general lines are clear, students can then be asked to fill in more details of sections of the journey, and then sub-sections until they have a detailed guidebook. This can then be translated into the structure for a thesis, e.g., starting point (introduction), existing guidebooks (literature review), reasons (triggers for the research), direction (methodology), route and discoveries on the way (substantive research chapters), arrival (analysis and results), difference from the starting point (contribution to knowledge) and future (where research should go).

If, by these or other means, students can be assisted to establish a framework for their thesis, they then still have to write it. Here, supervisors can give guidance at least upon four key matters, namely communication, style, drafting, and managing the writing process.

A thesis is, of course, a form of communication, and it is necessary to consider in advance the audience to which it is addressed and how students might meet their needs. Here Cryer (2000, p 178) has some excellent advice which students can be given or pointed towards:

> *'The crucially important audience for theses are external examiners. Think of them as individuals who are exceptionally busy and grossly under-paid and who therefore have to read theses quickly. They will expect them to be well-structured and to be argued coherently to make the case for certain solutions to specific research problems.*

Irrelevancies will irritate, as will having to tease out meaning that research students should have extracted themselves. Think of them also as individuals who are very able and experienced in the general area, which means that the background material should be as concise as is consistent with showing that it is known.
However, no external examiner can be an expert in your work. By the time you finalise your thesis, you and you alone are the world's expert. So, the aspects that make your work significant and original and worthy of a PhD…need to be argued coherently; each step needs to be spelled out, the outcomes must be stated unambiguously, and all their implications identified and discussed in depth.'

With regard to style, it will of course be expected that the thesis is written up in 'academic writing', and it has already been suggested that students should be pointed towards the literature and to exemplars of the style appropriate to their work.

In terms of drafting, even with a framework, students can find this a daunting task. One way of assisting them is to encourage them to write their first draft 'as it comes', and then work with you to polish and re-polish it into its final form.

Again, this can pose a dilemma for the Supervisory Team in so far as there can be a fine line between helping the student clarify what they want to say and writing it for them. There is no simple solution to this dilemma, although it can sometimes be avoided by directing students to look at other work in which similar problems have been overcome.

In the context of advising on drafts, it is worth noting that the Supervisory Team should not act as proof readers and should make this clear to the student.

Last, but by no means least, students have to exercise a high degree of self-discipline to complete the thesis, particularly within a short period of time. It can be useful for the Supervisory Team to bring their students' attention to what Delamont et al. (1997, p 121) have described as the four 'golden rules' of writing, namely:

- the more they write, the easier it gets
- if they write every day, it becomes a habit
- tiny bits of writing add up to a lot of writing
- the longer they don't write, the more difficult it is to get back in the habit.

Reflecting on Practice
How do you help your students to translate their research materials into a thesis? What constitutes helping as opposed to writing it for students? Are there exemplars you can point students towards to assist their writing up?

12. Advising on Submission

The completion of the first serious draft is usually an immense relief for students. But it can be a major headache for the Supervisory Team, who need to advise students whether what they have done has the potential to meet the standards for the award, and if not, what needs to be done to bring it up to scratch. Giving such advice to students can be particularly difficult at the start of a supervisor's career, when their own experience may only be as an examinee, and they are unsure about what is looked for by an examiner.

In such cases, the starting point for the Supervisory Team is to try to determine the criteria for success or failure. The assessment criteria for the relevant research degree are detailed

in the University's regulations for research degree and, where appropriate, in the individual research degree programme regulations. Once the criteria are reasonably clear, the Supervisory Team can then read the draft and try to identify the strengths of the thesis (the area where the criteria are clearly met) and the weaknesses (those where criteria are not met). The latter can then be divided into weaknesses which are minor, major, or which constitute potentially fatal flaws. Again, here it is very useful to have input from all members of the Supervisory Team.

Once the diagnosis has been made and confirmed, then feedback can be given to students. It can be helpful to do this within the framework set out above – criteria, strengths, and weaknesses – before advising them how to proceed. If all has gone reasonably well earlier, there should not be fatal flaws (which would necessitate further research), but weaknesses to be corrected by re-drafting or textual amendments. Subject to these being made – and the supervisor should insist upon seeing successive drafts – the supervisor should be able to give the green light for submission.

Reflecting on Practice
Do you know the criteria for the award of a research degree in your subject? What, in your view, would constitute minor weaknesses, major ones, and fatal flaws in a thesis?

13. Advising on Examination

At least three months before submission, the process of arranging the examination begins. The Supervisory Team will propose examiners, usually one internal and one external, for formal nomination by the Head of Academic Unit. It is important to consult the student about the appointment of examiners. The identification of an appropriate external examiner in particular can, as various studies (see for example: McWilliam *et al*. (2002); Mullins and Kiley (2002)) have shown, involve some heart-searching by the Supervisory Team; should they suggest Professor X who is a leading authority in the field but is known to be fiercely critical of the offerings of lesser mortals, or Dr Y who is less distinguished but more likely to take a balanced approach to examining the student's work? The ideal is, of course, an external examiner who is distinguished and who will take a balanced approach, and if possible, the Supervisory Team should suggest the names of examiners of this ilk.

With examiners formally appointed by the Dean of Postgraduate Studies and the thesis forwarded to them for scrutiny, the Supervisory Team is responsible for arranging the date, time and place of the final examination, the viva.

Unless students have previously attended universities in which their awards were conditional upon an oral examination, the chances are that the examination for their research degree will be their first experience of an oral examination. This might be of little consequence if, as in many other European countries, the viva was a public affair and they could go along and experience what happened. However, this is rare in the UK, and for most students what goes on in the viva has, historically, been a mystery, one which has only recently become the subject of systematic research (see e.g., Tinkler and Jackson (2002)).

In the absence of hard information, tales of oral examinations being used to inflict unnaturally cruel punishment on research students abound with the result that, as Delamont *et al*. (1997, p 148) have put it:

'The student may well fear and dread the [viva] examination. Even when the student is outstandingly competent, and however excellent the thesis may be, the process of examination is a stressful one...most [candidates] feel worried by the indeterminacy of the viva'

Here, the Supervisory Team can play a role, in three main ways.

- Firstly, by de-mystifying the oral examination through explaining its purposes, procedures, and outcomes. In the case of Newcastle, these are set out in the University's *Handbook for the Examiners of Research Degrees* and it can be helpful for supervisors to take students through the relevant parts.
- Secondly, by indicating what the student should do to prepare in terms of re-reading their thesis, keeping up to date with the literature, and preparing for questions.
- Thirdly, and perhaps most helpfully, the Supervisory Team can arrange for students to have a short mock oral examination in which colleagues who are experienced as examiners question them on a key part of their thesis and afterwards give feedback on their performance. Such an opportunity to 'taste' what is in store is invaluable in enabling students to prepare themselves both intellectually and psychologically for what is to come.

Reflecting on Practice
Do your research students have any previous experience of vivas? How do they feel about them? How can you help them to prepare?

14. Assisting with Career Development, Networking, and Publication

It is good practice for the Supervisory Team to assist students with career development, networking, and the publication of their work.

At one time, students undertaking a research degree, particularly a PhD, were destined predominantly for the groves of academe, and career development took the form of socializing them into the values and rituals of the relevant academic 'tribe' (see e.g., Delamont et al. (2000)). But it is no longer the case that successful research students necessarily become academics – a majority do not – and even those who do follow an academic career require a wider portfolio of skills. Part of the job of the Supervisory Team is, from the very start of the project, to encourage the student to be active in acquiring the key skills necessary to give them an edge in the labour market.

While all skills are important, it is perhaps worth highlighting one, namely the need to encourage research students to acquire the skills to give effective oral presentations because such skills are vital in an academic context. It is important to ensure that students acquire the necessary training, either as part of the Faculty Researcher Development Programme, or through directing students' attention towards the relevant literature (e.g., Cryer (2000), and offering opportunities for students to give mini-presentations and receive feedback.

Under the heading of skills, the Supervisory Team also need to encourage students to record the skills that they acquire over the course of their research programme for later use as evidence to prospective employers, which can be done by the student in their PGR ePortfolio.

A second function of the Supervisory Team can be to encourage students to network within the subject community and to provide opportunities for them to do so. Academia is heavily

dependent upon networking informally and formally, in the latter case through professional associations and conferences (see Blaxter et al. (1998, pp 55-77)). Students need to be encouraged to establish their own informal networks of academic colleagues in their subject areas, and to join in professional networks, e.g., the postgraduate sections of professional associations. This can be important for their research, as a counterweight to isolation, and in acquiring networking skills which will stand them in good stead in any career.

A third function of the Supervisory Team is, as soon as it is practical to do so, to encourage students to publish their work in scholarly journals. Publications, particularly those during a research degree, can help variously to mark out their academic territory, bring them into contact with others working in the same field, boost their self-esteem, give them a better platform for applying for jobs and, last but not least, enhance school publication rates. But students do need guidance from their Supervisory Team about how to write for publication, which journals or publishers to aim for, and how to go about submitting a paper or a book.

Research students' writing for publications, of course, raises the issue of whose names should go on papers submitted to journals etc. Here, practice varies considerably between and within disciplines. In some the convention is that the supervisor's name automatically goes on the paper as, if different, does the name of the person who has obtained the funding for the research. This can and does lead to friction if research students feel that they have done most of the work for the paper but are effectively credited with an equal share of the authorship. This issue should be discussed openly with students, and one way around this which has been used in some subjects is to have a footnote indicating the relative contributions of the authors, say X the supervisor 20 per cent, and Y the research student 80 per cent.

Reflecting on Practice
Do you encourage students to think about career development at the start of their studentships? Do you encourage them to assemble an appropriate portfolio of skills for employment over the course of their studentship? Do you assist them to acquire effective presentation skills? Do you encourage students to network and provide opportunities for them to do so? Do you encourage students to publish? What is the relevant policy in your discipline for the attribution of authorship in publications?

15. Working with Supervisory Teams

The University adopts a team approach to supervision so you should expect to be part of Supervisory Teams of at least two members with the research skills and knowledge needed to supervise the research project. To become a member of such a Supervisory Team it is necessary to be on the approved supervisor list.

Different approaches may be adopted by the Supervisory Team. In joint supervision, the supervisory responsibilities are shared equally between members of the Supervisory Team. In other styles of supervision, members of the Supervisory Team may have different roles. There may be, for example, a lead supervisor and a co-supervisor responsible for a smaller element of the planned research; or a lead supervisor and an advisor responsible for, and able to deal with, general and pastoral responsibilities. In all instances one supervisor must be nominated as the academic supervisor and be responsible for the quality assurance aspects of the research degree e.g., sign off Project Approval and Annual Progress Review.

Members of Supervisory Teams are expected to discuss the role they adopt in the supervisory team. They should liaise regularly with each other and agree who will read and feedback on pieces of work supplied by the student. The research student is expected to stay in regular contact with both supervisors, and to discuss all aspects of their research with them. It is a requirement that the full Supervisory Team should meet with the student at least three times a year. More detail on supervisory teams is provided in the University's 'Code of Practice for Research Degree Programmes'.

Reflecting on Practice
Do you discuss the requirements for a research degree with your co-supervisor(s) at the start of the studentship? Do you discuss ways of resolving inter-disciplinary differences and giving consistent advice to students? Have you and your co-supervisor(s) clear ideas of who is responsible for what in supervising the student?

Conclusions

Being an effective researcher is a necessary condition to be a research supervisor, but it is not a sufficient one; the latter requires being an effective supervisor as well. That, in turn, involves unpacking what is involved in effectively supervising a research student, reflecting on practice, and improving it. Hopefully these Guidelines will at least give food for thought in encouraging supervisors to review their effectiveness.

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