Economic and Social Research Council

Postgraduate Training Guidelines

ESRC recognition of Research Training Programmes: a guide to provision for postgraduate advanced course and research students in the Social Sciences

4th Edition 2005

Chief Executive's Foreword

I am pleased to be writing this foreword to the fourth edition (2005) of the ESRC's *Postgraduate Training Guidelines.* One of the ESRC's key activities is to provide funding for postgraduate research students and to help ensure that they are equipped to pursue careers both in social science research and in other related fields of employment. The *Postgraduate Training Guidelines,* and its regular revisions, have underpinned our approach to these activities since it was first published in 1991.

This fourth edition of the *Guidelines* makes no substantive changes to the generic and subject training requirements contained in the previous (2001) edition. These new *Guidelines* do, however, both update the content of the 2001 *Guidelines* and indicate clearly the ESRC's expectations in terms of research training programmes and their outcomes. As such, the 2005 *Guidelines* may best be described as an evolution from the 2001 edition. Yet, this evolution carries with it the very clear expectation that research training programmes must themselves have evolved over the past four years to encompass new techniques and developments in both generic skills and subject training.

The primary objective of the *Guidelines* is, as ever, to help improve the quality of research training in UK social science. To achieve that end, these *Guidelines* re-emphasise the importance of training in quantitative and qualitative methods and in transferable skills. Increased emphasis, however, is placed on two areas which are considered key to better training provision: flexibility and innovation. Neither area is new, indeed both have been highlighted in earlier *Guidelines*. But the greater encouragement to research training providers in these crucial areas is undoubtedly the hallmark of this latest edition.

Under these *Guidelines*, training outlets now enjoy the maximum flexibility in organising and delivering training in ways which best suit their own needs and circumstances. And this flexibility applies throughout the entirety of a three or four year training programme. Hand in hand with a more flexible approach to training delivery is greater encouragement for the development of innovative training packages. Such innovation could arise from activities as varied as employing consortium arrangements to greater collaboration with existing funded centres of excellence. This could be either inter-disciplinary collaboration within institutions or wider collaboration between institutions. Crucially, these *Guidelines* now urge the need for continuous innovation, even after recognition has been obtained, both in terms of new platforms for the delivery of training and also the provision of training in new and emerging research methods. Courses and programmes that ignore this imperative are unlikely to meet the standard of provision for recognition from 2005 onwards.

The revisions to the *Guidelines* also seek to reflect other recent developments. They contain, for example, new subject specific guidelines for the disciplines of demography, social work, criminology and socio-legal studies; an enhanced section on Professional Doctorates and a new section on international research. They address the provision of conversion and language training where students may need more than one year of initial research training before embarking on their PhD. They further emphasise the ability to apply rather than merely acquire skills and the importance of advanced training throughout doctoral training. Ultimately, they reinforce the message that training outcomes and not structures are what counts in the development of highly skilled, professional researchers. Additionally, programmes recognised on a distance learning basis will now be eligible to apply for studentships.

I hope that you find this fourth edition of the *Guidelines* accessible and informative. I trust, also, that it clearly highlights the ESRC's continuing commitment to flexible and innovative training provision. This commitment is, I believe, the way to ensure that the UK's social science researchers are best equipped to undertake cutting edge research and meet the requirements and expectations of their future employers.

Professor Ian Diamond, AcSS
ESRC Chief Executive

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Section A Introduction to the ESRC *Postgraduate Training Guidelines*

Background

1 This fourth edition (2005) of the *Guidelines* builds on progress over the past decade in increasing emphasis on the need for all doctoral students in the social sciences to receive high quality training both to enable them to carry out their doctoral research project and to equip them to pursue other research activities subsequently. It re-emphasises the importance of training in quantitative and qualitative methods and in transferable skills to ensure future social science researchers are equipped to undertake cutting edge research either within or outside academia and to communicate their findings effectively to a wide range of audiences.

These new *Guidelines* represent an evolution from the 2001 edition. However, although there are no substantive changes to the generic and subject training requirements there is a clear expectation that research training programmes will have evolved over the last four years to encompass new techniques and developments in both generic skills and subject specific training. Courses and programmes that gained ESRC recognition in 2001 but have not evolved to reflect such developments are therefore unlikely to meet the standard of provision for recognition from 2005 onwards.

The ESRC is especially eager to encourage the development of innovative training packages which recognize the need for researchers to treat the acquisition of new skills as an integral part of their professional development throughout their careers. Throughout this edition of the *Guidelines* there is added emphasis on the importance of flexibility in the timing and mode of training, and the need for advanced training beyond the minimum provided in the context of a one-year master's programme.

In promoting innovation in the training and development of students, the ESRC encourages appropriate use of existing funded centres of excellence. This would include advanced training that could be provided in collaboration with the National Centre for Research Methods or through the Training and Development Board's Researcher Development Initiative (RDI) scheme.

2 The sections that follow cover the following:

- The purposes of the *Guidelines* in the context of the ESRC's policies and procedures;
- The ESRC recognition process, whereby advanced courses and research outlets become eligible for ESRC funding, and the main criteria for recognition;
- The provision of training and development in general research skills and in transferable, employment-related skills;
- The core requirements for training in research methods which apply to all social science postgraduates;
- The subject specific requirements for each of the 18 subject areas used by the ESRC for the recognition of outlets and the allocation of awards.

3 The requirements specified in this edition of the *Guidelines* take effect from the summer of 2005 in respect of ESRC recognition and from October 2006 in respect of their implementation for new ESRC studentship holders.

4 The range of activities undertaken by the ESRC in the area of postgraduate training is broad and includes quality assurance through the *Postgraduate Training Guidelines* and recognition of courses and departments; funding for studentships; and support for advanced training programmes. Full information can be found on the ESRC website.

Section B Purpose and Context of the ESRC *Postgraduate Training Guidelines*

Purposes of the *Guidelines*

1 The ESRC *Guidelines* are intended to fulfil three main purposes:

i) to indicate the skills and competencies that postgraduate research students should have acquired by the time they have completed a research degree, if they are to be accepted as professionally trained researchers in their subject;

ii) to outline broadly the overall context, objectives and content of the training that students must have received by the time they have completed a research degree;

iii) to provide criteria for ESRC's assessment of master's courses and doctoral provision. Fulfilment of these criteria allows successful applicants for ESRC recognition to receive ESRC studentships.

2 The word 'training' in the *Guidelines* means 'education, training, *and* development.' This refers to the process by which a social scientist acquires and improves the knowledge, skills and understanding needed to work as a professional researcher in his or her area of the social sciences.

3 It is intended that the training requirements detailed in the *Guidelines* should be completed over a period of three to four years. The ESRC remains flexible on how training is organised although basic generic and subject training should be normally delivered through a one or two year research training master's programme with more advanced training taking place throughout the subsequent doctoral training programme.

In particular subject areas or for particular specialist requirements one year's initial training prior to moving on to the PhD programme may not be adequate. Either a high degree of specialist training (such as language learning), or conversion training from other disciplines may be needed, with knock-on effects for the timing of other training, whether basic or advanced. Some of these issues are further explained in this section of these *Guidelines*, but the ESRC is open to a range of alternative models for delivery of training, provided that outlets explain the rationale for their chosen model, and provided that any required outcomes are achieved in the course of the full period of the doctorate.

4 The provision of training, supervision and support identified here are all requirements for the receipt of ESRC recognition and must be provided for **every** ESRC-funded student. In addition, we would expect that all other social science postgraduate students would have access to this, or similar, training.

Key Features of ESRC Support

5 **4 or 5 year studentship awards**

These are ESRC funded studentships providing a training programme for students who have not previously completed any substantive research training. They comprise a research training master's followed by a PhD programme, the aim being to provide continuity of support, allowing progress and training to be planned with more certainty and to allow more time within the PhD for work on the doctoral research itself. In the majority of cases students will be funded for a one-year research-training master's and then for three years for a PhD, subject to satisfactory progress. However, alternative models of support, such as a 2+2 model, (or 2+3 model), that deliver the same outcomes are equally acceptable to the ESRC (see B3).

The term '1+3' is a generic term used to denote a programme consisting of a research training master's and a PhD programme delivered over a four-year period.

6 **3 year research studentship awards**

These are ESRC-funded studentships providing a training programme for those students who have already completed an appropriate research training programme, either through an ESRC-recognised master's course or an equivalent programme of research training. Students are funded for up to 3 years for a PhD and will be required to undertake only necessary advanced training and any remaining core training within an appropriate research environment.

The term '+3' is a generic term used to denote a PhD training programme delivered over a period up to three years duration.

7 **Training in methodologies and research methods**

The *Guidelines* have always placed a clear emphasis on the importance of generic training in research methods to enable all social science researchers to understand and use essential qualitative and quantitative techniques appropriately. Responding to concerns about a perceived lack of such skills within the social science community, the 2001 version of the *Guidelines* strengthened this requirement and spelt out more clearly the kinds of skills in research design, data collection and analysis that postgraduate students should have acquired by the end of their training. The importance of high quality training in methodologies and research methods is continued in the 2005 version with an expectation that training programmes will have evolved to reflect new developments and techniques over the intervening period.

8 **Training outcomes**

The *Guidelines* focus more on the outcomes to be achieved from research training programmes, in terms of knowledge, skills and competencies, than on the structure of programmes or on the way in which they are delivered. Outlets seeking recognition will therefore have to demonstrate that the organisation of their training programmes will deliver the required training, in terms of breadth and depth of coverage, and provide the necessary assessed outcomes in terms of the skills and competencies achieved.

9 **Part-time students**

ESRC is also committed to the support of part-time students at postgraduate level and provides recognition and funding for such students. The ESRC's provision and expectations, which recognise the special needs and circumstances of part-time students, are set out in detail in Appendix 1 of this document.

10 **Distance learning training programmes**

The ESRC will recognise training programmes that are delivered either wholly or substantially by distance learning and will provide funding for students undertaking PhD training in this way. The ESRC's requirements in this regard are also described in Appendix 1 of this document.

11 **Recognition of professional doctorates**

The ESRC will recognise professional doctorates, in order to assure the quality and level of training provided, but has decided not to fund students on such programmes at this stage. This is covered in more detail in Appendix 2 of this document.

12 **Recognition of outlets and programmes**

ESRC recognition for research training may be conferred on academic departments, centres or other units and programmes where students may register for a research degree and which can meet and sustain provision that meets ESRC expectations. A research training 'outlet' refers to collections of people and facilities brought together to deliver the research training specified in the *Guidelines*.

The ESRC will encourage and support outlets seeking to collaborate on the delivery of training wherever this is feasible, economical and of mutual advantage. This collaboration may be at Faculty or Graduate School level, or between individual departments or consortia arrangements between institutions.

The ESRC is especially concerned to encourage the use of flexible co-operation across institutional boundaries to deliver the best advanced training at the most appropriate point in the development of students' research skills. Co-operation may involve a range of activities, from a single training programme, with a shared degree structure, delivered by a consortium of partner institutions, to the provision of discrete advanced workshops and courses which are made available to students from a number of institutions.

Where part of a training programme is conducted in collaboration with an institution overseas, details of the specific contributions made by that institution should be provided in applications for recognition. The outlet awarded ESRC recognition is responsible for monitoring the acceptability of the level and standards of training contributions in institutions to which ESRC recognition cannot apply.

The criteria for ESRC recognition of research training outlets

13 The ESRC uses five general criteria in its recognition of research training outlets. These are as follows:

i) the adequacy of provision of formal, broadly-based and subject-specific training for students in research methodologies and transferable employment-related skills, and the arrangements for the provision of advanced training;

ii) the adequacy of the arrangements for the supervision of students;

iii) the presence of an active research environment, where students may benefit from interaction with experienced researchers and current research projects;

iv) an adequate critical mass of students so that they can benefit from interaction with their peers;

v) satisfactory PhD thesis submission rates which demonstrate that the majority of students complete their doctorates within a reasonable time.

Sections C to F of the *Guidelines* provide further details on these criteria. Issues related to the recognition of part-time and distance learning provision are addressed in appendix 1.

Training outcomes

14 The *Guidelines* focus on what training is delivered rather than on the way in which it is delivered. Outlets supporting students on a four-year programme, however, must provide a full research training programme to satisfy each of the general criteria set out above; whilst those supporting students on a three-year programme must satisfy criteria (ii–v) and criteria (i) in respect of advanced training provision during the period of doctoral training. In either case all students must be trained and supported throughout their award in full accordance with the requirements of the *Guidelines*.

The key formal indicators for the ESRC are the submission of the thesis and award of the doctorate. However, the overall goal of training will be the development of fully trained and competent social science researchers, able to understand and use research techniques appropriate to their subject area and conversant with approaches used by other social scientists.

Applications for ESRC recognition

15 ***Timescale***

Outlets will be invited to apply for recognition on a cycle which is normally between four and six years. Only when an outlet is recognised will ESRC accept an application for a studentship, provided the application is appropriate to the recognition status the outlet holds.

16 ***Application form***

Application forms and further information about ESRC recognition are made available on the ESRC Website usually three or four months before applications are due.

17 ***Types of applications***

Applications can only be made for four types of recognition:

- 4 year full-time programmes; plus part-time and CASE recognition
- 3 year full-time programmes; plus part-time and CASE recognition
- distance learning training programmes
- professional doctorate provision

N.B. In certain circumstances, for example, programmes involving interdisciplinary research, or for which specialist language training is required, submissions may be made for programmes of five years duration.

18 ***Assessment of applications***

Assessment of applications is undertaken by Subject Area Panels (SAPs) and final decisions on recognition are made by the Training and Development Board following a review of recommendations from the SAPs to ensure consistency across all subject areas.

19 ***Conditional acceptance***

The Training Board on occasion may decide to award conditional recognition to an outlet. This means that the outlet may receive studentships in the next academic year. However, for continued recognition beyond this, a report explaining how the conditions applied to their recognition have been met must be submitted to the ESRC by the end of the first year. Only when the ESRC is satisfied that the conditions have been met in full will continued recognition be confirmed.

20 ***Changes to provision***

The ESRC encourages outlets to continually improve and evolve their provision. In particular it would not wish outlets to hold back from implementing plans for innovative developments in their provision once recognition has been obtained. It is important, however, that planned changes are discussed with the ESRC in advance so that any possible implications for recognition status can be identified and discussed.

There is also a general requirement for recognised outlets to notify the ESRC Research and Training Directorate, in writing, when any aspects of provision described in the original application are modified, particularly where substantive changes to content and staff are involved. Details of the changes should be provided in full. **Failure to do so may affect an outlet's recognition status**.

Training and Development Board institutional visits

21 Since 1993, the ESRC's Training and Development Board has supplemented its research training recognition by undertaking visits to a number of institutions each year. The main purposes of such visits are:

- to understand more about the ways in which ESRC outlets are delivering research training and supervision in response to the *Postgraduate Training Guidelines*
- to identify aspects of good practice and to disseminate these to other institutions

The institutional visits are conducted by members of the Training and Development Board and senior members of the ESRC Office, and conclude with confidential reports to the institutions involved. Regular ESRC papers report on general areas of good practice in the delivery of research training and supervision which emerge from the visits and are available on the ESRC website at::

http://www.esrc.ac.uk/esrccontent/postgradfunding/outcomes.asp

Information about ESRC studentships

22 Further details on ESRC Studentship awards and how applications can be made are available in the *Guidance Notes for Applicants*, which are published and available only on the ESRC website in early January each year, although individual HEIs may also make copies available locally. These materials contain information about ESRC's support for full-time and part-time students and how they can apply, including: application forms, lists of ESRC recognised outlets, courses and programmes.

Students receiving awards are issued with a copy of the *Studentship Handbook* providing details of ESRC requirements for award holders; the obligations, terms and conditions of the award; and other relevant information. The Handbook is also available on the ESRC website at:

http://www.ac.uk/esrccontent/postgradfunding/handbook_2004.asp

Section C Criteria for Recognition

Introduction

1 The criteria for recognition are fully explained in the paragraphs below and in Sections D, E and F. In addition any specific requirements for part-time and distance learning training programmes are detailed in Appendix 1, and for professional doctorates in Appendix 2.

i) The adequacy of provision of formal, broadly-based and subject-specific training for students in research methodologies and transferable employment-related skills, and the arrangements for the provision of advanced training

2 The *Guidelines* emphasise formal training because students are likely to benefit most from training which has been carefully planned and communicated clearly too all concerned in advance. The ESRC expects most of the content of courses and formal training programmes to have been delivered for at least one year, if not for ESRC students, then for other postgraduate research students.

The ESRC's expectations in terms of the content of formal and broadly-based training programmes are fully detailed in Sections D to F.

3 ***Implementation of training***

The ESRC starts from the premise that it is the responsibility of institutions to provide the range of training outlined in the *Guidelines*. To this end the *Guidelines* are focused on learning outcomes and achievements rather than structures and processes. Institutions, therefore, have flexibility to develop provision in the context of their own situation provided it delivers the outcomes required by the *Guidelines*. The ESRC particularly wishes to encourage innovative approaches to the delivery of training programmes within or between institutions.

4 ***Interdisciplinary and multidisciplinary research training***

The guidelines for individual subject areas are in Section F. In applying for recognition, outlets may wish to draw on the guidelines in their particular subject area, or on the guidelines of more than one subject area. Where these are available, the ESRC commends the use of relevant subject benchmark statements published by the Quality Assurance Agency.

Given that the ESRC is keen to encourage interdisciplinary research, innovation in research training which successfully integrates different approaches to research is to be welcome. The ESRC will adopt a flexible approach to research training which crosses disciplinary and subject area boundaries.

Students working in interdisciplinary areas will need to develop knowledge of, and experience in, a wide range of methodological approaches but may also need to immerse themselves in new substantive areas. These particular needs of students pursuing interdisciplinary research must therefore be accommodated in research training programmes. This may mean, for example, providing more emphasis on the new substantive field in the first year, with more attention to training in research methods and methodologies later in the doctoral programme. Outlets seeking recognition for this sort of provision will be expected to indicate how conversion students will achieve the outcomes for research training specified in Section E by the end of their full four or five year programme.

5 ***Conversion training***

The ESRC is especially concerned to encourage students with a strong background in the natural sciences or the humanities to receive appropriate training for advanced research that can address both social science and natural science/humanities audiences. As with students on inter-disciplinary programmes, conversion students will usually need rather different training in the first part of a four or five year programme, with greater emphasis on substantive learning of the relevant social science discipline. Again, outlets seeking recognition for this sort of provision will be expected to indicate how conversion students will achieve the outcomes for research training specified in Section E by the end of their full four or five year programme.

6 ***International research***

The ESRC Training and Development Board has agreed to take a more proactive approach to its International Policy in the future. The Board has taken this decision in the light of the developing European Research Area, the increasing opportunities available for UK and European students here in the UK, within the EU and beyond, in the light of the Council's increasing commitment to comparative research and in recognition of the role the Board has to play in promoting the importance of international opportunities for UK students. The ESRC covers the cost of overseas fieldwork for doctoral students and provides extensions of award to allow time for language training. It also sponsors overseas institutional visits of up to three months to undertake specialist research training or to develop collaborative links. Outlets are encouraged to highlight the international dimension of their programmes in their submissions for recognition, drawing particular attention to aspects of their provision which develop the cultural and methodological skills required of social science with an international dimension.

Students planning to carry out research in non-anglophone settings will often require advanced language training as a core component of the first year of their four or five year programme. In cases where a substantial part of the initial research training is necessarily dedicated to advanced language training, outlets will need to indicate the ways in which other required training outcomes will be achieved in the full four-year programme, as well as specifying the resources available for language training (see also B3).

7 ***Advanced training***

For all students, advanced training will be required in each year of the PhD programme to cover specialist and continuing needs. For example, the most appropriate point for the delivery of advanced methods training is often when the student is immersed in the collection and analysis of his or her own research data, while training in some transferable

skills is best timed to help the student manage the transition into full-time employment. Outlets are encouraged to develop flexibly timed training which students can access at the most appropriate point in their doctoral career and to recognise that the expertise for this specialist training might reside in programmes and outlets which are delivered locally, regionally or nationally.

8 ***Assessment of research skills***

The ESRC expects regular formal assessment procedures in order to know whether or not formal research training has been satisfactorily completed and that students are able not only to show an understanding of key methodological principles and techniques but demonstrate the application of those principles and techniques in practice. In assessing recognition applications the ESRC will look for clear evidence of formal assessment procedures for all substantial and developmental course programme elements, including examples of examination papers and other forms of assessment (for example practical exercises). Moreover, the normal expectation will be that master's courses, which serve as the first stage of a four-year research programme for students, should include a dissertation which draws upon the research training undertaken, the length of which must be consistent with normal institutional and subject requirements. Where an outlet does not require a dissertation to be presented as part of the formal process of assessment, it must ensure that there is an equivalent test of learning, understanding, ability to apply concepts and ability to put research principles and techniques into practice.

As part of its commitment to the development of research skills across the social sciences, the ESRC is especially keen to encourage the use, with supervisors and supervisory teams, of self-assessment of skills, and potential training needs, as a routine element in reviews of progress throughout the doctorate.

9 ***Exemption from formal training***

The emphasis throughout these *Guidelines* is on the attainment of outcomes, and the ESRC expects outlets to use different processes to achieve these outcomes and different methods to assess their attainment. In particular, the ESRC does *not* expect students to receive training in particular skills or topics where they can already clearly demonstrate proficiency. Whether this proficiency has been gained within an academic, or other context (for example, in employment) is immaterial, providing the level of skill is appropriate for doctoral training. Outlets are encouraged to develop robust and defensible means of assessing incoming students' existing research skills, with the appropriate use of exemption from parts of the core training programme which are clearly redundant for any particular student.

10 ***Induction***

Applications for Recognition should indicate the arrangements in place for the induction of new students commencing research training programmes. The induction of students to the outlet should include an introduction to, and explanation of, the research training programme and related procedures including the principal expectations and responsibilities of the student. It is assumed that international students' needs regarding cultural awareness and language in the UK will be addressed within the induction programme.

11 ***Basic facilities***

At the outset of their research training, students should be given a clear indication of the basic facilities that will be made available for their use. These should include: an appropriate place to work; access to telephone, fax and photocopying facilities; computing, e-mail and Internet access; laboratory and technical support where appropriate; appropriate library facilities; opportunities to meet other students, including the provision of collective space for such activity; access to language support and language training where appropriate; support for training opportunities and attendance at conferences and other relevant events; and an awareness of relevant expertise in the department, in the institution, and elsewhere.

12 ***Facilities for disabled students***

The ESRC will also look for arrangements to ensure that disabled students have all possible access to the delivery of courses and programmes of study. This is linked with the duties of the Disability Discrimination Act (1995) Part IV (DDA), which include the duty to anticipate the learning needs of disabled students within all aspects of curricular provision, including lectures, field trips, exams and placements. Such anticipation is likely to include flexible arrangements for access to resources, physical access to facilities, and the provision of, and access to, specialist resources such as computer software and library materials. It also means that the ESRC recognizes that outlets will need to approach all requirements in these *Guidelines* with sufficient flexibility to meet the needs and capacities of disabled students. The Teachability Project Resources (www.teachability.strath.ac.uk/) assist academic staff to approach the task of making teaching accessible, and thereby addressing the legal obligations of the DDA.

(ii) The adequacy of the arrangements for the supervision of students

13 Expectations for both supervisors and students should be clearly set out in institutional and/or departmental Codes of Practice and internal quality control mechanisms and should be reviewed on a regular basis. All the research councils subscribe to the Quality Assurance Agency's (QAA) Code of Practice on Postgraduate Research Programmes and therefore require institutions in receipt of research council funding to adhere to the QAA Code. These requirements are not therefore re-iterated here but Outlets are expected to demonstrate how they address the QAA Guidelines.

The ESRC would normally expect supervisory arrangements to be put in place at the outset to facilitate the transition from masters training to the PhD itself. There should be frequent contact between student and supervisor to review progress during the master's as well as through the period of doctoral research.

14 **Level of supervision**

The ESRC encourages dual supervision, or supervisory panels, particularly where the student is engaged in cross-disciplinary research or research involving collaboration between an academic department and an outside organisation, where meetings of all the parties concerned may be necessary from time to time. New or inexperienced supervisors should always be partnered by an experienced co-supervisor. Whatever the supervisory arrangements, there must be suitable provision for back-up from nominated experienced

staff, to cover such contingencies as study leave or illness. The student should be aware of these arrangements at the induction stage.

To ensure adequate supervision and access to facilities full-time students should live no more than daily travelling distance from their institution, (i.e. the student should conform to the HEI's own requirements, which will usually demand local residence). For master's students, in particular, the ESRC does not consider it possible for students living beyond daily travel to their university to be able to attend and complete the required components for their programme. For part-time and distance learning students the Outlet should demonstrate how they ensure frequent contact between supervisors and students.

15 **Training and monitoring of supervisors and supervision arrangements**

The ESRC will expect to see a statement about the provision of professional development opportunities for supervisors in applications for recognition and a statement regarding the number of supervisors who have participated in such training opportunities. It follows that the ESRC will expect outlets to describe what formal systems are in place for monitoring the performance of supervisors, for identifying the training and development needs of supervisors and for ensuring that these are met.

(iii) The presence of an active research environment, where students may benefit from interaction with experienced researchers and current research projects

16 Research students benefit from contact with expert and experienced researchers. The ESRC is concerned that its research studentships are held in institutions and departments where there is an obvious commitment to research and where students are encouraged to participate in research-related activities and to relate ongoing research, and issues arising from it, to their own research. The existence of a clear programme of research within the outlet is a critical consideration in reviewing the acceptability of applications for recognition.

(iv) An adequate critical mass of students so that they can benefit from interaction with their peers

17 Research students learn from interacting with their peers in an environment where interests and concerns can be freely exchanged and where they can engage in academic argument. In avoiding isolation, outlets should facilitate such interactions by providing opportunities to bring research students together, for example, through research training events, seminars, and provision of common facilities. One beneficial outcome of the provision of formal training which is offered at the level of the institution, faculty or school, is that students from diverse backgrounds and research interests can meet together for the common purposes of achieving their broadly-based research training. In assessing critical mass, the ESRC will look specifically at the overall number of postgraduate research students in the outlet. Where these are small the outlet needs to show how it facilitates and promotes interactions between students on a wider basis, e.g. through collaboration with other institutions in the provision of advanced training, and specialist seminars and workshops.

(v) Satisfactory PhD thesis submission rates which demonstrate that the majority of students complete their doctorates within a reasonable time

18 The ESRC's emphasis on timely thesis submission is an important element of its recognition policy. Applications for recognition must provide information on submission rates for all postgraduates in the outlet, not just ESRC students. The submission of theses within four years (full-time) and seven years (part-time) from the beginning of the PhD award, whether or not this includes an initial registration for MPhil prior to formal transfer or upgrade, is regarded by the ESRC, and the other Research Councils, as an important indicator of how effectively the student has been supported by the institution, the outlet and the supervisory team.

19 ***Submission rate survey***

The ESRC monitors on an annual basis the aggregate submission rate for all ESRC research students in each institution. This is done on the basis of statistics provided by institutions on ESRC research students who have or have not submitted their theses within four years (full-time) or seven years (part-time). That figure is compared to the ESRC 'Sanctions' rate, which is currently 60%. Submission deadlines are calculated from the commencement of the first year for three year awards and the second year for four-year awards.

Institutions falling below this average are ineligible to receive ESRC research studentships for the following one or two years. One of the results of the sanctions policy is that institutions tend to exert some control over which outlets are put forward for recognition. In addition, where an outlet is seen to be falling short of the ESRC's requirements there is an institutional pressure to improve performance.

Section D General research skills and transferable skills

Broadly based training

1 A major emphasis in the *Guidelines* is on the provision of a broadly-based research training programme, and applications for recognition should reflect this. It is increasingly being recognised, across the full academic spectrum, from the humanities to the natural sciences, that today's research students need to combine the specific skills required to complete their doctoral work, with a portfolio of more broadly-based skills, which will equip them with the flexibility to manage a successful research career after the completion of the doctorate. This recognition was officially acknowledged in the Research Councils' (including the former Arts and Humanities Research Board), Statement on Training Requirements for Research Students, which is reproduced here in Appendix 3.

Since 2003, ESRC, with the former AHRB and the other Research Councils, has provided funding to HEIs for the provision of new initiatives in transferable skills training for postgraduates and post-doctoral research fellows (often called 'Roberts funding'). This is an indication of the importance all the Research Councils place on this area, and ESRC particularly welcomes the consequent development of new and innovative activity in general and transferable skills training.

2 Whatever career paths research students may follow, there are clear advantages to students if they have acquired general research skills and transferable employment-related skills. Broadly-based training should enable students to think through how they can use their existing knowledge and skills in different contexts and apply them to a variety of problems; and, progressively, to identify their own needs for training. Outlets should provide training which integrates these aspects coherently through, for example, specific coursework, supplementary provision such as seminars, and continuous and effective supervision of the student's research and writing.

3 In general terms, the ESRC expects a considered balance to be achieved between generic social science and subject/discipline specific training, research methods, and thesis research and employment related training. This section covers:

- general research skills which are not subject-specific
- personal skills development, often referred to as transferable or generic skills

General Research Skills

4 ***Bibliographic and computing skills***

At a suitably early stage in the programme, outlets will be expected to include training for all students in certain basic skills. With particular reference to the student's own research, these are likely to include: the identification of library resources and how to use them; training in other bibliographic sources and methods; techniques for preparing literature

reviews and keeping up to date in regard to the literature; training - of a personal research bibliography; word-processing; and other basic computing skills including spreadsheets and database management. Further, it is expected that students will be given training in web-based research techniques (general web searching, and specific training in using web-based social science indices) as well as training in procedures for the evaluation of research, including refereeing and the preparation of book reviews.

5 ***Teaching skills***

Students undertaking teaching responsibilities should receive appropriate training and support, on and off the job, for standards to be maintained. The training provided should be indicated in proposals for recognition. It is beneficial to research students if they can obtain teaching experience, for example, with seminar groups, especially during the second and third years of their PhD, although it is recognised that this cannot necessarily be a priority. Students should not be expected to take on excessive amounts of teaching work such that it would interfere with their ability to carry out their research and complete their PhD. The ESRC recommends that opportunities to gain such teaching experience, which is accredited where appropriate, should be provided as these also enable students to acquire or improve specialised, professional skills of communication and presentation.

6 ***Language skills***

The acquisition or further development of a second international language may be important, especially if the student is not already able to read academic work in a language other than English. Whether such training is a priority will depend to some extent on the individual's thesis needs. Nevertheless, the ESRC believes the opportunity for training in a second language is desirable for all outlets. In seeking recognition, outlets providing such a facility should explain their provision. (See C4 above on the timing of language training and its implications for the overall programme of research training.)

7 ***Ethical and legal issues***

The ESRC expects issues relating to ethics, confidentiality and legality to be explicitly and systematically addressed in the formal training programme submitted for recognition, as well as being an integral part of training in research methods, design and strategies. Supervisors will be expected to enable students to acquire the knowledge, skills and understandings they need to respect, consider and attend to the rights of other researchers and research participants. The ESRC's Research Ethics Framework (REF) requires that postgraduate thesis research should be formally assessed for ethical sensitivity and possible risk to both the student and research participants, and where supervisors deem this appropriate, there should be further review by a departmental (or equivalent) research committee. Training in ethics should be embedded across the full postgraduate programme, rather than solely in a discrete part of this programme. The intention should be to develop students' ethical literacy which will be drawn on in their later careers.

In addition to issues of respect for persons and of intellectual integrity, training in this area is likely to include such issues as: privacy and confidentiality; the attribution of ideas and intellectual property rights, including copyright; ownership of data; the Data Protection Act; informed consent; the role of ethical committees; constraints on researchers involved in contract and consultancy work; and awareness of the political

context of research, including the uses made of published work. Students and their supervisors have a shared duty and responsibility to ensure that all data pertaining to individuals either supplied to them by others for research purposes, or collected by them in the course of research, are safeguarded from misuse. Detailed guidelines on the methods and procedures required to safeguard data and to ensure that they are not misused in any way are available on the ESRC website.

Students should be made aware of the existence of relevant codes of practice relating to the conduct of their research such as those produced by learned societies or professional bodies. Students should be expected to consider the ESRC's Research Ethics Framework and supporting documentation which address the changing ethics landscape within which national and overseas research is conducted: this is available at:

http://www.esrc.ac.uk/esrccontent/researchfunding/REF.asp

In addition, the ESRC's Research Funding Guidelines provide advice relating to the ESRC's policy on data and datasets, available on the ESRC webpages at:

http://www.esrc.ac.uk/resfund.htm

8 ***Exploitation of research and Intellectual Property Rights (IPR)***

Students should be made aware through their research training of the possibilities and problems of academic or commercial exploitation of their own research activities, as well as the research activities of others. It is increasingly important that those undertaking research have an understanding of IPR and of how they may identify and benefit from potentially exploitable research outcomes. In particular, students should be advised against entering into agreements, implicit or explicit, giving other persons or organisations the right to suppress results or products that have or may emerge from their research. Many universities have established procedures for dealing with IPR issues, and central administration, or industrial liaison officers, can give advice.

The ESRC policy on the commercial exploitation of research is explained fully in the ESRC's Research Funding Guidelines available on the ESRC webpages at:

http://www.esrc.ac.uk/esrccontent/researchfunding/sect19.asp

Personal development and employment-related skills

9 Most employers of social science researchers, including academic institutions, look for employees with general and transferable skills. All the Research Councils subscribe to the view that postgraduate research students will benefit from opportunities for training that allow them to develop and practice these skills. They include such competencies as: communication skills; project management; team working; and the skills to manage effectively their own career progression and development. Increasingly, institutions are making provision for these both for postgraduates and undergraduates. Some aspects of this provision are best addressed on a continuing basis and may be developed incrementally over the four years of the degree (as in 'New Route' variants).

10 ***Communication skills: writing, dissemination and media skills***

Students should be encouraged as part of their overall programme of research training to present their work to colleagues and to build networks with others researching in the same field. They should attend and contribute to seminars, workshops and conferences. They should also be given the opportunity to circulate papers to interested individuals and groups.

An early introduction should be given to the essential skills of writing, presentation and dissemination, although the development of these skills will continue throughout the student's studies. These are likely to include how to: organise the thesis; use references and appendices; use graphics; make citations; prepare, publish and disseminate research findings in a variety of ways; and, increasingly, use Internet-based tools.

The ESRC strongly supports the aims of the Government with regard to the science and society agenda: research findings should be disseminated widely, not only among academic colleagues and peers but also to practitioners and other potential users and beneficiaries. The ability to speak to and write for various audiences requires tailoring written work or presentations to the needs of particular audiences, avoiding unnecessary use of technical language. Audiences unfamiliar with scientific concepts generally prefer reports that are structured in ways with which they are familiar and allow them to pick out easily the principal issues, for example, by referring to an executive summary. Postgraduates should be made aware of the many diverse opportunities available for dissemination, for example, using the media, 'user' networks and the Internet.

Media awareness, and the skills involved in making use of the media, are becoming increasingly important, and the ESRC supports their inclusion in research training. A range of publications and materials have been produced by the Communication and Information Directorate of the ESRC, available to all ESRC researchers including postgraduate research students. These are "Heroes of Dissemination", "Developing a Media Strategy", "Television and Radio: a best practice guide"' "Influencing the Policymaking Process" and the on-line Communication 'Toolkit'.

11 ***Research management and team-working skills***

The ESRC expects that students will acquire research management skills, through both the support and advice of supervisors and through the experience of conducting and completing their own research. An element of formal training in this respect is also regarded as important in drawing the student's attention to the skills involved. These might include, for example, how to: set appropriate timescales for different stages of the research with clear starting and finishing dates; present a clear statement of the purposes and expected results of the research; and develop appropriate means of estimating and monitoring resources and use of time.

Many PhD students in the social sciences come to their studies without previous work experience and therefore may not have had previous opportunities to learn the skills of team-working. Students should receive training in the management of research that extends beyond project management to encompass the life-cycle of the research process from the initial idea for a research problem, through the development of a research proposal that may attract funding, to the archiving of data and, where appropriate, the completion of end-of-award reports to research sponsors. The ESRC encourages outlets to make good use of any opportunities which arise, for example, through contract research or consultancies, to introduce such skills. Students may also gain confidence if they can make use of these skills in group work or workshops offered as part of the

outlet's formal research training programme. Outlets may wish to show in their applications for recognition how such opportunities for team working are provided.

12 ***Personal and career development***

In the changing world of employment, in which organisational structures, modes of working, and the nature of the relationship between employer and employee are subject to rapid change, career paths are becoming less predictable and more fluid, and PhD students will need to take more responsibility for proactively managing their own career progression and development. This means that students will need to acquire more highly developed career management skills such as:

- skills in researching and retrieving information on opportunities for employment and continuing personal and career development through the use of new technology
- skills in networking and negotiation
- critical self-awareness and evaluation of personal and career development needs
- self-reliance in career planning and decision-making
- skills in self-promotion and marketing

The ESRC expects that students will be made aware of relevant support for career development learning, especially that provided by the institutions central support services such as its careers service, and of their entitlements in respect of such provision. Institutions should be encouraged to take into account the career development needs of postgraduate research students when planning the provision of career education, information and guidance.

Students should be encouraged to reflect upon the significance and value of aids to personal reflection and self-evaluation, and upon the role of such instruments in supporting personal and career development and the acquisition of career management skills. In this way their experience of career development learning should be seen as an extension of their undergraduate and earlier experience, and should build upon the learning derived, for example, from extra-curricular activity and other work experience.

13 ***The UK GRAD Programme***

ESRC, together with all the Research Councils, funds the UK GRAD Programme. UK GRAD works with universities and interested stakeholders to embed personal and professional development into research degree programmes. As part of their activities UK GRAD run a programme of national and local GRAD schools for second and third year postgraduate students. These highly popular courses run across 3-5 days throughout the UK and are aimed at helping PhD students to be more effective at their research studies, more aware of their personal skills and attributes and more able to manage their career development. The ESRC funds places on the programme each year and actively encourages its PhD students to attend. Supervisors and other relevant staff are encouraged to alert their students to this opportunity and to recommend attendance. UK GRAD also offers institutions, through its network of regional hubs based in universities, access to materials, training and networks that can help develop internal personal skills development programmes.

Section E Framework for research methods training

Purpose

1 This framework provides guidelines indicating the skills and competencies in the application of research methods that students are expected to acquire. The purpose of this is to raise the general level of skills and knowledge amongst social scientists by ensuring that they acquire, and can apply, basic and advanced quantitative and qualitative research skills that are responsive to the needs of social science subject areas and disciplines, the broader science base and a wide range of users. The ESRC will be interested in how recognised outlets are implementing this framework during its institutional visits.

2 The framework covers the content of research methods training and indicates the expected learning outcomes. The manner in which the learning outcomes are achieved is expected to vary for different subject areas and disciplines and for students with varying levels of prior knowledge and experience. It is not necessary to give equal time to training in each topic area. The specific research methods and levels of proficiency within each subject area or discipline at the master's and PhD levels are outlined in Section F of these *Guidelines*. These are additional to the requirements set out below.

3 Most of these outcomes would normally be achieved in the course of the first year of postgraduate research training, and all should definitely be attained by the end of the doctorate. Outlets are encouraged, however, to plan with sufficient flexibility to allow students access to training in particular research skills at the most appropriate point in their research career.

In particular, the ESRC wants to encourage outlets to view the components of this section of the *Guidelines* as a framework for the development of more innovative and flexible training programmes which address the changing needs of researchers across the span of their doctoral careers, as well as providing opportunities for the acquisition of skills which may become most relevant in their subsequent post-doctoral careers.

Learning Outcomes

4 As a result of their training in research methods students are expected to have acquired the following skills and be able to apply them:

- comprehension of basic principles of research design and strategy, including an understanding of how to formulate researchable problems and an appreciation of alternative approaches to research
- competence in understanding and applying a range of research methods and tools
- capabilities for managing research, including managing data, and conducting and disseminating research in a way that is consistent with both professional practice and the normal principles of research ethics

- understanding the significance of alternative epistemological positions that provide the context for theory construction, research design, and the selection of appropriate analytical techniques

Principles of research design

5 Students must be able to set out and demonstrate a clear connection between research questions or hypotheses and the tools required to address them, and gain practical experience of applying those tools. More generally, students must therefore be provided with training that enables them to demonstrate their capability to:

- define and formulate research problems and questions, and, where appropriate, formulate hypotheses that can be tested
- understand the relationships between, and the rationale for using, particular qualitative and quantitative research methods
- understand the relationship between empirical research and theory generation (theory-evidence links)
- understand the relationship between empirical research and theory testing (theory-evidence links)
- understand different forms of sampling, sampling error, and potential biases in the interpretation of research findings
- understand and apply the concepts of generalisability, validity, reliability, and replicability (recognising that there are different perspectives on how these may be defined)

It is expected that outlets will offer opportunities for students to develop more sophisticated understandings of these issues in the course of their subject-specific training in the first or subsequent years of postgraduate research training.

Data collection and data analysis

6 Students must acquire a basic understanding of the potential and pitfalls of selected methods of data collection, including:

- questionnaire and interview schedule design (structured and semi-structured); large-scale and small scale survey designs
- the appropriate interpretation of measurement error and missing data
- other forms of data collection such as observation, the use of the Internet, and focus groups
- various forms of recording qualitative data
- various forms of recording data from experimental and quasi-experimental research
- various ways of constructing data sets

7 Students must also be able to gain direct practical experience of analysing data, using a range of tools including appropriate computer packages. By the end of their doctoral training students should be able to demonstrate, through practical application, appropriate uses of primary and secondary sources of statistics, and more particularly, proficiency in the analysis of research data in the following areas:

- large scale surveys and longitudinal or cross-sectional data, and data from experimental or quasi-experimental research
- qualitative data sets
- the use, interpretation and presentation of techniques for the analysis of quantitative data, including descriptive statistics, measures of central tendency and dispersion; exploratory statistical data analysis; statistical inference and measures of association. It should be noted that students are expected to achieve a level of competence that enables them to use, model, and interpret multivariate statistical analysis
- the use, interpretation and presentation of an appropriate selection of techniques for the analysis of data from interviews, focus groups; observation and participant observation, documents and archives (including content analysis and discourse analysis and other innovative techniques).

8 Students must be able to demonstrate the strengths and weaknesses of the analysis in terms of the effects of contextual factors on the collection and meaning of the evidence.

9 As with research design, and depending on the subject area or discipline, students are expected to acquire, in their first or subsequent years of postgraduate study, more advanced levels of competence in quantitative and qualitative methods of data collection and analysis (including data analysis techniques that are appropriate for survey and aggregate data analysis or for specific experimental or quasi-experimental methods). Some of these are described in Section F, which sets out the subject specific training requirements, but the general principal is that outlets should demonstrate not only what basic training is available, but how specialised advanced training will be delivered to individual students in the later years of their doctorate. The aim should be to promote the development of skills throughout the research period and not just 'tool-up' students to complete a specific research project relating to a dissertation for a postgraduate degree.

The ESRC wants to encourage institutions and individual researchers to view training and skill development as integral components of all research, however junior or senior the researcher, and would hope that these *Guidelines* encourage innovation and experiment in the provision of the very best training across, and between, institutions.

Section F Subject and Discipline Guidelines

This section of the *Guidelines* details the requirements of individual social science subject areas and disciplines with regard to the research training students should have completed by the end of a doctoral training programme. They have been produced by the disciplines themselves and these requirements are **additional to** those detailed in Sections C to E.

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F1 Area and Development Studies

The Nature of the Area

1.1 Area Studies and Development Studies are interdisciplinary fields concerned with the study of particular geographical/historical regions or 'areas'. The fields of study are closely related, but Development Studies focuses more on the processes of change associated with transition from less to more developed economies and societies. Research is likely to be grounded in at least one social science discipline, but will be informed by an advanced understanding of the theories and methods of related disciplines.

Preparation

2.1 Before commencing research training at the master's level it is likely that students will have acquired the following knowledge and training:

- training in a relevant social science discipline (or disciplines)
- where appropriate, a working knowledge of the language(s) of the area in question
- a background in the historical, cultural and institutional context of the area to be studied
- in the case of Development Studies, knowledge of the basic theories and issues of development (which might include relevant practical experience)

2.2 Not all students embarking on a degree will have equal strengths and it is likely that subject specific training in the initial training period will be devoted in part to filling any gaps.

Subject Specific Domains of Expertise

3.1 Given the geographical diversity of the field, and of the disciplinary backgrounds of students entering the subject area, it is important that any subject specific training programme in addition to generic research training be highly flexible and adaptable to the specific requirements of individual students. Many students will have a sound grounding in a discipline of the social sciences and there will be a need to strengthen the specialist language skills of some students. Some students will have a humanities background, often focused on training in languages or history and will require training to enhance skills in a social science discipline.

3.2 It is recognised that language training requirements will be varied. For some social science research, especially quantitative work in economics, knowledge of an area's language may not be essential as adequate data may be available in English. For some geographical areas, strength in one or more basic West European language may be sufficient, but for other areas, especially when qualitative methods are employed, competence in one or more language of the area will be an essential requirement.

3.3 Subject specific research training for all students will be a requirement to equip students to undertake research in a given area. This is likely to take the form of training in the practical use of social science research methods in a given social and cultural environment

in order to promote sensitivity to local conditions and the problems likely to be encountered. This training will encourage an appreciation of the problems of cross-cultural research and address issues such as access, e.g. the norms and conventions of interviewing in a specific cultural context, ethical concerns pertaining to the religion, politics and social mores of a given area, and the discursive context in which research questions are formulated.

3.4 Students engaged in Development Studies research will need to be sensitive to the regional and global factors that are part of the local development process and, in many cases, they will be required to analyse the dynamics of national and international policy making. Students will need to acquire the ability to analyse and identify the concerns of different interest groups in the context of development interventions and their management at both macro and micro levels.

3.5 By the end of the initial training period the minimum learning outcomes will include a sound grasp of:

- at least one social science discipline, including qualitative and quantitative social science research methods and their application to a given area
- when appropriate, a good working knowledge of a relevant language, adequate for at least reading and understanding research materials relating to the chosen geographical area(s)
- the cultural and historical background of an area(s) and relevant knowledge of contemporary economic, social and political developments
- Development Studies students will be familiar with the history and culture of international development co-operation and its institutions, especially as these impact on the area of study

3.6 Given the range of requirements, students will be expected to devote part of their time to training in subsequent years. This training might include: acquisition of additional disciplinary skills, courses strengthening general area/development studies expertise, or language training to up-grade specialist skills (especially oral/interviewing skills required for field research), to maintain the active use of a language or, in some cases, to acquire an additional language. By the end of the second year of the research, a student's language proficiency will be adequate for active use in field research.

3.7 On completion of the training, the student will be equipped with the range of skills required to undertake further independent research at the frontier of the field, or to take up employment involving research-based policy making relating to area or development issues.

Research Methods Training

Data collection methods

4.1 An essential element of research training in the initial training period is thorough preparation for field research. This should include issues of data availability (including Internet and archive resources), of the specific social and cultural problems likely to be encountered in data acquisition, of limitations to the applicability of research techniques developed originally for use in different 'area' contexts, and provide guidance in the acquisition of relevant documentary evidence and statistical data, and training designed to foster a critical understanding of the problems of using such evidence. It is essential that

students undertaking field research become culturally aware, reflexive and sensitive to the specific circumstances of the area.

4.2 Students engaged in Development Studies research will require training in techniques for establishing frameworks that facilitate participation of relevant groups from the local context of the research; in identifying different approaches to the development process; and in defining the wider context of power relationships that influence development outcomes. Students will need to be familiar with the theories and practices of project monitoring and evaluation and, for many types of qualitative research, e.g. elite and other interviews, focus groups and documentary analysis, a high level of linguistic competence will be essential.

Methods of analysis

4.3 In general, the methods of data analysis will be typical of those used in the social sciences, but subject specific training may be required in the initial training period of the studentship to enhance an appreciation of the relevance, problems and limitations of the application of methods that, in many cases, will have been developed originally for use in a different context. In the analysis of qualitative data, the student will require an appreciation of the issues of transcribing, coding and analysing data collected from non-native language speakers, including specific problems created by the lack of appropriate software to apply for the language of an area. Students will also need to conduct their research reflexively because of the cross-cultural nature of the research.

F2 Demography

The Nature of the Area

1.1 Demography is the study of human populations, past, present and future, and especially how births, deaths, and migration determine change. It includes the analysis of characteristics, such as age, sex, marital and health status and the composition of families and households, that determine the components of change and/or are affected by population structure, together with associated aggregate phenomena such as nuptiality and population ageing. Formal demography has been particularly concerned with the measurement of the size, composition, and spatial distribution of human populations using statistical and mathematical techniques. Social demography (or Population Studies) is concerned with the explanation and consequences of population trends and differentials, drawing on insights from a number of relevant disciplinary perspectives, including sociology, economics, anthropology, human geography, epidemiology and human biology.

Preparation

2.1 Few undergraduate students receive more than an introductory training in demography and population studies. Thus, the first year of research training in demography will include a large conversion element since a background in the discipline is not required to commence study of it as a postgraduate student.

2.2 Those entering a programme of research training in demography will usually have a good honours degree. They may come from a wide range of backgrounds, though many of them will have a degree in either one of the other social sciences or a mathematical or statistical discipline. All postgraduate students should be willing and able to acquire a common foundation training in both social science thought and quantitative methods as applied in demography. They should have good writing, critical thinking, and numerical skills and be proficient in the basic use of information technology.

Subject Specific Domains of Expertise

3.1 As a foundation for research training, the student will develop subject specific skills and expertise in the following areas:

- demographic data sources (population registers, censuses, vital statistics, migration data, special surveys for the collection of population materials e.g. Demographic and Health Surveys, historical records, qualitative and ethnographic materials)
- analytical methods (the analysis of population structures, and patterns and trends in fertility, mortality - including life tables - and migration)
- demographic concepts and models (including stationary and stable models, population momentum and demographic ageing)
- theoretical developments in population studies (including, for example, transition theories, theories of individual behaviour, life course and living arrangements, health inequalities, gender)

- analytical tools, explanatory and interpretive approaches drawn from relevant social sciences, such as social statistics, sociology, human geography and social anthropology

3.2 The aim of this initial research training should be to provide a grounding in basic methods, techniques and concepts which can be built on by more specialist work on theory construction, the collection of empirical evidence and analytical techniques. It will be important to encourage both critical perspectives (in term of existing research, data, techniques, styles of formulating research questions etc.) and 'hands-on' practical experience (e.g. by devising small projects, running computer programs, exploring alternative methodologies etc.).

Research Methods Training

4.1 By the nature of the discipline and the subject-specific domains of expertise outlined above, students in Demography may expect to receive initial training in research methods that exceeds the minimum set out in Section E.

Data collection methods

4.2 Demographers make use of a range of data, involving both primary data collected by the analyst and secondary analysis of existing data. As part of their training, students need to be introduced to a wide range of data collection methodologies such as population registers, censuses and surveys (face-to-face, telephone, postal and Internet); issues of sampling and questionnaire design; semi-structured and unstructured individual and group interviews along with issues concerning discussion guide design; observation (systematic and participant); and documentary data and systematic review. Students will acquire a detailed awareness of the strengths and limitations of alternative data collection methods, with a particular focus on issues of validity and reliability and how these might be maximised. They should gain a clear understanding of the ethical issues involved in the collection and subsequent analysis of data.

Methods of analysis

4.3 There should be sound training in the standard demographic methods of analysis of population structures, fertility, mortality and migration including life tables, stationary and stable models and population projections. Training should include both an understanding of the principles underlying population analysis and practical experience of using relevant software packages.

4.4 All students should be competent in the use and interpretation of general descriptive and inferential statistics. Those intending to conduct research using quantitative methods should receive further training in the theory and practical application of relevant statistical techniques (these could include generalised linear models, survival and event history analysis, multivariate analysis, multi-level modelling or epidemiological approaches). Quantitatively-oriented students should also acquire generic skills in the use of computers for data analysis, including the merging and manipulation of data sets and the derivation of new variables.

4.5 Other students conduct doctoral research projects that use qualitative methods to obtain an in-depth understanding of the behavioural processes underlying demographic change. The research training for such students may include ethnographic and narrative analysis

(particularly concerning the complex processes underlying fertility and migration decision making), the analysis of case studies, discourse and semiotic analysis of data from focus group discussions and content and textual analysis of policy documents. Where appropriate, students should acquire practical experience with software for the storage, indexing and retrieval of qualitative data.

4.6 Demography students that do not fall into one of the two broad categories above, such as formal mathematical modellers, may also require specialised training in other areas.

F3 Economic and Social History

The Nature of the Area

1.1 Research in Economic and Social History covers many periods and countries and uses a wide range of methods. The amount and choice of formal theory, the types of data collection problems and the relevance of formal data analysis methods vary considerably across research areas. Programmes will build on the particular strengths of each institution; some specialising in economic history, some in social history, and others may cover both.

Preparation

2.1 Economic and Social History attract students from a variety of backgrounds. Some have completed undergraduate degrees with a strong specialisation in economic and social history, while others have single or joint honours degrees in history, economics, sociology, politics, business studies, social anthropology and geography. Training in economic and social history therefore includes an element of conversion for those students with limited exposure to research techniques in certain areas.

Subject-Specific Domains of Expertise

3.1 At the end of the initial training period, students will have acquired:

- an ability to identify, initiate and complete a substantial piece of research in economic or social history
- an ability to draw on key concepts from one or more of the social science disciplines
- an appreciation of the advanced literature in one or more areas of economic and social history
- a familiarity with historiography, historical explanation and research methods in history
- an understanding of appropriate statistical, computing and other techniques relevant to data collection and analysis

3.2 Training may take a variety of forms each of which will be linked to the above objectives.

Research Methods Training

4.1 Training in historiography should seek to deepen the student's understanding of the insights, concepts, methods and theories used in modern historical research within the context of the social sciences. Students in economic and social history should also receive a broad training in historical sources and methods. The topics will vary with the particular focus of a degree programme but will include a majority of the following: an introduction to bibliographical aids for the location of secondary sources; familiarisation with the range of libraries, archives, data sources and other collections of historical material; knowledge of preservation practices under the Public Record Act; training in the

summarising and analysis of records; practice in transcribing (including, where appropriate, palaeography); knowledge and understanding of non-literary sources (including artefacts, remains, oral testimony, maps, pictures, sound, film, television and Internet material).

4.2 The requirements for training in data collection and analysis set out in section E will also provide a satisfactory minimum for economic and social history. It is expected that this training will be linked to historical issues and examples.

4.3 Students in Economic and Social History will receive more in-depth training, tailored to the appropriate level for students, in the theoretical concepts in one or more of the social sciences, specifically economics, sociology, political science and social anthropology. Some students, for example, will need an introduction to basic concepts such as those in production and cost theory, national income determination and trade theory in economics or class, gender and ethnicity in social theory. In the first year of the '1+3', students will acquire an ability to understand and draw on such concepts. Students with a good background in a social science discipline will acquire more detailed understanding of more advanced social science concepts used in historical research such as new developments in institutional economics, growth theory, in cultural theory and in the analysis of hegemony. In the design of subject specific training and in the light of the strengths of each institution, choices will be made with respect to range and depth within and across the social sciences. Programme objectives and the specific theoretical concepts that are to be taught will be clearly stated.

4.4 Any more specialised theory or research methods training requirements are likely to be provided through exposure to the advanced literature in economic and social history in areas close to the research interests of students. This training may be provided in separate courses or it may be integrated with the other elements of training. For some students further training related to their specific research interests may be provided during the first or subsequent years of the research.

F4 Economics

The Nature of the Area

1.1 Economics is the study of the factors that influence income, wealth and well being within and between countries. From this it seeks to inform the design and implementation of economic policy. It analyses the allocation, distribution and utilisation of scarce resources, and seeks to understand both at the micro and the macro level how present allocations arise and how they may change in the future. This requires a structured understanding of resources, agents, institutions and mechanisms, and of the normative basis of policy recommendations. Some of these issues are studied in an inter-disciplinary context and geographic, historical, legal, political, psychological and sociological factors come into play. There are also issues in which economics links with the natural sciences.

1.2 The typical methodology of Economics involves observation, abstraction, the construction of models and the testing of the hypotheses to which these give rise. Data and data collection can play a central role in the process of assessing, refining and validating analysis and the development of techniques for analysing data is a key feature of the subject.

Preparation

2.1 Students should have some understanding of appropriate mathematical and quantitative techniques. They should normally also have a prior training in analytical methods of economics, including a coherent core of microeconomic and macroeconomic principles and applications and in statistical and econometric methods. In a general sense, therefore, they should have some ability to apply core economic theory and economic reasoning to applied topics and to apply appropriate methods to the analysis of economic data.

Subject Specific Domains of Expertise

3.1 Normally during the initial training period of the research training, the student will require course work in all of the following areas:

- microeconomic theory and analysis
- macroeconomic theory and analysis
- quantitative methods
- econometric theory and methods

3.2 The aim of this course work should be to provide a thorough grounding in basic tools and techniques of economic and econometric analysis, familiarity with the concepts and research methods used in current debates, training in the use of appropriate econometric software packages, the ability critically to read articles in the core general journals, and the skill to construct the derivation of fundamental results and offer a critique of the underlying models. Subject specific work on research methods is likely to include a practical project or other 'hands-on' experience.

3.3 In addition to the core training, each student should see the core material being used in a variety of specialist areas of economics and/or econometrics. The aim should be to make the student aware of, and able to explore, the frontiers of the specialist areas, the contributions of other disciplines, and to appreciate alternative theoretical and methodological approaches.

3.4 Additional specific training on advanced topics should also take place in the first year of the '+3'.

Research Methods Training

Methods of data collection

4.1 To a considerable extent economists make use of data sources assembled by statistical agencies: national, transnational and international. Students need to be introduced to these in their core training, develop a knowledge and understanding of them, especially their strengths and limitations, and receive training in accessing and processing such data. This could be done in conjunction with the training in relevant empirical methods.

4.2 There are some areas in economics, such as development economics, experimental economics, industrial organisation and labour economics, where economic researchers may have to generate their own data sets. To do this effectively may require appropriate subject specific training taking in qualitative analysis and training in specific techniques such as questionnaire design, sampling and survey methods and interview techniques.

Methods of analysis

4.3 *Theoretical methods*

4.3.1 Students should receive an advanced training in model building, both micro and macro. They should appreciate the typical intellectual steps involved: from observation through stylised facts, abstraction, formalisation, model construction and analysis, to testing and prediction. They should learn to appreciate the way in which economic models are formulated, reformulated and validated and see these methods applied in a range of areas. They should be able to demonstrate the ability to formulate, manipulate and draw conclusions from a model. They should also be able to conduct constructive critical analysis of theory, of its application, and of policy.

4.4 *Empirical methods*

4.4.1 There should be sound training in the initial training period in the standard econometric methods applied to time-series, cross-section and panel data. This should include an understanding of data generating processes, standard econometric models, the assumptions of these models, the implications of violation of the standard assumptions, and of model estimation and hypothesis testing. This should cover theoretical methods and applications.

F5 Education

The Nature of the Area

1.1 Educational research may include any enquiry which promotes theoretical and/or empirical social science understanding of educational and/or learning processes and settings, or which informs judgements and decisions about educational policy and practice. Research may be conducted in any social context including formal educational settings, and industrial, commercial and professional situations or informal contexts (such as parent-child interaction, self-help groups or local communities). Research may be concerned with a particular sector or aspect of education such as community education or primary schools, or focus on investigations and themes that cut across these areas, such as lifelong learning.

1.2 Educational enquiry draws upon a broad range of theoretical and methodological resources including philosophy and social science disciplines. It may involve specific methods and techniques appropriate to the distinctive nature of educational knowledge and theories and the generation of new methods may itself be a focus of educational research.

Preparation

2.1 Students may be drawn from the social science disciplines or from those with educational training and experience but with no specific social science disciplinary background. This means that student training needs are often very diverse. Part-time students are likely to draw on previous work experience in educational settings and, as in the case of full-time students, relevant research experience and learning will be taken into account in determining training needs.

Subject-Specific Domains of Expertise

3.1 In addition to the generic research training, the student in Education should have training in philosophical issues in educational research including an introduction to:

- epistemological and ontological issues in the philosophy of social science and the philosophical underpinnings of educational theories
- the nature of theory and explanation in education
- the philosophical assumptions underlying different methods of empirical enquiry, e.g. evaluation and action research
- the use of a range of concepts such as objectivity, subjectivity, and reflexivity in educational research
- the relationship of the researcher to the researched and connections between theory and educational practice, including the nature of professional knowledge
- interpretations of the concept of education and their implications for research and the role of values in educational theory and research methodologies

3.2 In addition, students should become aware of the ethical and political concerns implicit in different methodological approaches and be equipped to deal with ethical dilemmas and problems that may arise when working in educational settings or contexts (including, where appropriate, making use of ethical guidelines issued by learned societies and professional bodies). Students should also have some familiarity with the politics of educational research in democratic and other types of societies and an understanding of the basic principles of policy-relevant research, including evidence-based policy. They should be able to communicate and discuss their research with a variety of lay, practitioner and academic audiences.

Research Methods Training

Research design

4.1 All students will need to understand a range of subject-specific types of research strategies and designs which may include life histories, action research, discourse and other forms of linguistic analysis, experimental methods, evaluations and ethnographies. Students should acquire knowledge about sampling strategies including the consequences of small samples and related sampling errors and biases, and an awareness of issues relating to criteria for assessing the validity of data, the interpretation of claims about the results of research, and the ways that research designs may affect user and practitioner views about the results of research.

Methods of data collection

4.2 Students should have the opportunity to gain familiarity with and hands-on experience of using a range of methods, including, as appropriate: the use of questionnaires and other structured approaches such as attitude scales and repertory grids; interviews; participant and structured observation; and methods of educational assessment. Students should become familiar with the use of the Internet and email for data collection; the use of official and other textual, audio and visual documentation, data sets and historical archives. Students should also understand issues concerning the choice, effective use and validity of data collection procedures and the use and limitations of triangulation methods. They should be able to assess the strengths and weaknesses of data, including consideration of the social, cultural and economic locations of respondents.

Methods of data analysis

4.3 Students should understand the principles underlying, and be able to use, both qualitative and quantitative methods of analysis for creating and testing educational theories. In addition to generic research methods, training in quantitative analysis should include techniques for modelling and familiarity with when and how to access expert statistical advice. Training in qualitative analysis should include an understanding of the principles underlying and practical experience of using a range of approaches including manual and computer software-based techniques for organising data.

F6 Human Geography

The Nature of the Area

1.1 Human Geography focuses upon the reciprocal relationships between society, nature and space, a focus that is a major strength and a defining characteristic. These relationships and their constitution and meaning in space are the subject of attention in three main ways. First, Human Geography emphasises the inherent spatiality of social and ecological processes. Second, it examines relationships between varied social processes at different spatial scales. Third, it stresses interconnections between changes in one place and at one scale and those in other places and at other scales. Consequently, it encompasses both global and local processes and connections, the latter providing a powerful international focus.

1.2 Human Geography is fundamentally an inter-disciplinary endeavour, with research links stretching from the arts and humanities through the social sciences to the natural sciences and technology. Human Geography deals with a diverse range of subject matter and it necessarily engages with a broad spectrum of philosophies, epistemologies, theories and methods. It emphasises that different theoretical and epistemological positions require different forms of evidence and methods of analysis. The concerns of Human Geography create outward-looking research agendas, leading to close dialogue between human geographers and a range of policy communities at regional, national and international scales.

Preparation

2.1 Human Geography graduates are expected to have a range of academic and transferable skills. These can be summarised as follows.

2.1.1 In relation to *knowledge and understanding*, Human Geography graduates are expected to:

- understand relations between physical and human aspects of environments and landscapes
- recognise that spatial relations are inherent to human activity, and that they reflect and re-make social relationships
- understand how the distinctiveness of place is constituted and continually re-made by the interaction of natural and social processes, and how places influence the constitution and unfolding of such processes
- be aware of the significance of spatial and temporal scales for social and natural processes and their interactions
- appreciate the plural character of the discipline
- exhibit knowledge of a range of theoretical and methodological approaches appropriate to the definition, collection, analysis and interpretation of evidence

2.1.2 In terms of *skills*, Human Geography graduates will acquire the ability to:

- assess the merits of contrasting theories, explanations and policies
- collect and critically judge, evaluate and interpret varied forms of evidence
- prepare maps and diagrams via use of appropriate technologies
- employ technical and laboratory-based methods in collecting and analysing spatial and environmental information
- combine and interpret different types of geographical evidence to tackle specific problems
- and recognise the ethical and moral dimensions involved in the conduct of research

2.2 A substantial element of the generic research training normally would be covered in a first degree in Geography. However, Human Geography students come from diverse backgrounds. They may be mature students, have a first degree in another discipline or from a country outside the UK, or have a more extensive knowledge base due to having already acquired a master's degree or having taken a four year first degree. Training programmes must be sensitive to this potential diversity, building upon students' existing strengths, knowledge and skills and enhancing the quality of their learning experience.

Subject-Specific Domains of Expertise

3.1 Evidence and appropriate methodological strategies can only be meaningfully defined in relationship to the philosophical, epistemological and theoretical positions in which they are grounded and that serve to frame the research enquiry. Given the plural nature of contemporary Human Geography, consideration should be given to the ways in which philosophical, epistemological and theoretical debates in the social sciences are engaged within Human Geography generally and/or, where appropriate, within its major sub-disciplinary fields. This may include consideration of links with cognate disciplines and recognition of varying 'geographical imaginations' and of the distinctive contribution of situated geographical knowledge.

3.2 This engagement should be demonstrated through appropriate geographical examples and areas of substantive geographical work, within Human Geography and/or within some of its major sub-disciplinary areas (for example, cultural, economic, development, environmental, historical and social geographies). Such sub-disciplinary foci normally will be used as specific 'lenses' through which broader philosophical, epistemological and theoretical debates are assessed and evaluated.

3.3 Consideration should be given to specific theoretical issues, grounded in Human Geography's primary focus upon the nature of the relationships between the spatial, the social and the natural, and set in the context of the evolution and history of geographical thought. For example, these issues might include: time, space and scale; nature and culture; processes of uneven development; globalisation, the national and the local; regulation, governance and scale; development, sustainability and welfare; boundaries, identities and difference; societal cohesion, inclusion and exclusion; environmental risk and environmental and social justice. The precise balance of these (and other) themes normally will reflect the expertise of staff delivering research training and students' evolving research interests.

3.4 Students should understand the relevance of Human Geography to public policy debates and ethical issues relating to research and to the implications of the position of the researcher in the research context.

Research Methods Training

4.1 Research in Human Geography typically deploys a variety of approaches to answer specific substantive questions. Consequently, Human Geographers use both extensive and intensive research strategies. They use a wide range of methods for collecting, analysing and interpreting evidence, in addition to those specified for generic research methods training.

Methods of collecting and sources of data and evidence

4.2 As well as statistical and other quantitative data, Human Geography uses a variety of primary and secondary evidence, encompassing texts (including written sources, maps, visual and other representations, remotely sensed images, and computer software) produced and located within a variety of contexts (historical archives, questionnaires, interviews and contemporary fieldwork). Normally, consideration should be given to some of the following sources, recognising as appropriate their quantitative and/or qualitative forms: archival data (including the nature of the archive); computer software and web-based sources; discourse analysis; fieldwork (which may require specific language training); iconographic sources and methods; interview methods (questionnaires, semi-structured interviews, individual and group approaches); laboratory work (e.g., in relation to environmental data); observational methods; participatory, ethnographic and action-research methods; statistical and other data from relevant secondary sources. This list is alphabetical and not a rank ordering of sources.

Methods of analysing data and evidence

4.3 Human Geographers characteristically use a range of complementary methods for analysing and interpreting evidence to answer research questions. Research students, therefore, require training in a range of more advanced subject-specific competencies and methods. Normally, consideration should be given to the following quantitative and qualitative methods of analysis: Geographical Information Systems (GIS) and computer cartography; spatial analysis and modelling; methods of analysing environmental evidence and environmental technologies; historiographic awareness and the role of interpretative communities; interpreting qualitative data, including the use of relevant computer software; styles and strategies of writing and representation; synthesising and interpreting evidence from multiple sources; and considering the implications of this complexity as it relates to ethical questions, to the formulation of evidence- based policy or to conclusions that might inform policy.

F7 Science and Technology Studies

The Nature of the Area

1.1 Interdisciplinary Studies in Science, Technology and Innovation (ISSTI) is a wide-ranging field which examines the social, economic, historical, managerial and/or political dimensions of science, technology and innovation. The field seeks to generate a critical understanding of the social implications and shaping of science, technology and innovation, across the whole range of sciences, engineering, technologies and medicine. Much of this work addresses policy and management issues surrounding competitiveness, sustainability and the quality of life.

Preparation

2.1 The ISSTI field recruits students with a wide variety of first degree training and work experiences, including in the natural sciences and engineering. This broadly based approach to recruitment strengthens and enriches the field, providing an essential basis for its interdisciplinary research. Because of this diversity and also because undergraduate training in the field is limited and partial, there can be no standard of preparedness for research in ISSTI. Students vary enormously in their knowledge of the basic perspectives of relevant social and natural science disciplines, including research methods, and in their familiarity with the issues and theoretical frameworks in the ISSTI field. Accordingly, the field seeks to recruit students who combine strong academic ability in their original disciplines with critical and flexible intellectual abilities and an enthusiastic interest in the issues confronted in the field.

Subject-Specific Domains of Expertise

3.1 Three features of the ISSTI subject area call for particular attention in research training.

3.1.1 *Interdisciplinarity.* In the nature of the subject matter, the ISSTI field is both multidisciplinary and interdisciplinary. This central feature of the field has three important implications for research training:

- Students with natural science/engineering backgrounds need to acquire new competence in relevant areas of social science, while those with social science backgrounds need to acquire understanding of different social sciences and often of particular areas of natural science or engineering
- Students also need to develop a critical awareness of the limitations of different disciplinary approaches and how these may usefully be integrated, possibly in innovative ways, to further research in the ISSTI field
- Students may face particular difficulties, and need special guidance, in research design because their work may not fall easily into the established routines of decision-making in single disciplines

3.1.2 *Substantive Content.* Linking the diverse disciplinary and topics of research in the field is a shared recognition of the heterogeneous character of science, technology and innovation,

and of the fact that these emerge in particular socio-economic contexts. It is vital that research training in ISSTI provides a sophisticated understanding of the complex socio-technical processes involved, including the transformations of knowledge and the nature of expertise. Students therefore require a good understanding of the main epistemological issues surrounding, and contrasts between, the nature of inquiry and explanation in the social and natural sciences and engineering.

3.1.3 *Diverse Emphases in Research.* ISSTI encompasses the following main strands of research, reflecting different interdisciplinary mixes and focal topics, which call for correspondingly different emphases in research training.

- Students of ***science, technology and innovation policy*** will require training in one or more of the following: public policy analysis, often in an international context; scientometric and other research evaluation techniques, public controversies related to science and technology; the institutional organisation of science and technology (both public and private sector); the public understanding of science, engineering and technology; and economic rationales for science, technology and innovation policy.

- Students of the ***economics of technological change*** will require training in one or more of the following: contrasting neo-classical and evolutionary theoretical approaches; empirical studies of innovation and technological change; business strategy and management; and economic history. They may also draw on perspectives and insights from science and technology policy and from sociology.

- Students of the ***sociology and/or history of science and technology*** are likely to require training in the institutional context of science and technology. In terms of theory, they should have a critical awareness of social constructivist and other 'social shaping' approaches to analysing science and technology - including the sociology of scientific knowledge and actor network theory – plus other relevant approaches, e.g. from industrial sociology, cultural studies and gender studies. They may also require training in methods of historical research, including archival research, and in historiography.

- Students of the ***management of technology and innovation*** will require training in one or more of the following: organisation theory and industrial sociology; the economics and sociology of technology; broad fundamentals of management as applied to technological innovation, technology strategy and knowledge management; the organisational and strategic impact of technological changes such as the Internet or bio-informatics.

- Students of ***environmental technology policy or management*** will require training in one or more of the following: the analysis of how the natural world functions, and the impacts of perturbations arising from human activity; the legal, political and social dimensions of environmental protection and management; and the analysis of scientific controversies as they relate to policy.

- Other students conduct research defined in terms of **specific socio-technical domains**, e.g. information and communication technologies; biosciences and biotechnologies; and fields of environmental science, medicine, or engineering. These students are likely to require training drawn as appropriate from the above strands - as well as, or tailored to, training in the social aspects of their particular socio-technical domain.

Research Methods Training

4.1 For the reasons noted above, the following considerations are especially important in the structure, content and delivery of ISSTI research training programmes.

4.1.1 *Pervasive methodological training.* A significant proportion of the research training must cover substantive aspects of the ISSTI field. This substantive training should be developed as an integral part of the research training and imbued with a pervasive concern about research methodology. For instance, approaches to the examination of previous work in the field should seek to enhance students' critical analysis of theories, concepts and methods; strengthen their understanding about research design; and develop appropriate reflexivity.

4.1.2 *Distinctive ISSTI components.* In addition to training in generic research methods courses should enhance students' awareness of distinctive methodological demands and contributions made by the ISSTI field, for example:

- *Distinctive methods of data acquisition, interpretation and analysis.* These include, for instance, scientometric methods, research evaluation methods, foresight methods, and ethnographic studies of expertise and other participatory methods. They might also include formal methods of documentary analysis and archival research as applied in the ISSTI field, as well as recent developments of visual and observational methodologies.
- *Distinctive datasets.* The growing number of increasingly accessible data sets for research in the ISSTI field include OECD, UNESCO and World Bank statistics on science, technology and innovation; US NSF science indicators; European Union and other innovation survey data; geographical information systems; and a variety of bibliometric and patent data sets.
- *Distinctive models and analytical frameworks.* These include, for instance, social constructivist frameworks; integrated sociological and economic approaches; interactive models of innovation; and various approaches to mathematical modelling of natural, technological and social systems.

4.1.3 *Specialisation of training in methods of data collection and analysis.* ISSTI research training providers must be especially flexible in how they structure doctoral training, paying particular attention to ensuring through their high quality educational delivery and support that all students achieve the requisite standards of learning.

With respect to the generic training in methods for data collection and analysis and the distinctive ISSTI-specific methods, the aim is to provide a broad grounding, encompassing both understanding of and some proficiency in the use of particular methods. Depth in the latter is best achieved through specialisation, including structured approaches for the acquisition of requisite tacit research skills and professional competence. Accordingly, the aim of the research training during the initial training period should be to combine: (a) extensive development of understanding of core and subject-specific methods with (b) intensive learning about the operational use of selected methods. On this foundation, students can then add further areas of specialised competence, or acquire higher levels of proficiency, as their research proceeds.

4.1.4 *The central role of the dissertation.* A vital role in the 'deep learning' of research design and methods is played by the master's dissertation. It should act as the focus for structured approaches to teaching, learning and supervision designed to enable students to master the operational use of methods, including the critically important tacit components involved in research design, research management, data collection, data analysis and, above all, data interpretation. The dissertation thus constitutes the main work in which

students demonstrate the extent to which they have achieved the main learning outcomes from research training in the ISSTI subject area during the initial training period:

- an in-depth and critically analytical grasp of key literature in some domain of the subject area
- practical experience in the successful design and management of a research project
- competence in the operational use of at least one systematic method in both data collection (or compiling data sets from existing sources) and data analysis
- effective integration of empirical material and conceptual argument
- an enthusiasm for pursuing further research in the ISSTI field

F8 Linguistics

The Nature of the Area

1.1 Linguistics is concerned with the description, analysis and theorising of language in all its forms. Applied Linguistics is concerned with real-world problems in which language plays a major role. It is an interdisciplinary area of study in which insights and methods of linguistics are combined with those of other disciplines, including, importantly, social science.

Preparation

2.1 In addition to the generic research training, it is expected that students in linguistics and applied linguistics will require further training, usually in the form of deepening knowledge acquired in their first degree (and also professional) work. Students trained in linguistics would normally be expected to have knowledge of a substantial subset of the following issues by the end of the initial training period (and of most of the remainder by the end of the first year of the research):

- knowledge of standard descriptive terminology
- theory construction, problem formulation and explanation
- the nature and status of linguistic data; the role of formalisation
- linguistic argumentation and the status of counter-examples
- the search for universals
- language variations and change
- language acquisition and learnability; the relationship of linguistics to adjacent disciplines
- in-depth knowledge of one or more paradigms of description, theorising and research specific to the relevant sub-discipline as revealed in assessed work appropriate to the desired learning outcomes

2.2 The preparation of a student of applied linguistics need not necessarily have covered all aspects of linguistics. Students normally need to have acquired, by the end of the initial training period, a grounding in most of the basic techniques of linguistics and more specialised knowledge of linguistics as it applies to their particular research problem. Students need to be aware of relevant linguistic research, but the interdisciplinary nature of applied linguistics means that they will also need to have acquired knowledge of other disciplines relevant to their particular research. It is expected that these links will be reflected in research training at an institutional level.

Subject-Specific Domains of Expertise

3.1 The domains of expertise shared by all ESRC-fundable areas of linguistics are those relating to the principled gathering, handling and interpretation of data sets using empirical methodologies. `Empirical' is interpreted so as to include both hypothesis-testing and experimental methods as well as ethnographic, non-hypothesis-driven approaches. ESRC funds linguistic research in the sub-disciplines sociolinguistics, the

sociology of language, language acquisition research (first, second and impaired), all aspects of psycholinguistics and computational linguistics, and those aspects of core synchronic and historical linguistics that share such methodologies.

3.2 Research in some of these areas may have application as a goal. Applied linguistics research covers the following areas: the theory and practice of language learning and teaching, language in education, (critical) discourse analysis, the development of corpora for computational treatment and other kinds of data sets, anthropological approaches to language, the development of language policies, and applications of notions in other areas of linguistics to the solution of real-world problems.

3.3 The domains of expertise covered by applied linguistics mean that the student should:

- understand the relationship between academic, professional, public and user conceptions of language
- be able to assess the practical implications of theoretical developments in linguistics and other relevant disciplines
- understand the ideological assumptions (and their implications) of linguistic research, e.g. as discussed in the BAAL Code of Practice

Research Methods Training

4.1 In addition to the discipline-specific foundational training above, students should expect to have acquired a basic working knowledge of a substantial subset of the following by the end of the initial training period (and of most of the remainder by the end of the first year of the research):

- qualitative research methods: recording, transcription and coding techniques
- quantitative research methods: experimental paradigms employed in work on language (including applied linguistics), and associated descriptive and inferential statistics; the use of standardised measurement instruments appropriate to the sub-discipline
- computational research methods: students should have, throughout their research, access to and first hand experience of computational tools and resources for linguistic research, such as speech workstations, linguistic corpora and tools available for analysing them, and other software for phonetic and linguistic analysis
- such deeper special training in the above categories as is required for sub-disciplinary purposes

4.2 The opportunity should be available for students to continue receiving training which deepens their capabilities in specific areas throughout their registration.

4.3 While it is intended that all these areas will form part of every student's training, it is recognised that departmental independence and originality are essential for the maintenance of research standards, intellectual vitality and student choice. These subject-specific guidelines should be implemented in a way which is facilitatory rather than obstructive of a student's individual research needs. Departments should implement these guidelines in the light of their own research strengths and teaching traditions. Departmental applications with a particular strength in one sub-discipline are welcomed.

F9 Management and Business Studies

The Nature of the Area

1.1 Management research seeks to understand and explain the activity of managing, its outcomes and the contexts in which it occurs. This involves the study of the origins of managing and its ongoing development as both an intellectual field and arena of practice. The subject as a whole is concerned with exploring the role of all those who contribute to the management process and the forces which shape its character. It seeks to produce a broad body of knowledge which will explain the underlying causes of given business situations and the means of assessing alternative courses of action. The organisation of resources in order to achieve optimal performance in specific settings is a preoccupation in certain areas of the field, while in others researchers investigate the variety of ways in which managing and organising occurs.

1.2 Its subject matter includes all the possible spheres of management and business activity and is conventionally classified around the specialist areas of, *inter alia,* accounting, finance, marketing, organisational behaviour/industrial relations and operations research. As an academic field of inquiry it is heterogeneous, utilising frameworks and research methods derived from adjacent disciplines, predominantly in the social sciences.

Preparation

2.1 The students entering a research training programme in Management and Business Studies will not always possess conventional or recent academic experience. This sets particular challenges but also offers the advantage of students who may bring work-related skills and the experience of management situations. Students may also enter the master's in Management and Business Studies with a formal background in another discipline.

2.2 Students, therefore, should show that they are *capable of* the appreciation and critical assessment of:

- alternative views of academic issues and management problems
- organising information and constructing a coherent argument
- ordering data and views through the writing, numerical and basic research techniques typical of a good final year undergraduate project or dissertation
- using library and on-line information sources
- organising an initial project outline
- individual project management

Subject Specific Domains of Expertise

3.1 Those studying for a master's qualification providing research training in Management and Business Studies should be made aware of the breadth of the field, its range of constituent specialisms and the resulting spread of research paradigms and theoretical positions. Students should also leave the degree with an appreciation of the way management research is embedded in the social sciences and in policy and practice.

3.2 Introduction is required to the philosophical and related paradigms, drawn from the social and physical sciences, as well as the humanities, which inform research in the management area. Training will embrace contrasting epistemological perspectives on management and the differing assumptions that underpin specific styles of enquiry. The aim is to ensure that students move beyond exclusive reliance on their parent discipline or starting point; to appreciate the range of research options available and to lay the basis for a reasoned defence of the theoretical traditions and research techniques which they ultimately may choose (or reject) during their research in the '+3' years.

3.3 Given the varied character of Management and Business Studies, training will alert students to the similarities and differences between competing orientations to research and their strengths and limitations. An appreciation of positivist, realist, interpretivist and post-structuralist approaches is required. This will involve exposure to the features of each of these approaches, including their: ontological assumptions; scientific objectives; cycle of enquiry; methodological preferences; types of data; techniques of data collection and the problems of bias inherent in each approach. Training should offer examples of the way the specialisms within Management and Business Studies select from and adopt such approaches. This might include, e.g. recognising the way in which strategic management may draw upon economics and its reliance on positivism, giving rise to concerns with general laws and nomothetic methods, rational knowledge, deductive cycles of enquiry, and the use of quantitative data and survey–led data collection techniques. Conversely, this might include an understanding of the links between sociology and organisational behaviour and their frequent association with an interpretivist perspective.

3.4 The traditional intellectual contexts of the main specialist areas of management should be covered. Students must also be made aware of examples of innovative research results from within specialisms that do not conform to dominant preferences and which use theories and techniques drawn from another tradition. Explanation is required of the potential of trans-disciplinary research, i.e. studies which go beyond a single discipline and employ mixed theories and techniques in order to answer questions addressed in Management and Business Studies.

3.5 Students should acquire an understanding of the relevance of policy and practice in Management and Business Studies. Students will differ in their choice of research topic and the consequent opportunities for their research to produce implications for management or policy makers. Training should include the way in which management research methods and bodies of knowledge may be framed and produced in the context of application. Students should appreciate the benefits of research that is theory-led and practice sensitive and understand how problems addressed by management research grow out of the interaction between practice or policy and theory.

Research Methods Training

4.1 Students should become familiar with the main research methods that are used by professional researchers in the specialisms in the field. These will include an appreciation of the potential and relevance of: experimental design, action research, survey methods and ethnographic approaches. Students should be able to distinguish and assess the merits of: questionnaires, interviews, participant observation, textual and discourse techniques, simulation and secondary data processing. Training should cover awareness of information technology and Internet-based software packages for ordering and processing qualitative and quantitative data.

4.2 Understanding the ethical dimensions and epistemological issues in the research process is required, including issues of relationships with respondents and stakeholders and problems associated with access, confidentiality and publishing. Students should learn how to relate the results of data analysis to the relevant field within Management and Business Studies and understand what constitutes a contribution to knowledge.

Diverse Emphases in Research

4.3 Students will follow different strands of research according to their disciplinary starting point and focal topic resulting in different emphases in their research training. The breadth of the Management and Business Studies field is very wide and the following provide examples of specialist research areas and training that students are likely to receive. These areas are not definitive but they offer a guide to those seeking to offer master's programmes in these and other areas. Students pursuing training in these areas may also draw on perspectives and insights from other areas of Management and Business Studies and the disciplines that underpin them.

4.3.1 Students of ***accounting and/or finance*** are likely to require training in one or more of the following: finance theory, financial econometrics, institutional finance and/or corporate finance; financial accounting theory (including its regulatory, legal, economic, social and/or comparative dimensions); information systems design and management; theories of management accounting and organisational control (including their behavioural, organisational, economic and/or social dimensions); the role and functioning of accounting (or one or more major areas of practice) considered from technical, organisational, economic and/or social perspectives; and the theory of financial management and its application.

4.3.2 Students of ***organisational behaviour*** are likely to benefit from an appreciation of the range of theoretical approaches that characterise the study of management and organisations. These are most likely to include the classical/orthodox approaches to organisations, e.g. theory of bureaucracy, human-relations school, functionalism, systems/contingency theory, as well as debates and influences such as institutional theory, cultural theory, labour process theory, and post-structuralism (e.g. Foucauldian analyses or actor network theory). Specialist knowledge may be required of: the dynamics of group behaviour, the construction of culture, the nature and exercise of power, organisational innovation and the management of knowledge, the implications of information and technology, and the range of gender issues in and around organisations.

4.3.3 Students of ***corporate strategy*** are likely to require training in the way organisations determine and implement strategy. In terms of theory, they should have a critical awareness of aspects of: industrial organisation theory, institutional economics, corporate finance and organisational theory. Students may also need to acquire an understanding of

markets, culture, organisational change, knowledge management, resource allocation, alliances and networks, and public policy.

4.3.4 Students pursuing management research from an ***economics*** perspective generally will have a first degree in economics or a related discipline or have pursued a conversion course. They will require further training in relevant skills, generally microeconomics, quantitative methods and econometrics, at a level equivalent to that outlined in F3 (Economics). This subject specific training may be delivered more appropriately outside the Management and Business Studies outlet and it may be appropriate to pursue much of the Economics subject- specific training prior to the Management and Business Studies programme.

4.3.5 Students of ***management science*** are likely to require training in the context of how organisations take decisions and the data that they may require to achieve this effectively. Students should have a critical awareness of aspects of: mathematics, statistics, network theory, decision sciences, operational research and soft systems modelling. Specialist knowledge may be required in organisational processes, social policy, corporate strategy, decision-making routines, heuristics, resource allocation, modelling complex systems, algorithms, and mathematical programming.

4.3.6 Students of ***operations management*** are likely to require training in the way organisations design measure, manage and control their products/services and processes. Students should have a critical awareness of relevant aspects of quantitative methods, statistics and economics. In addition, they may be required to have an understanding of the contribution that strategy and human resource management might make to production systems. Specialist knowledge may be required of sector-specific process technologies and systems, research and development and innovation strategies, as well as product and process design. Studying the effective operation of systems may require an understanding of performance measurement and management, control technologies, strategic capability, logistics and distribution.

4.3.7 Students of ***public sector management*** are likely to require training in one or more of the following: governance structures including hierarchies, markets and networks; public policy analysis and evaluation; welfare economics; performance management; comparative public services management; and the fields of administration, management and organisation as they relate to the public domain.

4.3.8 Following training in the basic technical characteristics of information technology, students of ***information management*** need to develop a critical appreciation of the complex inter-relationships between people, organisations and technology. They are likely to require training in several of the following areas: the management/organisational context of the development and use of information systems; information technology strategy and business strategy; management and organisational change; the Internet and e-commerce including intranets, extranets, enterprise wide systems; system development methodologies and project management; the management of data; computer supported co-operative working; information technology management and security issues; social aspects of information systems (including issues of privacy, data protection, and surveillance at work).

4.3.9 Students of ***international business*** are likely to require training in the context of how businesses operate in a global economy. They are likely to require training in aspects of: economics, finance and statistics. Specialist training may be required in: international

trade law, international agencies and policy making, international cross-cultural management, comparative accounting and social policy.

4.3.10 Students of ***marketing*** are likely to require training in the way organisations understand and respond to external and internal customers. Students should have a critical awareness of relevant aspects of social theory, economics, individual and organisational psychology, statistics, and sociology. Specialist areas might include: understanding of markets, consumer behaviour, market research, approaches to customer service, market structures, competition, business strategy, advertising and promotion. Issues related to human resources management in services marketing and relationship marketing may also feature.

4.3.11 Students of ***human resource management*** are likely to require training in the context of the management and development of people within organisations. Students should have a critical awareness of aspects of: industrial sociology, organisational theory, labour economics, industrial relations and business strategy. Specialist areas might include: strategic human resource planning, labour economics, individual and organisational performance, cultural and ethical issues, and international human resource management.

F10 Environmental Planning

The Nature of the Area

1.1 Planning, Environmental Studies and Housing Studies is concerned with understanding the political, social, economic and environmental processes relating to the development and management of land and buildings. It is also concerned with the means by which people interact with these processes. This is a broad and multidisciplinary field that includes a range of core and specialist areas. Its focus may be on exploring the processes and products that policy seeks to influence or it may be on evaluating impacts or implementation of planning policy. It also embraces the policy, practice, governance and legal aspects of city, regional and rural planning, property markets, housing and transport, tourism, urban design and conservation, and their substantive knowledge fields.

Preparation

2.1 Students entering a master's course offering research training in the Planning, Environmental Studies and Housing Studies field should:

- have a good first degree in a relevant discipline
- have good writing, critical thinking, numerical and basic research skills evident in an independent piece of work such as an undergraduate dissertation
- have basic information technology skills
- be informed about relevant issues related to their intended area of research training
- be able to prepare an outline research proposal
- be able to manage their time effectively

Subject Specific Domains of Expertise

3.1 Students entering the Planning, Environmental and Housing research fields should have an opportunity to acquaint themselves with a broader range of research issues and approaches than are offered by their own investigation. An appreciation of the various traditions in the social sciences should be supplemented by an introduction to the underlying theoretical perspectives in planning, environmental and housing studies and their relationship to research and policy analysis. Training in this area is also likely to address different interpretations of the concept of planning and the values inherent in planning enquiry. Students should be aware of the interrelationships between the various theoretical 'paradigms' and practices which make up the Planning, Environmental Studies and Housing Studies field. Relevant issues include sustainability, environmental ethics, community development, design and the appreciation of the aesthetic qualities in the environment, and spatial modelling and analysis.

3.2 Relevant core areas of training are likely to be drawn from: planning history, theory, techniques, law and practice; local and regional planning theory and practice; spatial planning; regional analysis; policy and development; impacts of national, regional and local governance and policy guidelines; urban analysis, policy and regeneration; analysis of national, regional and local housing systems; housing management, development and

community planning; social exclusion; economic development and the economics of planning; and European and international aspects of planning.

3.3 Various specialisms may include coverage of some of the following: urban design theory and practice; conservation and the built environment; environmental systems, planning and management; tourism planning and management; housing theory and practice, development and finance; property development processes; sustainable development and planning; comparative and international planning; transport planning, policy, practice modelling, evaluation and socio-economic and environmental aspects; urban regeneration and community development; and information management and technology relevant to Planning, Environmental Studies and Housing Studies research areas.

3.4 It is expected that different foci and weights will be given to particular elements in the core areas of teaching and in the specialisms according to both the areas of expertise of the research outlets and to the requirements of the individual students.

3.5 In addition to the learning outcomes specified in the generic research training guidelines, students are expected to have knowledge and understanding of their research discipline core and subject specific domains of expertise; competencies in transferable skills appropriate to the Planning, Environmental Studies and Housing Studies research areas.

Research Methods Training

Methods of Data Collection and Data Analysis

4.1 In addition to the generic research methods training, it is expected that the Planning, Environmental and Housing students may also be trained in other research methods skills as appropriate including: 'enquiry by design' and other environmental and behavioural tools; negotiation and consultation skills; Geographical Information System (GIS) techniques and Environmental Impact Analysis (EIA) methods of data collection. Additional methods of analysis could include: advanced information technology packages for statistical and spatial modelling; cost-benefit analysis; housing needs projections; and at least one of the information technology-based qualitative analytical packages. They should also be familiar with ethical issues relevant to their subject area. The level and type of research methods training will depend upon the student's research topic and skills required for specific areas of specialisation.

More advanced training could be undertaken in subsequent years of the research. In addition, research students should be supported by a formal programme of research seminars providing an opportunity for students to acquaint themselves with a broader range of planning, environmental and housing issues.

F11 Political Science and International Studies

The Nature of the Area

1.1 Political Science, International Relations (IR), and International Studies (IS) cover a broad range of issues. Political Science covers subjects including the study of how power, authority and legitimacy are related to processes and systems of governance and the behaviour of state and non-state actors. International Relations cover broadly similar subjects within regional and global frameworks. International Studies is, by definition, interdisciplinary and covers a wider range of both subject matter and methodologies including historical, legal and cultural dimensions. Students are expected to use material from a variety of cognate disciplines. Political Science and International Relations also have their own sub-areas, while International Studies includes further linkages across a range of fields. These subject specific guidelines apply equally to all three areas except where indicated.

Preparation

2.1 Students working in the fields of Political Science and IR/IS should have a good Honours degree normally in one of these areas or in a cognate discipline in social science (e.g. Geography) or humanities. However, students from other disciplines will also be considered. All students should demonstrate critical skills, analytical ability, communication skills and the potential for independent and critical research.

Subject Specific Domains of Expertise

Language and overseas fieldwork may be an integral part of research training for some students in the following subject specific domains.

3.1 ***Political Science***

In addition to the training described in Section 4, students in political science will require additional specialist training depending on the focus of their work. The following are examples of pathways for research training:

- Students in the field of political behaviour and political sociology will need to acquire specialised training in the primary methods of collecting and analysing data at mass and elite levels
- Students in political theory and political philosophy will need to develop a good grounding in normative analysis, the history and historiography of political thought and contemporary political theory
- Students in the field of comparative politics will need a further understanding of comparative methodology, theories of comparative politics and a good working knowledge of political systems that offer appropriate comparisons

- Students in public policy and public administration will require further training in case selection, public policy analysis, theories of decision making, organisational theory and wider theories of governance
- Students in European Union politics will require an advanced understanding of the European Union, and of relevant theoretical debates about the Euro-polity and the process of integration
- Students who specialise in the politics of a specific country or region will need to acquire an advanced understanding of the historical, cultural, social and institutional context of the area to be studied

3.2 *International Relations/International Studies*

In addition to the training described in Section 4, students in IR/IS will require additional specialist training depending on the focus of their work. The following are examples of pathways for research training.

3.2.1 International Relations

- Students in the field of International Politics/International Relations theory will require specialised training in the following areas: the history of inter-state practices; the key theories and concepts of advanced International Politics, including the application of these to real world case studies; and international political theory
- Students in foreign policy analysis will require training in the history, governance, culture of the country(ies) to be studied; a detailed knowledge of the main theories of foreign policy decision-making and a grounding in the main theories of international relations and the ethical dimension of foreign policy
- Students in the field of International Institutions will require knowledge of the history and development of international (inter-governmental and non-governmental) organisations; organisational and institutional theories; and key debates about the relationship between such institutions and states social groups, economic development and power in world politics
- Students in the fields of Strategic/Security Studies and War/Peace Studies will require a grounding in the historical development of strategic thought and ideas about war and peace/security theory; key debates in strategic/security/war peace studies and contemporary developments in the role of force/security policies/war/peace in world politics
- Students in the field of International Political Economy will require further study in the history of, and politics of, international economic relations, and theoretical developments in International Relations and other related disciplines

3.2.2 International Studies

- Students in the field of International History will require specialised training in the philosophy of history, the main historiographical trends of the twentieth century and case study analysis and archival research

- Students in Area and Regional Studies (including the EU, ASEAN, NAFTA) are likely to require an advanced understanding of the contemporary history of appropriate parts of the world and their regional and global context, a good grounding in the skills of comparative political science and related disciplines and sub-disciplines, including relevant

language studies and an understanding of the relevance of International Relations theories for understanding developments in these areas

- Students of the role of law in international relations will need training in basic doctrines of international law, as well as an understanding of its origins and interpretation. They will also need to study the interplay of law with international organisation and with national foreign policy-making

- Students of historical sociology need a knowledge of the history of both state systems and international political economy. They must be familiar with the major thinkers who range across time and disciplinary boundaries to provide interpretations of the overall evolution of humanity's political, economic and social organisation

Research Methods Training

4.1 In addition to covering the generic research methods training, subject specific training in Political Science, International Studies and International Relations should provide further training in: the nature of explanation in the social sciences, data collection and data analysis. As far as possible research methods training should be made relevant to the student's own research area. Outlets are encouraged to be flexible in the way they structure and deliver their research training. Different topics may be suitable to different course structures and teaching methods.

Nature of Explanation and Justification in the Social Sciences

4.2 Students require a good understanding of the main epistemological issues relative to research in the social sciences. In particular, they need to be aware of:

- the major theoretical and epistemological debates in the social sciences, such as explanation of and understanding the differences between positivist, realist and other accounts of social science from perspectives including feminism, post-modernism and critical theory the practical implications of the major alternative philosophical positions in the social sciences for research in at least one of the major sub-fields of Political Science, International Studies and International Relations

- the epistemological implications of the use of alternative quantitative and qualitative methods in social science research in their fields of study

Methods of Data Collection

4.3 Training is likely to include:

- *qualitative methods*: survey methods, field research methods, methods for elite and mass interviewing, focus groups, archival and documentary research, observational and ethnographic methods and the use of life histories and political biographies, and the use of electronic search materials appropriate for political analysis, e.g. World Values Survey; election monitoring

- *quantitative methods*: introduction to measurement theory and the design of questionnaires and sampling methods for political surveys, experimental and non-experimental methods,

analysis of official data sets, and the processing and coding of political data at the individual and aggregate levels

Methods of Data Analysis

4.4 Training is likely to include:

- *qualitative analysis*: content and textual analysis of political texts, ethnographic and narrative analysis of political processes, familiarity with computer-based coding of political variables

- *quantitative methods*: the multivariate analysis of survey-based and aggregate political data such as electoral data or comparative survey data; methods of scaling and data reduction applied to political variables, reliability and validity testing of political indices

Further Training

4.5 In addition to their generic research methods training and subject specific training, students may need additional training and support in subsequent years of research such as advanced statistics, language training, or the use of specialist resources such as the Public Record Office.

F12 Psychology

Psychology

The Nature of the Area

1.1 The discipline of Psychology involves the scientific study of all aspects of human behaviour, though some biological areas of psychology are excluded from ESRC support. Although these guidelines primarily cover those areas within the remit of the ESRC, it is anticipated that they may have wider generality and applicability.

1.2 All training programmes will be expected to cover the areas specified in these guidelines. It is expected, however, that there will be differences in emphasis both among institutions and among students within the same institution. Institutions may wish to contextualise the training according to their specific foci of activity; and the training can also be tailored to the individual student's needs, providing there is adequate coverage of the other areas.

1.3 It is anticipated that most of these topics will be covered within the first year of the student's studies.

Preparation

2.1 Psychology students will vary in the skills they bring from their undergraduate training. Nevertheless, they can be expected to have basic skills of research design, including the design and conduct of experiments, questionnaires, psychometric instruments, interviews and surveys. They will also know fundamentals of statistical analysis, including parametric and non-parametric tests, correlation and regression and analysis of variance. They will be familiar with the use of computer packages for the analysis of data and with basic literature search methods. Students who do not have basic competence in these areas at the beginning of their studies will need to be given remedial training to bring them up to the standard necessary to cope with the methods covered in the programme.

Subject Specific Domains of Expertise

3.1 By the end of their training, students should have knowledge of a range of general historical, theoretical and philosophical issues underlying the discipline of psychology, for example:

- philosophy of science
- the nature and limitations of the scientific method and the main alternatives to this method
- the nature of psychological knowledge and how it is embedded within its biological, social and cultural context
- development of theories in psychology, including current and emerging issues; this may be geared towards the general area of the student's proposed research.

3.2 Ethics of psychological investigation, including prevailing codes of conduct.

3.3 Students should be aware of how psychological research is communicated, including preparation of conference presentations, posters, and journal articles according to British Psychological Society (BPS) and American Psychological Association (APA) format. They should understand the nature of the peer review process in the communication of psychological research.

3.4 Students should be familiar with methods of literature searching in psychology, including the use of the Internet.

Research Methods Training

4.1 Students should be aware of all the methods listed below, should be able to select the most appropriate method for a specific purpose and should be able to use a subset of the methods. Students should have a critical awareness of the conceptual status of the various methods, and of their advantages and limitations.

Methods of data collection

4.2 These are likely to include:

- quantitative methods such as observation and the experimental method; laboratory versus real life research; experimental and quasi-experimental designs; non-experimental designs including contingency table and correlation studies; n=1 designs (i.e. single case designs); longitudinal studies. Psychometrics including development of psychometric tests for research use; item analysis; and methods of delivery

- use of qualitative methods in psychology, such as focus groups and diary techniques; the characteristics of qualitative material including narrative records, text, audio and video recordings, and transcribed materials; and protocol analysis

Methods of analysis

4.3 These are likely to include:

- use of relevant computer packages: spreadsheets; graphical packages; and statistical packages
- analysis of variance: ANOVA for complex designs, e.g. mixed designs; models underlying ANOVA; planned and unplanned comparisons; and analysis of covariance
- regression: simple linear regression; multiple regression and related procedures, e.g. logistic regression, log-linear analysis; and exploratory factor analysis
- covariance structure modelling: path analysis; confirmatory factor analysis; structural equation modelling (manifest and latent variable analysis)
- analysis of qualitative data: conversational and discourse analysis, textual analysis and content analysis
- use of relevant software packages for qualitative data analysis
- meta-analysis: combining results from different studies; measures of effect size/power

F12 Psychology

Cognitive Science

The Nature of the Area

1.1 Cognitive Science involves the scientific study of cognitive processes using a variety of methodologies. It is an interdisciplinary subject drawing not only on cognitive psychology but also on linguistics, philosophy, biology, anthropology, sociology and computer science. Aspects of neuroscience are included in this area, but some of the more biological aspects of this are outside the remit of the ESRC.

1.2 All training programmes will be expected to cover the areas specified in these guidelines. However, it is expected that there will be differences in emphasis both between different institutions and between different students within the same institution. Institutions may wish to contextualise the training according to their specific foci of activity; and the training can also be tailored to the individual student's needs, providing there is adequate coverage of the other areas.

1.3 It is anticipated that most of these topics will be covered within the initial training period of the students' studies.

Preparation

2.1 Research students in Cognitive Science are likely to come from a variety of different backgrounds and the training needs to reflect this. Graduates in philosophy, linguistics, computer science and psychology will all bring appropriate but very different skills to the study of cognitive science. It is anticipated that training programmes will have introductory sessions in all of these areas to provide students with basic knowledge of the methods and knowledge base of each of them. Students may be exempted from parts of this introduction as appropriate in the light of their undergraduate studies.

Subject Specific Domains of Expertise

3.1 Students should have knowledge of a range of general issues underlying the discipline of cognitive science, such as:

- Origins and nature of cognitive science; the relationship of cognitive science to its component and other related disciplines
- Philosophical aspects of cognitive science: realism, materialism, nominalism, empiricism, behaviourism and logicism; ontological and epistemological issues in cognitive science; intentionality; action and representation; and mind and brain
- Nature of theory construction in cognitive science; methods of testing theories, including experimentation, computer modelling and formal models; advantages and limitations of methods of theory testing; and levels of abstraction in explaining data

- Knowledge representation and reasoning. The emphasis will vary from one training programme to another, but might include such topics as: logic; model theory; semantic networks; conceptual dependency; frame and object oriented systems; production systems; expert systems; planning systems; deductive and inductive reasoning; problem solving; non-monotonic reasoning; Bayesian inference; language processing; neural networks; and computer vision

3.2 Ethics of investigation in cognitive science, including prevailing codes of conduct.

3.3 Students should be aware of how cognitive science research is communicated, including preparation of conference presentations, posters, and journal articles according to standard format in Cognitive Science. They should understand the nature of the peer review process in the communication of cognitive science research.

3.4 Students should be familiar with methods of literature and database searching in cognitive science.

Research Methods Training

4.1 Students should be aware of all the methods listed below, should be able to select the most appropriate method for a specific purpose and should be able to use a subset of the methods. Students should have a critical awareness of the conceptual status of the various methods, and of their advantages and limitations.

Methods of data collection

4.2 These are likely to include:

- Experimental research methods in cognitive science; design and conduct of experimental research; techniques used in the study of concepts, reasoning, language, perception and memory
- Computational research methods: basic programming in an appropriate modern high level language; familiarity with standard techniques used for knowledge representation, search, theorem proving, learning, vision, speech and natural language processing; neural networks and connectionist approaches, and their relation to traditional symbolic and statistical approaches
- Formal research methods: logic, mathematics and calculus
- Applied cognitive science research: experimental and quasi-experimental designs; non-experimental designs; n=1 designs (i.e. single case designs); use of neuroinformatics and neuroimaging in cognitive science research
- Evaluation techniques in cognitive science; assessing human computer interaction
- Nature of qualitative material: narrative records, text, audio and video recordings, and transcribed materials; and protocol analysis

Methods of analysis

4.3 These are likely to include:

- Psychological, linguistic and mathematical methods of analysis; computational theory

- Use of computer packages: simulation and modelling packages; relevant graphical packages; and major statistical packages
- Analysis of qualitative data: conversational and discourse analysis, textual analysis and content analysis and use of relevant software packages for qualitative data analysis
- Meta-analysis: combining results from different studies; measures of effect size/power

F13 Social Anthropology

The Nature of the Area

1.1 Social Anthropology is concerned with the comparative study of human social and cultural life and is best characterised by the key features - ethnography, holism, comparison and theory - which are present in virtually all anthropological research.

1.2 Social Anthropology's central mode of research is long-term ethnographic fieldwork.

1.3 Social Anthropology works with a creative tension between empirical particularity and attention to the broadest theoretical questions about what it means to be a human social agent. Its theory, method and analysis are mutually constitutive. The discipline is notable for its intense focus on fine-grained empirical detail. Its researchers achieve high levels of linguistic and cultural competence through long periods of fieldwork, complemented by ancillary sources of documentary information. Social anthropologists locate their evidence in as broad a context as possible, and the data they collect usually extend beyond the original focus of interest and specific research topic.

1.4 The discipline's historical concern with non-Western social groups means that forms of social research which take such groups as their object of study also fall within the purview of Social Anthropology (e.g. the study of ethnographic museum collections, ethnohistory, ethnobotany). Specialist training in some of these areas is covered in Section 5.

Preparation

2.1 Before starting research training, students usually should have a thorough knowledge of the history of the discipline, including exposure to a wide range of theoretical positions and sustained engagement with published ethnography. They normally will have either studied the subject to an advanced level within the framework of their first degree, or have completed a master's course in Social Anthropology (or a master's in a sub-discipline such as Medical Anthropology). In some cases, and on some programmes, it may be possible for students with limited previous academic exposure to Social Anthropology to start research training within the framework of a master's degree; in these cases, a substantial part of the training programme will continue into the first and subsequent years of the research.

Subject Specific Domains of Expertise

3.1 Any programme of research training in Social Anthropology must give due recognition to the following issues:

3.1.1 Anthropological methodologies are rigorous and thorough, ultimately learned as craft skills through experience, but resting upon a solid epistemological basis taught through a combination of classroom discussion and hands-on practical exercises. The two key sites of anthropological training are the research seminar and the field itself.

3.1.2 Anthropological practice rests upon a critical and reflexive approach to knowledge, recognising that the construction and conduct of a programme of research are themselves social and cultural activities. The best anthropological research is sensitive to the possibility of unanticipated findings or events in the course of fieldwork; training should prepare students for the processual nature of fieldwork, following social and cultural scenarios as they unfold, and allowing them to revisit and reformulate their research objectives as they proceed.

3.1.3 Seminar participation trains students to follow through the process by which long-term fieldwork contributes to social scientific knowledge, teaching them to isolate the theoretical questions that inform particular pieces of ethnography, and the kinds of empirical evidence that can be most effectively deployed to address those questions.

3.1.4 Unfamiliarity, which derives from the discipline's comparative dimension and is most starkly encountered as an issue during fieldwork, is Social Anthropology's first point of departure. Students learn to generate their own critiques of taken-for-granted concepts about people, culture and society, defamiliarising their own cultural assumptions. Fieldwork places demands on the researcher; this may generate a high degree of commitment, but may also involve personal and emotional costs (for which training should provide some preparation).

3.2 The outcomes of anthropological training include general and transferable skills such as critical and flexible judgement, interpersonal and collaborative skills, language acquisition, familiarity with survey methods, interviewing skills and social documentation, but also discipline-specific skills of a more subtle kind. Chief among these are skills in social understanding, awareness of context, cultural translation and mediation, and the ability to represent diverse epistemologies within a single frame. Social anthropologists are trained to be sensitive to changing individual, organisational and cultural concerns, and can be expected to work flexibly with other professionals in a wide range of social and cultural settings. Their skills are deployed within courts of law, health and social services, aid and development programmes, local government, the media, multinational companies, and other organisations which recruit and employ anthropologists specifically because of their disciplinary training.

Research Methods Training

4.1 Data collection and data analysis are inseparable aspects of the process of ethnographic fieldwork. There are a number of general competencies which should be acquired by all research students in Social Anthropology, as well as more narrowly relevant sub-disciplinary skills (see Section 5). Of the general competencies, some are best acquired before fieldwork, some during fieldwork and some after fieldwork; training should be structured to accommodate this on-going need for new practical skills.

4.1.1 *Pre-fieldwork year*: Students in the initial training period of their research usually need to concentrate on: training in ethnographic and other research methods; preliminary language training (where necessary and possible); familiarity with a regional literature (including historical, geographical, demographic, political, etc., aspects) and relevant areas of social and cultural theory; logistical arrangements (e.g. choice of site, local institutional affiliations, ethical committees, visas and permissions, precautionary health measures).

4.1.2 *Research proposal/dissertation*: This constitutes the main work in which students demonstrate the extent to which they have achieved the crucial learning outcomes from the first year of research training. It should contain the following components: a review of the literature, both theoretical and ethnographic; an outline of the specific questions to be addressed, methods to be employed, and the expected contribution of the study to anthropological understanding; a discussion of the practical, political and ethical issues affecting the conduct of the research; a presentation of the schedule for the research, and its estimated budget. The proposal should be evaluated by a formal academic procedure, prior to, and as a condition for, the student's going on to fieldwork (or other data collection).

4.1.3 *Specific Methods Training*: The methodologies anthropologists adopt are closely shaped by the way they understand social knowledge and its representation. Students should understand the epistemological implications of their choice of methods, and training should address the following broad areas, although the content of each area will vary to suit the different needs of individual students:

- *Qualitative Methods:* Ethnographic method and long-term participant observation (training in this area should have a significant practical component); participatory research methodologies; interviewing, focus groups, life histories; archival research; field notes (including audio-visual methods of recording and analysing data and use of appropriate software for handling qualitative data); and interpretive/symbolic modes of analysis

- *Ethical and Political Issues:* All students should consult the Ethical Guidelines of the Association of Social Anthropologists of Great Britain and the Commonwealth. They should understand the principles of informed consent, especially in relation to groups who may not be in a position to give such consent (e.g. children, those with no prior experience of researchers or the media; the ill); debate in depth the different aspects of relations with informants and research collaborators; and grasp the legal and ethical issues at stake concerning intellectual property rights, ownership of data and copyright. Especially when dealing with marginal groups, students should be aware of ways in which they can train and assist the people they are studying as part of the research process

- *Quantitative Methods:* Most social anthropological research involves the use of numerical data: e.g. assessment of the basic demographic profile of the population under study, the compilation of frequency tables, or the use of other simple descriptive statistics. Training should include competence in the presentation and critical interpretation of this level of numerical data.

- *Research Design:* Unfamiliarity of context, and the processual nature of anthropological research itself, mean that formal research design has relatively limited use in anthropological training; nevertheless, students need to learn how to relate evidence to theory, and how to select the most appropriate methodology for the evidence required at particular points in their field research

- *Communication of Research Results:* Throughout their research, students need to be aware of the requirements and expectations of different audiences with regard to their work, in both academic and non-academic (including policy-related) fields, and must develop appropriate communication skills for the presentation of anthropological arguments to lay audiences

- *Project Management and Team-Working:* Anthropological research frequently involves collaboration with research subjects, local organisations and non-governmental organisation, and skills in managing inter-personal and inter-cultural relations are central to many careers in which anthropological training can be applied. Their inclusion in pre- and post-fieldwork training therefore maximises the potential long-term value of the fieldwork experience for the further development of the individual's competency

5.1 *Specialist Social Anthropology Training*

Many of the sub-fields of Social Anthropology research are inter-disciplinary, representing cross-cultural anthropological perspectives on issues that are also of interest to practitioners of other disciplines. In cases where research training is provided within the framework of a master's degree in a particular sub-field, training will combine elements from the Social Anthropology guidelines above with more specialised methods of collection and analysis appropriate to the sub-field in question.

5.1.1 *Visual Anthropology:* Technologies of image production, storage and reproduction, including post-production techniques and copyright issues; the politics and ethics of visual image production, including local media production; photographic and video elicitation; and visual analysis, including narrative versus informational aspects of representation.

5.1.2 *Material Culture and Museology:* Handling, storing and recording material assemblages; facilitating and documenting local ethnographic collections; awareness of ethical issues and national and international legislation surrounding the making of ethnographic collections and images of them; object analysis, issues of representation, aesthetics (Western and local), objectification and consumption.

5.1.3 *Anthropological Computing:* Data collection and storage, including entering and indexing field notes and other field data; database construction and use (flatfile and relational); digital text analysis, simulations and image manipulation for field elicitation and subsequent analysis; key word and code correlation; data bias and awareness of distinction between data and knowledge; methods of digital dissemination.

5.1.4 *Environmental Anthropology:* Knowledge of both qualitative and quantitative methods for collecting data on human activity patterns and food intake, and techniques for collecting biological specimens in relation to their cultural significance; ability to identify and curate specimens, and to use relevant statistical skills to manipulate a nutritional, ecological or ethnobiological data set.

5.1.5 *Medical Anthropology:* Awareness of constructs of 'patients' and competing ideas about health, issues in cognate social and health sciences (particularly in the understanding of quantitative issues and narrative); the possible uses of data, including ownership; the effects of rapid change in, for example, medical technologies, development policies and international financing; their relationships to competing and plural definitions of health.

5.1.6 *Development Anthropology:* Managing interpersonal relations and establishment of frameworks that facilitate participation, responsibility and empowerment: awareness of the concerns of different stakeholders in the context of project management and the problems of eliciting the concerns of different groups within a population of project beneficiaries; awareness of alternative approaches to the development process and an understanding of the broader power relationships that influence project outcomes.

Training for data collection and analysis may require greater competence in quantitative techniques than in other sub-fields of anthropology, but this is not the principal area of competence required for work in social development.

5.1.7 *Linguistic Anthropology:* Formal linguistic analysis and sociolinguistics, with specific training reflecting the extent to which the student's research focuses on the recording and analysis of a language in its own right or its context of use in social communication and/or the pragmatics of language use or change.

Further specific training in methodology and analysis might be needed in other specialist areas of anthropological research, such as cognitive anthropology, where an appreciation of approaches in experimental psychology is likely to be necessary, and for research on specific kinds of data subjects, such as children or disabled people.

F14 Social Policy

The Nature of the Area

1. 1 Social Policy and Health Studies draw on a wide range of professional and disciplinary backgrounds. Students are expected to use material from a variety of disciplines, and to be able to work in a multiplicity of formal and informal research settings, with differing relationships to the policy process, often alongside people with different orientations to research. Each of the three subject areas has its specific own sub-areas with their own needs and intellectual traditions. Each also makes strong links with particular other disciplines, including, economics, social history, psychology, law, politics, sociology and medicine. This should be reflected in specific training provision.

1. 2 Students undertaking research in these fields study societies, their institutions, and processes within them, and the impacts these have on individuals, groups and communities. These experiences are characterised by important differences in terms of gender, 'race' and ethnicity, physical and mental capacity and disability, sexuality, age, culture, beliefs and values, differences which also may be reflected in the experience and cultures of students themselves.

1. 3 These subject specific guidelines apply broadly to all three subject areas although specific examples are provided for individual subject areas as appropriate and there may be differing degrees of emphasis within these areas.

Preparation

2.1 Social Policy and Health Studies benefit from the wide variety of expertise and personal and professional experience brought to research by their students. Some may have specific qualifications while others may have a non-academic but policy-, practice- or user-oriented background and may come with substantial professional expertise. Many will have detailed knowledge of a substantive area, and an awareness of working with ethical dilemmas in practice.

2. 2 There is no expectation that students will come to research training with a common knowledge base. However, all students should demonstrate analytical capacity, be able to deal with abstract concepts, communicate effectively (verbally and/or in writing as appropriate to their personal circumstances), and have the potential for independent, critical and original thought. Students will usually have a good honours degree or equivalent training or experience, though not necessarily in the cognate disciplines of the three subjects. The needs - and experiences - of part-time students, should be given specific attention in research training provision.

Subject Specific Domains of Expertise

3. 1 Each subject area is mainly applied as well as being interdisciplinary, focusing on problems of the distribution of health, welfare and well-being within societies. Research requires the rigorous linking of theoretical analysis with empirical enquiry; the

identification and understanding of different value positions; an appreciation of the interaction and interdependence between theory and the operation and impact of social and health interventions and policies. Research in these subjects often involves bringing about change and/or investigating ethically sensitive issues such as the personal circumstances of individuals, groups and communities. Research which focuses on the delivery of services will also require skills in negotiating access with service users and practitioners, and for researchers to distinguish between their roles as practitioner and as researcher.

3. 2 Given the subject areas' multi-disciplinary basis, students require understanding of the epistemological and theoretical debates within the social sciences and how these relate to research practice; a recognition of how various philosophical and knowledge bases contribute to the understanding and shaping of research questions in one or more of the three subjects; and an ability to locate the research process within an explicitly socio-political context. Students should develop the capacity to work collaboratively with other disciplines, practitioners and users.

3. 3 Students should be able critically to engage with key relevant conceptual debates and, where relevant, with important contemporary practice debates. For research in a policy-related context, key concepts might include community, dependency, discretion, efficiency, effectiveness, equality, rights, citizenship, social justice, living standards, social exclusion, inequalities, regulation, freedom, need, risk and empowerment, in the context of the provision of health and welfare by the state, the market, the occupational, voluntary and informal sectors. For those concerned with research in practice settings, issues of participation, user involvement and control or clinical effectiveness are likely to be significant. An awareness of cross-national and comparative perspectives, as well as national perspectives, will be important. Students must also learn how to apply their knowledge to a specific research context within their subject of interest and to investigate in greater depth the concepts and issues that pertain to their own particular subject area or sub-area.

3. 4 Although the precise emphasis will vary from subject to subject within the two areas, and depending on the centrality of policy or practice concerns, research training for social policy, social work or health studies will need to be set within some or all of the following broad intellectual contexts:

- explanatory frameworks that have played a major part in the study of the subject
- an understanding of the relationship between major social trends (e.g., demographic change and labour market change) and social and health policy and practice
- an understanding of the importance of institutions and institutional mechanisms, including organisational and professional groups, to the delivery of health and welfare
- an appreciation of the relationship between economic, social and health policies
- an understanding of the politics of policy and practice, including the ability critically to appraise the development, implementation and outcomes of policy change, and practice
- a capacity to evaluate major debates (e.g. about globalisation and convergence)
- knowledge of the cause, development and differential experience of social and health problems (such as poverty, family breakdown or illness) among different social groups

- understanding of the origins and impacts of discrimination and oppression
- the consequences and impacts of policies, practices and technological advances on individuals, groups and communities and the ways in which users understand, experience or shape policy and practice

Research Methods Training

4. 1 Students undertaking research in these subjects study and interact with people as individuals and as members of groups, communities and societies. Research training must give students a clear understanding of the ways in which difference and diversity shape research questions, and must equip them with the skills, insights and sensitivity to understand and reflect issues of difference and diversity at every stage of the research process. It may also reflect a concern with engaging with oppression and working in emancipatory ways. The research process itself should generally be reflexive, allowing for adjustment in design and methodology(ies) in the light of emerging understandings.

4. 2 Students should be conversant with and work within the guidelines published by the appropriate professional bodies, for both the ethical and the safe conduct of research. A concern with the ethics of social research will help students to ask why research is necessary in their field of study, and whether and how it can most sensitively be carried out. Students should also understand the need to incorporate the perspective of research users - whether funders, commissioners, policy actors, service users or the general public - in an appropriate manner, and to appreciate the tensions this may produce within the research process particularly where it is developed within a participatory paradigm.

Research design

4.3 Research in these subject areas requires the enhancement of some skills in research design referred to in the generic research training guidelines, and attention to some forms of research design less emphasised in other subject areas. These differences stem largely from the philosophical, political, ethical and technical challenges associated with the need to investigate and make sense of a range of complex social processes and the responses of differing social actors.

4.4 Students should know how to select a research design appropriate to the question being asked and to its theoretical and/or empirical nature (these might include, e.g. case studies, longitudinal studies, action research, comparative research and experimental or quasi-experimental designs). Because of the centrality of evaluating the impact of policies, practices and interventions on the lives of individuals, groups and communities, students need to be familiar with the relative merits and limitations of designs used in evaluation research. This includes both competence in experimental methodology and/or the ability to design studies that address appropriate contextual factors and different perspectives. They need also to be able to undertake effective research in understanding organisational and social processes.

4.5 Decisions regarding research design need to take into account that research in these areas is usually conducted in a complex political and social context. Power differentials between potential stakeholders, including students themselves, normally dictate that the latter should understand and respond to the contexts in which they operate, throughout the entire research process. This will require an ability effectively to involve or respond

to the demands of key stakeholders, particularly users, in research design, in identifying appropriate sources of data, and in interpreting the results of studies.

Data collection

4.6 Students should be able to identify the kinds - and, where appropriate, mix - of data needed to address specific research questions. They should be able to recognise situations where the multi-dimensional nature of a problem requires them to draw on data from a range of sources, and where a combination of types of data and methods of analysis are required. They should be familiar with sources relevant to their work of existing numerical, textual and pictorial material, research and legislative reports and articles, archival and historical data, institutional and agency records (including official reports), official statistics, survey data sets and material generated by service users. Skills in literature searching and information retrieval should be developed within a multi-disciplinary context.

4.7 Students should have a clear understanding of the theoretical and ethical approaches to, and the skills required for, carrying out a systematic review, and/or the appraisal of existing research and statistical evidence, to map what is already known and appreciate different perspectives on that knowledge. Using existing material, students should also be able to identify where and why a need to collect new data arises. They should understand the different kinds of information available from, e.g. documentary sources, observation techniques, ethnographic fieldwork, group discussions, vignette exercises, in-depth structured, semi-structured or unstructured interviews, and postal and telephone questionnaire surveys. Practical skills in these methods should be accompanied by a knowledge of the processes used for data recording and the way the data are to be used in subsequent analyses.

Data analysis

4.8 Students should be competent in handling and managing both qualitative and quantitative data from a range of primary and secondary sources. They should be aware of the potential and limitations of using secondary data - both qualitative interview transcripts and large survey data sets - for analysis, and of the complexities of dealing with comparative data. Skills in interpreting data should be developed alongside more formal analytical skills.

4.9 Students should be familiar with analytical techniques appropriate to different kinds of data and with methods for initial exploratory analysis. For textual and other qualitative data, they should understand how to choose appropriate methods for systematic analysis. They should be aware of the advantages and disadvantages of using computer-assisted packages for data handling, and of techniques for 'cleaning' data prior to analysis.

4.10 All students should be competent in the use and interpretation of general descriptive and inferential statistics and students in particular subject areas should be familiar with more advanced techniques relevant to those areas, e.g. epidemiological and longitudinal techniques in health studies, event history and time series analysis in social work studies, and linear modelling techniques in social policy. Computer skills are essential for statistical analysis of large quantitative data sets. Students should understand the underlying principles of the statistical techniques themselves and be aware of the social and organisational construction of statistics and the need for their careful interpretation.

Use and dissemination of research

4.11 Research in Social Policy and Health Studies can play an important part in evidence-based public policy-making and practice. Students should have an understanding of the relationship of research to the formation, implementation and evaluation of policy and practice. They should be aware of how research is commissioned and funded, and the possibilities and problems involved in attempting to influence policy and practice change alongside, or on behalf of, research users.

4.12 The definition of 'users' remains an area for debate. Nevertheless, students should recognise the forms of relationship existing between researchers and the agencies (including government bodies) commissioning or funding research, other agencies responsible for dealing with policy change in practice, and the people whose daily lives are affected by such change. Students need to develop communication skills to enable them to disseminate research findings in a range of formats appropriate to different audiences - academics, policy-makers, practitioners, managers, service users and the general public and to involve users where appropriate.

F15 Social Work

The Nature of the Area

1.1 Social Work both in the UK and internationally, has been defined as a profession that 'promotes social change, problem solving in human relationships and the empowerment and liberation of people to enhance social justice.' [1] Accordingly, social work takes a variety of forms and engages with a broad range of individuals, groups and communities. The scope of social work research is equally broad and requires researchers to be aware of, and able to engage with a variety of disciplines in a range of settings, often working alongside those with different ideas of what social work and social work research are and what each is intended to achieve. The diversity and complexity of social work as a form of practice and as a field of enquiry should be reflected in specific training provision.

1.2 The focus of social work research, is often on those with asymmetrical, stressful or divergent relationships with their fellow citizens, the formal agencies of the local or national state and the formal and informal institutions, processes and structures of the communities and societies in which they live. This requires social work researchers to be aware of and responsive to differences that arise through the lived experience of gender, race, ethnicity, physical and mental capacity and disability, sexuality, age, culture, beliefs and values. Research training should enable students to recognise the moral and political contexts in which social work is routinely practiced. The contexts themselves may be specific subjects of enquiry and research of course.

Preparation

2.1 Social work research may attract individuals from a wide variety of professional backgrounds, including those with high-level qualifications (a good honours degree or equivalent). Those qualifications may draw on a range of disciplines drawn from the human or social sciences, or from elsewhere, and which may be associated with different traditions of scholarship and orientations towards research. Students will typically have completed qualifying level social work training and in some cases postqualifying work up to masters level. A high proportion will possess interviewing skills, competence in making complex judgements, experience of inter-professional working, and a developed understanding of user interests in research Social work research may also draw in those with little by way of formal education but with distinctive and substantial knowledge of social work practice, either as users of services, as workers in one or several social work settings, or with experience of the development of policy in relation to the provision of welfare or other human services, including health or educational services.

2.2 There can be no expectation therefore that social work students will begin their research training with a common knowledge base. However, all students must demonstrate their capacity to analyse, understand and reflect upon the complex nature of social work and on the ideas, theories and practices of which it is comprised. Students must be able to demonstrate their capacity to communicate effectively using the media most appropriate

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[1] Definition of Social Work, as adopted by the International Association of Schools of Social Work and the International Federation of Social Workers in July 2001 and by the British Association of Social Workers.

to their field of enquiry and their personal circumstances. Students must also demonstrate their preparedness to engage with the ethical and moral debates, issues and contexts in which social work research may take place. All students must be able to demonstrate their capacity for independent, critical and original thought. Many Social Work students are likely to be actively engaged in the pursuit of their profession during the course of their study and particular attention must be paid to the needs of part-time students.

Subject Specific Domains of Experience

3.1 Social work research is largely but not exclusively, an applied academic subject which is interdisciplinary in its orientation and which focuses on those whose circumstances, conditions and experiences call their welfare into question or which examines the routes, mechanisms and structures whereby their well-being might be better protected or promoted. Social work research may involve engagement with vulnerable populations and those who provide services to them and will involve an active awareness on the part of students of the ethically sensitive nature of their enquiry and its potential to intrude on the privacy, rights and interests of individuals and groups.

3.2 As such, training will need to foster the integration of contextual, analytic, explanatory and practical understandings of social work. Moreover, as social work is a contested practice in terms of both its processes and its intended outcomes, students will need to appreciate the competing values, ideologies and political contexts in which their research may be carried out. They will also need to understand the role that the production and possession of knowledge plays in the structures of power and in the distribution of resources and social capital relevant to their field of enquiry. This will be particularly important in the selection of the sites and subjects of any empirical work and the way in which access and dissemination is negotiated. Where research specifically involves the participation of people who use services, researchers will need to demonstrate that they possess the necessary skills to secure informed consent to participate and to manage any conflicts of interest that may be revealed between the researcher and those providing services and those in receipt of such services.

3.3 Given the multi-disciplinary basis of the subject area, students will need to understand broader epistemological and theoretical debates within the social and human sciences and how these relate to social work research practice. They will also need to recognise how the products of their research will contribute to and shape the occupational practices as well as the academic discipline of Social Work. Students will need to develop the capacity to work with a wide variety of stakeholders, especially but not exclusively with the people who user social work services.

3.4 Students should be able to engage critically with key relevant conceptual and practice debates. Key concepts from the broader social sciences may include citizenship, exclusion, disadvantage, rights, social justice, inequality, freedom, need, risk and empowerment. Students will also need to understand the relationship between public policy, legislation and professional boundaries in determining the context in which social work and Social Work research is carried out, including an understanding of aspects of the market, management, governance, accountability and regulation. In relation to research focussing on social work practice, issues of participation, user involvement, control, effectiveness and cost are likely to be important considerations. An awareness of intra- and inter-national comparative perspectives will also be important in appreciating the diversity of social work across the world and in different socio-political contexts.

3.5 In common with other related or cognate disciplines within the social and human sciences, subject to the requirements of the student's particular field of enquiry, social work research training will need to be set within some or all of the following broad intellectual contexts:

- explanatory frameworks that have played a major part in the study of the subject
- an understanding of the relationship between major social and political trends and the construction and distribution of social work services
- an understanding of the importance of formal and informal institutions and institutional mechanisms (including, for example, the state and the family) to the making and the meaning of social work services
- an appreciation of the relationship between differing professional and political agendas, policies and practices
- an understanding of the role of the lived experience of people who use services in understanding the roles and purposes of social work
- knowledge of the evolution and application of values in social work including the moral concepts of rights, responsibility, freedom and authority and of the origins and impacts of discrimination and oppression

Research Methods Training

4.1 In addition to the generic research methods training, and the general points described above students undertaking research training in social work will then be expected to demonstrate:

- Awareness of and sensitivity to the ethical and governance aspects of their research
- Reflexivity about their own and others' roles in the research process
- Knowledge of the social and political contexts and uses of research
- Knowledge of and sensitivity to conducting research in emancipatory ways

4.2 Students undertaking research in social work study and interact with people as individuals and as members of families, networks, communities and societies. Research training must therefore give students:

- A clear understanding of the ways in which inequality and diversity shape research questions, and the skills, understanding and sensitivity to understand, reflect and, where appropriate, challenge these issues at all stages of the research process.
- An understanding of the need to incorporate the perspectives of all research users in an appropriate manner, and an appreciation of the tensions this may produce within the research process, especially where it is developed within a participatory framework.
- A critical awareness of the potential and limitations of multidisciplinary and interdisciplinary approaches to social work research, and how these may usefully be integrated to further research in social work.

Research Design

4.3 Research design in social work requires the enhancement of some knowledge and skills dealt with in the generic guidelines, and attention to some less emphasized forms of

research design. Students will be expected to acquire expertise in the use and application of the methods of research outlined for generic methods training specifically in the context of social work research. Methods courses should also enhance students' awareness of distinctive methodological demands and contributions made by the social work field.

4.4 Students should know how to select a research design appropriate to the theoretical and empirical nature of their research question. Students should have a critical awareness of the conceptual status of the various designs, and of their advantages and limitations. In addition to an understanding of research design gained from the generic training, choice of design will include knowledge and skills in experimental and quasi-experimental designs, n=1 designs (i.e. single case designs), longitudinal studies, case studies, applied ethnographies, action research, intervention research and development, and evaluation designs. The centrality of evaluating policies, programmes, practices and interventions, in social work means that students need to be familiar with the relative merits and limitations of different evaluation designs.

Data Collection

4.5 Students should be able to identify, and, where appropriate, combine methods of data needed to address specific research questions. They should be able to recognize situations where the multi-dimensional nature of the problem requires them to draw on a range of sources, and where a combination of types of data and methods are required.

4.6 Students will be expected to acquire advanced level knowledge of how to apply methods of data collection in social work research. In addition to generic knowledge this will include:

- Knowledge of the scope, value and utility of archival, documentary, institutional and agency records, official statistics, and policy reports.

- Knowledge of the use as methods of data collection of life histories, group discussion methods, narrative methods, observation methods, visual images and materials, varieties of simulation methods, and telephone interviews.

4.7 Students should have a clear understanding of theoretical approaches to, and skills required for, systematic reviews appropriate to the social work field.

Data Analysis

4.8 Students will be expected to acquire and demonstrate competence in the use and application of the methods of data analysis outlined for generic research methods training, specifically in the context of social work research. They are also expected to gain knowledge of advanced techniques of data analysis and of their appropriate application to social work inquiry. Students should also be familiar with advanced techniques relevant to their research. These may include event history, time series analysis, logistic regression and meta-analysis. They also should be aware of the potential and limitations of using secondary data, both from large datasets and qualitative data archives.

4.9 Students will be expected to acquire basic skills in the use of at least one quantitative and one qualitative software data analysis package, and advanced level skills in at least one of these.

The management, use and dissemination of research

4.10 It is expected that all students will continue to receive further advanced training specific to their particular research during the research period. This will include general training in the management and utilisation of their research.

4.11 Research in social work makes an important contribution to knowledge and evidence-based practice and policy. Students should acquire an understanding of the relationship of research to the development, implementation and evaluation of social work. They should demonstrate an understanding of how their research may:

- Generate or enhance theory and knowledge about social work
- Provide impartial evidence for decision-making
- Instrumentally improve practice and organizational learning
- Highlight the quality of lived experience and advance practical wisdom
- Promote justice or social change

4.12 The concept of research users in this field includes service user interests in addition to practitioner, manager, policy staff interests and public interests. Students should recognise the different forms of relationship between researchers and agencies commissioning or funding research (including government agencies), other agencies responsible for dealing with social work, and the people whose lives are daily affected by research, policy and practice interventions. Students need to understand and have skills in applying the different forms that research utilisation may take.

F16 Socio-Legal Studies

Socio-Legal Studies

The Nature of the Area

1.1 Socio-legal Studies for ESRC purposes is an area in which generic social science skills are predominantly employed as distinguished from doctrinal and arts based approaches to legal study. Socio-legal studies modules can be found in a wide variety of academic departments. Particular specialisms in socio-legal studies are best addressed in this way. It is hoped that students will gain from the academic synergies created. This reflects the broad based nature of the field.

Preparation

2.1 Socio-legal Studies is cross-disciplinary in that it draws on basic theories and methods developed in the social science disciplines and traditional legal research skills. Students are likely to be recruited from a wide variety of disciplines.

2.2 Students who are likely to do best within Socio-legal Studies will be those who have either demonstrated or shown strong potential to think independently and critically, to deal with abstract concepts and analysis, and be able to devise research strategies and to communicate effectively in writing. Students need to have the ability to draw together ideas from different disciplines and to be able synthesize them into an integrated output. It is not expected that students will have an extensive knowledge base within Socio-legal Studies, although demonstration of potential ability to deal with broad legal and/or social science concepts is essential.

Subject specific domains of expertise

3.1 **Socio-legal Studies** covers a range of disciplinary contexts within the social sciences and law, and for example may relate the legal to the sociological, political and economic dimensions of human activity. The essence of Socio-legal research might be described as an appreciation of interdisciplinary relationships and an application of such a perspective to problems of a legal or quasi-legal nature. Some Socio-legal Studies students are likely to be interested in evaluating normative approaches within one or more social scientific contexts; for example, probing how political or economic processes and social, cultural or scientific phenomena affect the development and application of legal regulation in both a civil and criminal context at both a national and international level.

3.2 The subject area provides great scope for specialisation. Different Socio-legal Studies programmes will naturally reflect different specialist interests, but it *is* expected that teaching strategies will enable students to gain an understanding of issues that may be reflected in civil society and social policy, and indeed go beyond these to reflect broader critical and global perspectives. Research training may include material such as the following:

- Theories of regulation and enforcement patterns
- Critical approaches to legal phenomena
- History of socio-legal studies approaches
- Relevance of social and political theory for socio-legal studies
- Local/national/international and global contexts of law
- An appreciation of the distinctions between different fields of social scientific enquiry and different kinds of theoretical explanations about the form, content, processes and consequences of law (e.g. critical theory, feminist, socio-cultural, political or economic theory)
- an ability to understand legal argumentation – the use of precedent and distinctions between rules and principles
- an appreciation of the potentiality and limits of combining legal and other kinds of social scientific analysis and the methodological problems confronting such inquiry

3.3 Socio-legal scholars should be conversant with the different theoretical and philosophical perspectives which relate to these dimensions of the subject areas. Students should understand the practical implications of the major philosophical perspectives within the social sciences for theory construction, critical appraisal, evaluation, and testing. They should also understand the explanatory utility of theories, and explanatory goals in models, and should be able to appreciate how the different perspectives affect research design and the choice of data collection and modes of analysis.

Research Methods Training

Methods of Data Collection

4.1 In addition to the generic research methods training, it is desirable that students working in the areas of Socio-legal Studies should normally be expected to develop an understanding of a good proportion of the following range of methods of data collection:

- interviewing (including oral history techniques, telephone interviews and focus group interviewing)
- finding and using documents as data (including criminal and/or civil justice agency & legal records)
- observation (including participant observation)
- action/participatory research
- using legal data-bases
- the utility and limitations of cross-cultural data collection
- the utility and limitations of collecting and comparing data from different jurisdictions

4.2 Students might also be exposed to cutting-edge developments in data collection such as narrative interviewing, appreciative enquiry, reflexive methodologies, visual methodologies, virtual ethnography, computer-assisted personal interviewing (CAPI), computer assisted self-interviewing (CASI), and autoethnography.

Methods of Analysis

4.3 In addition to the generic research methods training, students working in the areas of Socio-legal Studies might be expected to develop a working knowledge of/practical experience in a range of the following (or at least a good proportion the following):

- evaluation techniques
- discourse analysis
- the use and interpretation of court, legal and administrative records and case files
- computer assisted analysis of qualitative data (e.g. NUD*IST, NVivo, Ethnograph)
- narrative interview analysis (including psycho-social analysis where relevant)
- the utility and limitations of comparative (including international) analysis
- different modes of analysis for qualitative data (e.g. thematic analysis, content analysis)
- different modes of analysis for quantitative data (e.g. SPSS) including ways of presenting such data

4.4 Students might also be exposed to cutting-edge developments in data analysis such as techniques for analysing Internet data and techniques for analysing visual data.

Ethics

4.5 In relation to research methods and analysis, Socio-legalists should consider a range of ethical issues (e.g. autonomy, informed consent, beneficence, non-maleficence, confidentiality, privacy, and ownership of research data) relating to access, fieldwork and analysis, and the utility and limitations of professional or ethical codes of practice. In particular they should be aware of their legal responsibilities under Data Protection legislation. This is an increasingly complex area (with the development of new technologies and modes of analysis) and such developments should be reflected in students' appreciation of competing philosophical and ethical positions.

F16 Socio-Legal Studies

Criminology

The Nature of the Area

1.1 The academic area of Criminology requires generic social science skills. This distinguishes the area from other forms of professional practice where the term 'Criminology' might be used (as in forensic psychology, psychiatry, policing and the management of community safety).

Preparation

2.1 Criminology is multi-disciplinary in that it draws on basic theories and methods developed in a wide range of social science disciplines and other disciplines too (including Law and History, for example). Students in Criminology are likely to be recruited from a wide variety of disciplines in the arts, humanities and social sciences, though students also come from the natural sciences and, increasingly, from the environmental and medical sciences where there is interest in the application of research in social or legal areas.

2.2 Students who are likely to do best within Criminology will be those who have either demonstrated or shown strong potential to think independently, to deal with abstract concepts and analysis, and be able to communicate effectively. Students need to have the ability to draw together ideas from different disciplines and to be able to synthesise them into an integrated output. It is not expected that students will have an extensive knowledge base within Criminology, although demonstration of potential ability to deal with broad social science concepts is essential.

Subject specific domains of expertise

3.1 Criminology has variously has been described as a 'rendezvous' subject or as a 'melting pot' of social science interests. It includes coverage of specific substantive topics such as definitions of crime, the construction and interpretation of criminal statistics, crime trends, crime causation in terms of individual, community, and societal factors, the operation of the criminal justice system, penal theory, criminal justice policy and practice, and victimisation. It also reflects broader disciplinary engagement, e.g. historical perspectives on crime and criminal justice, sociological perspectives on crime and state intervention, criminological and legal psychology, and cultural representations of crime and justice.

3.2 The broad subject area of Criminology provides great scope for specialisation. It is not intended that all students will be exposed to all the facets of these subject areas (only some of which are reflected above). Different Criminology programmes will reflect different specialist interests, but it *is* expected that teaching strategies will enable students to gain an understanding of at least some issues that may be reflected in social policy

initiatives, and go beyond these to reflect broader critical and global perspectives. Research training may include material such as the following:

- different perspectives on what crime is, on crime statistics and patterns and trends of crime and victimisation
- understanding of criminal and/or civil justice processes and legal regulation of behaviour in related organisations
- critical reading of the contribution of research to understandings of crime and justice
- an appreciation of ways in which criminological research and theory might inform social policy
- understanding of the relationship between legal and criminological domains
- competing and complementary perspectives on criminal justice interventions
- different theoretical perspectives on deviance, crime and criminal justice (e.g. sociological, psychological, legal, historical, cultural and anthropological)
- the social history of the discipline of criminology
- the relevance of classical and contemporary social theory for an understanding of crime and punishment
- competing and complementary perspectives on the intersection of criminal and civil justice policy, practice and politics in local, national and global contexts
- critical appreciation of the expansion of criminological issues in the context of globalisation
- competing and complementary political science and philosophical perspectives on the role of the state in legally regulating citizens' behaviour
- an appreciation of the distinctions between different fields of social scientific enquiry and different kinds of theoretical explanations about the form, content, processes and consequences of enquiry (e.g. critical theory, feminist, socio-cultural, or economic theory)
- an appreciation of both the potential, and the limits of combining criminological and other kinds of social scientific analysis and the methodological problems confronting such inquiry

Research Methods Training:

4.1 In addition to demonstrating knowledge of, and ability to critically appraise existing literature and research in a criminological field, criminologists are expected to demonstrate competence in actually performing research tasks. It is expected that any training programme will include opportunities to develop more advanced skills in both quantitative and qualitative analysis than might be offered in the initial stage of doctoral training. The ESRC's index of research methods training in the social sciences will no doubt be of use to course organisers. This can be accessed from the ESRC website then to the Research Methods Programme link.

Research Design:

4.2 Criminologists should be conversant with the different theoretical and philosophical perspectives that relate to key dimensions of the subject area. Students should understand the practical implications of the major philosophical perspectives within the social sciences for research design: theory testing, theory construction, critical appraisal, and evaluation, for instance. It follows that students should be able to make links between overall research design and the choice of data collection and modes of analysis in order to

be able to choose between methodological approaches in full awareness of their advantages and limitations for addressing particular problems and questions.

Methods of Data Collection:

4.3 By the end of their training students working in Criminology should normally be expected to have a general grasp of the advantages and disadvantages of the following range of methods of data collection (including appreciation of issues relating to measurement error and missing data):

- questionnaire and survey design
- experimental and quasi-experimental data collection
- interviewing (including oral history techniques, telephone interviews and focus group interviewing; structured, semi-structured and unstructured interviews)
- finding and using archives and documents and other secondary material
- observation (including participant observation)
- action/participatory research
- cross-cultural data collection

Training might also be given in the construction of new data sets where appropriate.

At a minimum, students should develop a working knowledge (involving hands-on experience) of *at least* one quantitative and one qualitative data collection method mentioned above. This is to demonstrate that the most appropriate data collection method will be chosen rather than the one that feels most comfortable for the individual researcher.

4.4 It is expected that students will also be exposed to cutting-edge developments in data collection such as narrative interviewing, appreciative enquiry, visual methodologies, the use of the Internet, virtual ethnography, computer-assisted personal interviewing (CAPI), computer assisted self-interviewing (CASI), and autoethnography, and GIS data (Geographical Information Systems).

Methods of Analysis:

4.5 Here we broadly reiterate the requirements of the generic research methods training set out in Section E of the Guidelines. Students working in the area of Criminology might be expected to demonstrate proficiency in:

* analysing data sets from large scale surveys and longitudinal or cross-sectional studies and qualitative data sets.
* The use, interpretation and presentation of techniques for the statistical analysis of data (including descriptive statistics; measures of central tendency and dispersion; exploratory data analysis; statistical inference and measures of association); students should also be able to demonstrate competence in using, modelling and interpreting multivariate statistical data (e.g. logistic regression and log-linear models)
* the use, interpretation and presentation of an appropriate and justified selection of techniques for the analysis of qualitative data emerging from focus groups; observation and participant observation; structured and unstructured interviews; archives and documents (content analysis, discourse analysis, and other innovative techniques)

In addition, by the end of their training students in Criminology should be able to demonstrate awareness of:

- computer assisted analysis of qualitative data (e.g. NUD*IST, NVivo, Ethnograph and similar software programmes)
- the utility and limitations of comparative (including international) analysis

Students might also be exposed to cutting-edge developments in data analysis such as techniques for analysing GIS data, Internet data and visual data for example.

The use and dissemination of research

4.6 Research in Criminology can play an important part in evidence-based public policy-making and practice. Students should have an understanding of the relationship of research to the formation, implementation and evaluation of policy and practice. They should be aware of the different ways in which research is commissioned and funded, and the possibilities and problems involved in attempting to influence policy and practice change alongside, or on behalf of, research users.

Ethics

4.7 In relation to research methods and analysis, Criminologists should consider a range of ethical issues (e.g. autonomy, informed consent, beneficence, non-maleficence, confidentiality, privacy, and ownership of research data for example) relating to access, fieldwork and analysis, and the utility and limitations of professional or ethical codes of practice. In particular they should be aware of their legal responsibilities under Data Protection legislation. Criminology is an increasingly complex subject area (with the development of new technologies and modes of analysis) and such developments should be reflected in students' appreciation of ethical issues.

F17 Sociology

Sociology

The Nature of the Area

1.1 Sociology as a subject potentially encompasses the examination and analysis of all aspects of social life and social relations, its distinctiveness arising from its focus on the social and in the approaches to understanding the social that it deploys. Sociology seeks to examine and analyse how societies, cultures, institutions and practices came into being, how they are currently organised and constituted and how they are changing.

1.2 There are separate Guidelines for the cognate areas of Cultural and Media Studies, and of Women and Gender Studies.

Preparation

2.1 Students commencing their research training in Sociology normally will have either a first degree or a master's degree in one or more of the social sciences or related areas. They will also normally have had training either at a first degree or master's level in research methods.

Subject Specific Domains of Expertise

3.1 Students pursuing research training in Sociology will be expected to acquire advanced knowledge of approaches to, and analysis of:

- the epistemological and ontological questions that underpin sociological research
- the range of sociological theories that have shaped, and continue to shape, Sociology as a discipline and the practical and methodological implications of such theories for research
- the interrelation between individuals and societies and between history, biography and social change
- social diversity, social division and social inequality

3.2 Students will also be expected to:

- have advanced knowledge of the use and value of comparative research both within and across societies
- become skilled in the rigorous formulation of sociologically informed research questions and their translation into practical research designs

Research Methods Training

4.1 In addition to the generic research methods training, students undertaking research training in Sociology are expected to show:

- awareness of and sensitivity to the ethical aspects of research
- reflexivity about their own and others' roles as social researchers
- knowledge of the social and political context and uses of research

Methods of data collection and analysis

4.2 Students will be expected to acquire expertise in the use and application of the methods of data collection and analysis outlined for generic research methods training specifically in the context of sociological research. In addition, they will be expected to have:

- knowledge of the range, value and utility as sources of data for sociological research of archival, documentary and historical data, of life stories, and of visual images and materials
- knowledge of the use as methods of data collection in sociological research of ethnographic methods, case studies and group discussion
- skills in the use of at least one quantitative and one qualitative software package
- knowledge of advanced techniques of data analysis and of their appropriate application to sociological inquiry, including multivariate analysis (e.g. logistic regression and log-linear models) and techniques for analysing qualitative data (e.g. discourse analysis and conversation analysis)

Further Advanced Training

4.3 It is expected that all students will continue to receive further training specific to their particular research. This will also include general training in the management of their research and the dissemination of their findings to a variety of audiences.

F17 Sociology

Cultural and Media Studies

Nature of the Area

1.1 This subject area is concerned with the investigation and analysis of the social, historical, and cultural aspects of the media and more broadly of contemporary culture. It will include work within media studies, cultural studies, film and television studies, and journalism as fields of academic inquiry. These fields inevitably straddle the boundaries between social science and humanities, but for purposes of research training supported by the ESRC, there will be a presumption of a leaning towards social science methods and foundations. These guidelines treat cultural and media studies as a single field, but it is recognised that, to some extent, these two areas of studies have their own distinct literatures and research traditions and these will be reflected in the varied means in which the guidelines are followed. It is expected that students will be provided with broad training across the range of research traditions and approaches.

1.2 For the purposes of these Guidelines, Cultural and Media Studies is an area of research training within the subject area of Sociology and these guidelines are based on the Sociology guidelines with appropriate modifications.

Preparation

2.1 Students commencing research training in Cultural and Media Studies normally will have either a first degree or a master's degree in one or more of the social sciences, or in Cultural or Media Studies or in similar areas which include training in relevant research methods.

Subject Specific Domains of Expertise

3.1 Students pursuing research training in Cultural and Media Studies will be expected to acquire knowledge of approaches to and analysis of:

- the epistemological and ontological questions and debates that underpin research in these areas
- the range of theories within the social sciences and humanities that have shaped, and continue to shape, research into questions of media and cultural analysis and the practical and methodological implications of such theories for research
- the interrelation between individuals and societies and between history, biography and social change, and the significance of culture and media for these
- social diversity, social division and social inequality, and the forms of cultural and mediated expression associated with these facets of social life

3.2 Students will also be expected to:

- have knowledge of the use and value of comparative research both within and across societies
- become competent in the rigorous formulation of research questions and their translation into practical research designs

Research Methods Training

4.1 In addition to the generic research methods training, students undertaking research training in Cultural and Media Studies are expected to show:

- awareness of and sensitivity to the ethical aspects of research
- reflexivity about their own and others' roles as social researchers
- knowledge of the social and political context and uses of research

Methods of data collection and analysis

4.2 Students will be expected to acquire specific expertise in the use and application of the methods of data collection and analysis outlined for generic research methods training specifically in the context of research in cultural and media studies. In addition, they will be expected to have:

- knowledge of the range, value and utility of sources of data for research in cultural and media studies of archival, documentary and historical data, of life stories, and of visual images and materials, including audio-visual and digital sources
- knowledge of the use as methods of data collection in cultural and media studies of ethnographic fieldwork, case studies and group discussion
- knowledge of the different approaches and methods required for the collection, management, recording, and analysis of cultural and media texts, including both methodological issues and questions of access and copyright
- knowledge of advanced techniques of data analysis and of their appropriate application to cultural and media studies research, including multivariate analysis (e.g. logistic regression and log-linear models) and techniques for analysing qualitative data (e.g. discourse analysis and conversation analysis)

Further Advanced Training

4.3 It is expected that all students will continue to receive further training specific to their particular research. This will also include general training in the management of their research and the dissemination of their findings to a variety of audiences.

F17 Sociolgy

Women and Gender Studies

Nature of the Area

1.1 This subject area is not a single discipline but an inter-disciplinary field of study and is concerned with the investigation and analysis of the social, historical, cultural, political, philosophical and literary aspects of women and gender. It will include work within sociology, history, comparative literature, philosophy and cultural studies as fields of academic inquiry. These fields inevitably straddle the boundaries between social science and humanities, but for purposes of research training supported by the ESRC, there will be a presumption of a leaning towards social science methods and foundations.

1.2 For the purposes of these Guidelines, Women and Gender Studies is an area of research training within the subject area of Sociology and these guidelines are based on the Sociology guidelines with appropriate modifications.

Preparation

2.1 Students commencing research training in Women and Gender Studies normally will have either a first degree or a master's degree in one or more of the social sciences, or in Women and Gender Studies or similar areas which include training in relevant research methods. For research training supported by the ESRC, students will typically have a first degree in the social sciences.

Subject Specific Domains of Expertise

3.1 Students pursuing research training in Women and Gender Studies will be expected to acquire knowledge of approaches to and analysis of:

- the epistemological and ontological questions and debates that underpin research in these areas
- the range of theories within the social sciences and humanities that have shaped, and continue to shape research into questions of women and gender studies and the practical and methodological implications of such theories for research
- the interrelation between individuals as gendered actors and societies and between history, biography and social change
- social diversity, social division and social inequality, and particularly the gendered forms and expressions associated with these facets of social life

3.2 Students will also be expected to:

- have knowledge of the use and value of comparative research both within and across societies

- become competent in the rigorous formulation of research questions and their translation into practical research designs

Research Methods Training

4.1 In addition to the generic research methods training, students undertaking research training in Women and Gender Studies are expected to show:

- awareness of and sensitivity to the ethical aspects of research
- reflexivity about their own and others' roles as social researchers
- knowledge of the social and political context and uses of research

Methods of data collection and analysis

4.2 Students will be expected to acquire specific expertise in the use and application of the methods of data collection and analysis outlined for generic research methods training specifically in the context of research in women and gender studies. In addition, they will be expected to have:

- knowledge of the range, value and utility as sources of data for research in women and gender studies of archival, documentary and historical data, of life stories and of visual images and materials
- knowledge of the use as methods of collecting data in women and gender studies of ethnographic fieldwork, case studies and group discussion, and of the selection of materials for visual and literary analysis
- skills in the use of at least one quantitative and one qualitative software package
- knowledge of advanced techniques of data analysis and their appropriate application to research in gender and women studies, including multivariate analysis (e.g. logistic regression and log-linear models) and techniques for analysing qualitative data (e.g. discourse analysis and conversation analysis)

Further Advanced Training

4.3 It is expected that all students will continue to receive further training specific to their particular research. This will also include general training in the management of their research and the dissemination of their findings to a variety of audiences.

F18 Statistics, Methods and Computing

The Nature of the Area

1.1 This area is concerned with methodological research, for example, the development of a new method for Internet-based surveys or a comparative study of different approaches to analysing textual data. Such research may include the development and refinement of new research methods; the evaluation and refinement of existing research methods; the application of research methods to empirical data, where the research is driven primarily by methodological not substantive concerns; the inter-relation and/or triangulation of different methods; and the epistemological and logical foundations of research methods.

1.2 The term research methods is used to refer generally to either quantitative or qualitative methods for research design, data collection or analysis in the social sciences. Social statistics is treated here as a special class of research methods. In contrast, computing is treated as an integral part of a wide range of methods in quantitative and qualitative research. For example, the management of computer files containing quantitative survey data is seen as part of the methods of social statistics rather than as a distinct computing method. This area is restricted to methods which are applicable across a range of substantive disciplines. Methodological research on methods specific to a particular discipline should be classified under that discipline, for example, the development of a new Geographical Information System should normally be classified under Human Geography (F6).

Preparation

2.1 Two different forms of training may be undertaken in this area and the necessary preparation varies accordingly.

2.1.1 *Research methods:* general training in research methods may be appropriate for students who will undertake doctoral research in any area of research methods, and who wish to proceed to careers such as researchers in social research organisations or government or as university lecturers in social science research methods. Students undertaking research training in this general area normally should have a strong background in research methods in a social science context, through an undergraduate degree in the social sciences (e.g. sociology, psychology or geography). Some training programmes may enable students to convert from other undergraduate subjects such as mathematics, chemistry, or computing.

2.1.2 *Social statistics:* more specialised training in social statistics may be appropriate for students who will undertake doctoral research involving advanced statistical methods, and who wish to proceed to a career as a social statistician. Students undertaking research training in this area will be expected to have a high level of competence in statistical theory and methods, normally through an undergraduate degree containing a substantial element of statistics.

Subject Specific Domains of Expertise

3.1 The expertise developed will vary according to the two forms of training, although a common thread is an appreciation that different research problems require different methodological approaches and that all research methods have both strengths and weaknesses.

3.1.1 *Research methods:* students will build on the competence established under their generic research methods training to develop a high level of expertise in a range of research methods by learning the theory, practice, uses and limitations of these methods; they will develop expertise in critically appraising and comparing alternative methods and in assessing which methods are appropriate in different circumstances.

3.1.2 *Social statistics:* students will build on the competence established under their generic research methods training to develop a high level of expertise in a range of statistical methods of research design, data collection and analysis, relevant to the social sciences, by learning the theory, practice, uses and limitations of these methods; they will learn which methods are appropriate in different circumstances and develop a critical appreciation of the use of statistical methods in the social sciences.

Research Methods Training

4.1 Training in this area needs to adapt not only to the potential diversity in students' backgrounds and research projects, but also to different types of expertise required in the wide range of careers in this area. The subject specific research methods training ensures a common basis of training for all students, with a broad coverage of both quantitative and qualitative methods. To allow for flexibility in addressing additional training needs, two sub-areas are distinguished. Students are required to undertake the training specified in only one of these sub-areas, in addition to undertaking the research methods training outlined above. The two headings are not mutually exclusive, but are intended to allow for different sets of training needs to be met.

4.1.1 **Research methods** This sub-area is applicable for students requiring broad training in social science methodology, to a greater depth and to greater levels of competence in individual research methods than provided in the generic research methods training. All programmes of training should cover the topics below, but some programmes may develop particular expertise in specific fields of research methodology, e.g. survey methods, qualitative data analysis, demographic methods or social science computing.

- *Methods of research design and data collection*: Students should cover: research design; sampling; field methods, e.g. observation, interviewing, documents and visual material; fieldwork relations; survey methods, including alternative modes of survey administration; integration of quantitative and qualitative methods; official statistics: production, application and interpretation; secondary analysis; ethics and the protection of the rights and welfare of research subjects and researchers; online research methods; and archiving of social science data.

- *Methods of analysis*: Students should be exposed to a range of frameworks for the analysis of social science data, e.g. grounded theory, semiotic and discourse analysis, ethnomethodological analysis and other systematic approaches to qualitative data analysis; and approaches to quantitative data analysis such as exploratory data analysis and

statistical modelling. They should acquire a high level of competence in the application of a variety of methods of both quantitative and qualitative data analysis. This training should involve appropriate software and students should acquire a broad range of skills in using computers for managing and analysing data

- In addition to training in specific procedures for research design, data collection and analysis, students should learn about the *management and conduct* of social research as a process and about reflexive research practice. They should acquire a critical perspective on different methods and an understanding of associated philosophical debates. This will involve studying the epistemology and logic of scientific analysis, including mainstream and alternative criteria of methodological and analytic quality

4.1.2 ***Social statistics*** This sub-area is applicable for students requiring training for a career as a professional social statistician. All programmes of training should meet the guidelines below, but some programmes may develop particular expertise in specific aspects of social statistics, e.g. demographic methods.

- *Methods of research design and data collection*: Students should acquire a clear understanding of: methods of research design, including experimental and quasi-experimental designs, comparative studies and longitudinal designs; ethical issues in research design; sample survey methods, including sampling, alternative modes of survey measurement, coding and editing. Students should be able to justify choices between designs and data collection methods and understand statistical issues, such as randomisation, power, sample size determination, reliability and validity, and selection effects

- *Methods of data analysis*: Students should acquire a clear understanding of the issues involved in the analysis of non-experimental studies and in the use of statistical modelling for the analysis of continuous and categorical response data. Their training should also involve specialist courses which are likely to include coverage of most of: generalised linear models; multivariate analysis; log-linear models; multilevel models; longitudinal data analysis; survival and event history analysis; structural equation models; latent variable models; handling missing data and measurement error; analysis of data from surveys with complex sampling schemes; and graphical presentation. This training should involve appropriate statistical software and students should acquire a broad range of skills in using computers for data analysis and the merging and manipulation of data sets

- In addition to acquiring competence in individual methods and an awareness of when it is appropriate to use different methods and what their limitations are, students should develop a *critical perspective* on how statistical methods are used to address substantive research issues in the social sciences. Emphasis should be placed on how to interpret results in the context of the substantive area, and on how to communicate results to non-statisticians

Appendix 1

Support for Part-Time Students and Distance Learning

1 Part-Time Studentship Awards

ESRC funded studentships which provide a training programme for full-time students are also available to part time students. These will offer funding for a period up to seven years comprising a part-time master's award, and part-time PhD award, subject to satisfactory progress. (A typical programme might comprise two year study for the master's followed by five years study for the PhD) It is also possible to change status between part-time and full-time during such an award.

Where students have already completed an appropriate research training programme, part-time awards for the PhD only for a period of 5 years are also available.

2 Distance learning training programmes

The ESRC recognises that changes in technology, working patterns and personal commitments means that distance learning is a very attractive way of undertaking postgraduate study for many people. In order to encourage such developments, the ESRC will recognise training programmes which are delivered either wholly or substantially in this way. The ESRC has decided to fund students who choose this mode of study.

3 Provision of facilities

Where part-time or distance learning programmes are available the ESRC will look for evidence of flexible arrangements for access to resources such as library and computing facilities. To overcome problems of distance, and where materials are not available on the web, institutions should also seek to negotiate access to local HEI facilities for such students.

4 Supervision

Whilst part-time students have similar supervisory needs to full-time students the way these are met must necessarily be different. The ESRC expects that the arrangements for the supervision of part-time students will ensure that students have appropriate access to supervisors (it is assumed that much of the contact will be electronic and telephone contact but provision for face-to-face contact should also be made where this is thought to be appropriate); opportunities to make presentations; attend seminars and conferences; opportunities to participate in networks (electronic or otherwise); and that there is flexibility to tailor these arrangements to the needs and circumstances of individual students. Similar consideration is expected where training is delivered through distance learning to ensure such students have equivalent opportunities and experiences to those undertaking postgraduate study within other types of programmes.

Distance learning programmes offer a very different method of delivering postgraduate training and the ESRC recognises that the normal supervisory requirements may not be wholly appropriate. The use of new technology such as email and video conferencing, voice-over Internet, and video 'phones for example is likely to support most interactions between student and supervisor. However, the ESRC also recommends that there should be provision for distance learning students to meet their supervisor(s) face to face during the course of the year where this is thought to be appropriate.

5 Residence

The needs and circumstances of part-time and distance-learning students differ from those of full-time students and it may not be practical for them to conform to a requirement to live close to their institution. In such cases institutions will need to demonstrate that part-time and distance-learning students have adequate supervision and access to facilities.

6 Research Environment

The ESRC is committed to ensuring students are able to study in a strong intellectual environment with the opportunity to interact with other students and researchers. Advanced courses and doctoral training programmes which are taught on a part-time or distance learning basis will need to demonstrate how students studying in these ways are able to take advantage of the benefits of an active research environment and what compensatory provision exists for the fact they do not have regular face-to-face contact with expert and experienced researchers. The ESRC will look positively at innovative approaches and practices using technological advances to ensure students' active participation in the research community.

7 Critical Mass

Advanced courses and doctoral training programmes which are taught on a part-time or distance learning basis need to demonstrate how a critical mass of students is achieved and, particularly how interaction with their peers is facilitated. The primary concern here is to ensure that students are able to interact with their peers. This does not necessarily have to be on a face-to-face basis, although some face-to-face interaction may be desirable from time to time.

8 Submission Rates

Part-time students are expected to submit their theses within seven years of the beginning of a five-year PhD award.

Appendix 2

Recognition of Professional Doctorates

1 Introduction

Professional doctorate programmes emerged in the UK in the early 1990s, since which time there has been a considerable growth in the number and range of programmes. The first professional doctorates in the UK in the social sciences were in the fields of business and management (DBA), education (EdD) and psychology (DClinPsy or DEdPsy), since when this form of doctorate has been developed in an increasing number of professional fields and by a growing number of universities. The ESRC welcomes the opportunity to include these programmes within the Training *Guidelines*, since professional doctorates provide a clear means for practitioners to develop and apply academic and professional knowledge and to develop their professional practice. It is recognised that as the majority of students undertaking professional doctorates are experienced and practising professionals, most students will study for the degree part-time.

The sections that follow cover the following:

• the purposes of this section of the *Guidelines* in the context of the ESRC's polices and procedures

• a discussion on the general nature of professional doctorates

• research training requirements

• key issues in the provision of professional doctorates

2 The purposes of the Guidelines in relation to Professional Doctorates

The enormous expansion of the number and type of professional doctorates within the social sciences has led to certain variability of standards and expectations in many aspects of the programmes. The ESRC considers that the professional doctorate (PD) is an exciting innovation within the field of doctoral study and recognises that it is important to seek to achieve parity between the PD and the PhD, whilst seeking to encourage innovation and support the diversity of forms of this emerging qualification. Since a distinguishing feature of the doctorate is the successful undertaking of an original piece of research, and therefore a grasp of research methods, the ESRC considers that PDs should include a certain level of research training leading to a minimum level of research competence. These guidelines therefore aim to provide a general framework to indicate how the training requirements for students undertaking professional doctorates relate to the training requirements set out in the main body of the *Postgraduate Training Guidelines*. Professional doctorates aim to develop an individual's professional practice and to support them in producing a contribution to (professional) knowledge. It is therefore important for those seeking recognition to indicate how professional knowledge is infused within and throughout the programme. The ESRC wishes to provide a framework or standard which will serve as a 'kitemark' of quality for those universities gaining recognition for their professional doctorates. It is hoped that this kitemark will serve to develop both the quality and the innovativeness of this form of research degree, and will stimulate the development of new forms of professionally oriented research

training and research methods. Whilst the ESRC will recognise professional doctorates in order to assure quality and level of training provided, it has decided not to fund students who choose this route at this stage.

3 The general nature of Professional Doctorates

Professional doctorates normally include significant elements of directed study which are subject to formal assessment. These components frequently include both the teaching of research methods, and also components related to broadening or deepening the students' understanding of the disciplines in which they are researching or providing them with appropriate transferable skills. One feature that the ESRC considers will be common to all PDs is a requirement that students submit an independent piece of research in the form of a dissertation or thesis and that this research is required to be examined by an acknowledged expert in their field of research. It is within this context that the ESRC sees the focus of a professional doctorate as a dual one – to make a contribution to both theory and practice, and to develop professional practice through making a contribution to (professional) knowledge. To achieve this the research conducted would be expected normally to involve 'real life' issues concerned with practice, often within the student's own organisation, and there would also be an expectation that students' close interaction with professionally related problems through the process of their research would lead to opportunities for personal and professional development. The measure of this development would be expected to form part of the assessment for the doctoral award. The ESRC recognises that the professional contextualisation may take different forms, depending on the profession and may range across a variety of aspects of a student's doctoral development, from differences in supervisory arrangements, to the nature and form of the curriculum, and assessment arrangements.

4 Research training requirements

The ESRC considers that research training is important for all doctoral students (i.e. those studying for PhDs and for PDs) and that for students to be appropriately prepared to carry out research and produce a doctoral level dissertation they require to be exposed to a range of research training similar to that set out in the *Postgraduate Training Guidelines*. In addition a key feature of professional doctorates will be the development of knowledge and skills which enable them make a contribution to professional practice.

1) Research Training

a) The minimum requirements for research training in professional doctorates should include a range of methodological approaches. Institutions will therefore need to indicate the nature, content and amount of formal training provision in research methods throughout the period of study. This includes access to specialist/advanced research methods and discipline knowledge as the studies progress.

b) The adequacy of arrangements for the supervision of students. This includes the level of supervision and the training and monitoring of supervisors in place in the institution.

c) The presence of an active research environment from which participants can benefit from interaction with experienced researchers and from where students are encouraged to participate in research activities that develop their thinking and skills of critical awareness.

d) A critical mass of students so that students can benefit from an interaction with peers through such activities as seminars, training events and the sharing of common facilities.
e) Satisfactory submission rates and procedures in place to monitor the progress of students.

With respect to research methods, training programmes would be expected to include how students, who may complete broadly-based professional master's programmes, are prepared for research and helped to develop a critical understanding of the disciplines and methods upon which they will be drawing. They will need to have an understanding of:

- the philosophy of research, including alternative epistemological positions to provide a context for theory construction;
- research design, including the choice of alternative techniques, the formulation of researchable questions and appropriate alternative approaches to research;
- methods of data collection and analysis, including quantitative and qualitative methods and appropriate skills;
- specialist/advanced methods relevant to the individual's own research.

2) **Contribution to Professional Practice**

With respect to the personal and professional development of students, professional doctorate programmes will be expected to have addressed the following:

a) How the research contributes to the development of the student's practice in a professional context. Example might include: involving a professional body or senior practitioner in the assessment process, or the requirement for students to produce a reflective statement which demonstrates the contribution made by the whole PD to their professional learning, or a statement describing the value students gain from any courses students are required to follow in the course of their degree and how these relate to the development of their professional understandings and knowledge.
b) The structure of the assessment and the extent to which the different elements of assessment (including the thesis) combine both academic and professional criteria

3) **Key issues in the provision of Professional Doctorates**

i) Does the Professional Doctorate provide a bridge between theory and practice and vice-versa?

Professional Doctorates represent a good opportunity to demonstrate the relationship of theory to practice as well as for practice to be questioned. A key issue for any programme will be the pedagogical philosophy and how the approach taken considers the link between theory and practice and vice-versa. This has implications for how participants are equipped to approach their research, particularly during the induction process and will include such considerations as:

- the nature of the thesis

- the type of research design that is appropriate for the study, e.g. action research, insider research and collaborative methods of enquiry and the use made of longitudinal designs and the case method.

There are also issues related to students being encouraged to produce outputs for both academic and practitioner audiences (both conference presentations as well as journal articles).

ii) Are there different arrangements for the supervision of students?

Given that the majority of students on Professional Doctorates will be studying part-time, those submitting for recognition are asked to show how the supervisory support systems are managed to meet the particular requirements of this group of students and how the very different constituency of part-time researchers are catered for within the institution. It is particularly important to consider such issues as:

a) The choice of the supervisory team.

b) The frequency of supervisory meetings.

c) Arrangements for meetings with students that are studying at a distance.

d) The support infrastructure during the research phase of their programme.

e) How quality is monitored, and student feedback considered and what provisions are made for appeals.

iii) Are there different requirements for Examination and Assessment?

It may be necessary to involve in the assessment process the voice of a professional or a professional body within the viva. In addition, the student's learning and impact on practice as professionals need to be considered. For example, in some institutions students are required to provide a critically reflective statement in addition to the thesis. Those seeking recognition are also asked to indicate how any taught coursework components link to the final assessment of the student and whether or not these elements of coursework form part of the assessment within the viva.

iv) Are there particular Ethical Issues that need to be addressed?

As the majority of students will conduct their research within their own organisational setting, students may need to consider particular ethical issues related to their research that are not always apparent in a traditional PhD. These may include issues concerned with insider research and the particular challenges posed for those researching in their own organisational context.

Appendix 3

JOINT STATEMENT OF THE RESEARCH COUNCILS'/AHRB'S SKILLS TRAINING REQUIREMENTS for research students

Introduction

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

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

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

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

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

(A) Research Skills and Techniques - to be able to demonstrate:

1. the ability to recognise and validate problems
2. original, independent and critical thinking, and the ability to develop theoretical concepts
3. a knowledge of recent advances within one's field and in related areas
4. an understanding of relevant research methodologies and techniques and their appropriate application within one's research field
5. the ability to critically analyse and evaluate one's findings and those of others
6. an ability to summarise, document, report and reflect on progress

(B) Research Environment - to be able to:

1. show a broad understanding of the context, at the national and international level, in which research takes place
2. demonstrate awareness of issues relating to the rights of other researchers, of research subjects, and of others who may be affected by the research, e.g. confidentiality, ethical issues, attribution, copyright, malpractice, ownership of data and the requirements of the Data Protection Act
3. demonstrate appreciation of standards of good research practice in their institution and/or discipline
4. understand relevant health and safety issues and demonstrate responsible working practices
5. understand the processes for funding and evaluation of research
6. justify the principles and experimental techniques used in one's own research
7. understand the process of academic or commercial exploitation of research results

(C) Research Management - to be able to:

1. apply effective project management through the setting of research goals, intermediate milestones and prioritisation of activities
2. design and execute systems for the acquisition and collation of information through the effective use of appropriate resources and equipment
3. identify and access appropriate bibliographical resources, archives, and other sources of relevant information
4. use information technology appropriately for database management, recording and presenting information

(D) Personal Effectiveness - to be able to:

1. demonstrate a willingness and ability to learn and acquire knowledge
2. be creative, innovative and original in one's approach to research
3. demonstrate flexibility and open-mindedness
4. demonstrate self-awareness and the ability to identify own training needs
5. demonstrate self-discipline, motivation, and thoroughness
6. recognise boundaries and draw upon/use sources of support as appropriate
7. show initiative, work independently and be self-reliant

(E) Communication Skills - to be able to:

1. write clearly and in a style appropriate to purpose, e.g. progress reports, published documents, thesis
2. construct coherent arguments and articulate ideas clearly to a range of audiences, formally and informally through a variety of techniques
3. constructively defend research outcomes at seminars and viva examination
4. contribute to promoting the public understanding of one's research field
5. effectively support the learning of others when involved in teaching, mentoring or demonstrating activities

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

1. develop and maintain co-operative networks and working relationships with supervisors, colleagues and peers, within the institution and the wider research community
2. understand one's behaviours and impact on others when working in and contributing to the success of formal and informal teams
3. listen, give and receive feedback and respond perceptively to others

(G) Career Management - to be able to:

1. appreciate the need for and show commitment to continued professional development
2. take ownership for and manage one's career progression, set realistic and achievable career goals, and identify and develop ways to improve employability
3. demonstrate an insight into the transferable nature of research skills to other work environments and the range of career opportunities within and outside academia
4. present one's skills, personal attributes and experiences through effective CVs, applications and interviews

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