Review of literature on the impact of working context and support on the postgraduate research student learning experience

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Executive summary

This Report is the outcome of a successful bid to the Higher Education Academy by the Institute of Education, University of London and the UK GRAD Programme for a review of research literature on:

The impact of working context and support on the postgraduate research student learning experience.

This was one of five literature reviews commissioned and co-ordinated by the Academy in summer 2005.

The report provides:

- an account of a producing a review of research in collaboration with the Evidence for Policy and Practice Information Centre (EPPI-Centre): following it guidelines, with advice from its staff, and using its software (chapter 2)
- a general map of the empirical literature that exists on the experiences of doctoral research students in the UK (chapter 3)
- an in-depth analysis of studies focusing on the viva (chapter 4)
- an indication of the implications of existing research for policy and practice and areas for future study (chapter 5).

There is also

- an associated annotated bibliography (see list in Appendix 1) of the key literature on UK research students' experiences and outcomes on Endnote software (available as a downloadable file - URL to follow); and
- a searchable bibliography on the EPPI-Centre website for future use by researchers (URL to follow).

Systematic review methodology

In carrying out the review, we adopted the approaches developed for the social sciences and education by the EPPI-Centre at the Institute of Education, following the Cochrane and Campbell collaborations in health care and social welfare. These produce a review which involves using wide-ranging and explicit strategies for searching for studies, including 'grey literature' and unpublished reports, and clear criteria for the inclusion and exclusion of studies from the review. They also involve assessments of methodological quality. That is to say, this is not a review essay on the state of the field, informed by the literature and including publications on policy and practice and 'informed opinions', but rather an overview of what reliable and valid empirical literature exists.

We started by collecting a wide range of literature on doctoral studies and we located and entered 1135 references into an Endnote file. These consisted of 415 UK studies, 334 Australian studies, 103 USA studies, 11 New Zealand studies, 10 South African studies, and 7 Canadian studies. The other 255 studies focused on (non-UK) Europe.

However, within the time-frame available we could only deal properly with studies which were research based and included material directly on postgraduate research students (home and international) within the UK.

All the 120 UK studies classified as eligible following an initial screening were down-loaded into a customised version of the specially developed EPPI-Centre systematic review software. These were then key-worded using a set of key words which we developed for this study.

A subset of 19 studies which addressed a more specific review question, developed in consultation with our advisory group, was subsequently identified from the key-wording. The question was as follows:

> *What is the impact on research students of the process of examination of a doctoral thesis by viva voce?*

These were analysed using a shortened version of the EPPI-Centre data extraction and quality assessment procedures. This review also presents the findings from these studies together with some assessment of their quality.

Findings from the main review: mapping studies of the impact of working context and support on the postgraduate research student learning experience in the UK

- The majority of studies focused on the PhD, or the PhD together with other doctorates but without exploring the differences between them.
- Research on the doctorate has usually noted the disciplinary area(s), but tended to focus disproportionately on the social sciences and (especially) Education.
- All 120 studies included students studying in universities, but a few also included research students outside HEIs.
- The majority of studies have little information on the mode of study, i.e. whether full or part-time, how students were funded or whether the mode of study was face-to-face or distance learning.
- Details of the gender of students were given in the majority of studies, but not age 'race', ethnicity, social class or disability, and very little analysis was carried out comparing students across these attributes.
- Just over half of the studies focused on the working/studying context in terms of institutional provision but there is not systematic comparison across institutions, nor between areas of the UK.
- One third of the studies focussed on pedagogy, the majority of these concerned supervision.
- Peer support was a focus of one third of the studies.
- The viva and other forms of assessment was a focus in a quarter of the studies.
- One third of the studies were concerned with outcomes, such as, completion times and rates, and employment patterns, but there was little systematic information on causes of drop out.
- The majority of the studies were not based on any discernible theoretical framework, and the majority presented mainly qualitative data.

- Generally, there has been very little research done on the students' perspective and giving students' views of the doctoral experience.

Findings from the in-depth review on the viva voce

- There is a lack of clarity on the part of examiners, supervisors and candidates about the purposes of the viva.
- The viva is perceived by both supervisors and candidates as an unpredictable process and difficult to prepare for.
- 'Mock' or practice vivas are a rare occurrence, although candidates who experienced them reported that they were useful.
- Mismatches between the research paradigms of the student and the examiner can lead to disagreement about the quality of a thesis.
- The attitude and personal conduct of examiners is a key factor in whether the viva is perceived as a positive experience, even among successful candidates.

Recommendations – review methodology

- HE researchers should specify fully the details of their sampling frame and of the individuals in their studies and justify their methodological approach (Newman and Elbourne, 2004).
- HEIs and official bodies should ensure theses and publications (including their own publications) are recorded on BEI and made available electronically.
- The Academy should consider the EPPI-Centre methodology and particularly the EPPI-Reviewer tool as a future mechanism for literature reviews.
- We recommend that this Report and supporting data is made available through the EPPI-centre site as well as from the Academy.

Recommendations – policy and practice

- This review should be the start of an on-going database of the literature relating to doctoral education for the use of researchers in this field and policymakers.
- The Academy should consider ways to periodically update the literature map for doctoral education.
- The Academy, or other funding bodies, should consider extending the in-depth review of the viva to other aspects of doctoral education.
- The current Report should be reworked into forms appropriate for different audiences, organisations representing postgraduate students, staff supporting doctoral researchers (PVCs, Directors/Deans of Graduate Schools and supervisors), and researchers with an interest in doctoral studies.

1. Introduction

This Report reviewing the research literature on:

> *The impact of working context and support on the postgraduate research student learning experience*

It was commissioned and co-ordinated by the Higher Education Academy as one of five on various aspects of higher education. It was conducted by a team at the Institute of Education University of London with support from the UK GRAD Programme, between October 2005 and April 2006. (Details of the team members can be found in Appendix 7.)

1.1 Aims and objectives of the review

- To provide a survey of the published and 'grey' research literature on the connections between research students'[1] learning experience and course outcomes and the contexts in which they work and the support they receive.
- To identify the concepts and evidence associated with the major factors influencing learning at doctoral level; and, if possible, the impact of recent policies and practices on research students' experience.
- To review systematically one specific question in the field of research students' experience, to be decided in the light of the literature available and in consultation with the Academy and an Advisory Group of users.
- To reflect on the process of conducting the review and evaluating its likely impact, and so to contribute to discussions on different methodologies for surveying literature on research (descriptive narrative or 'academic' v. detailed systematic approaches) and to guide the Academy's future approaches.

However, given the ambitious timescale and limited resources for the review, by necessity we were forced to limit the scope of the study.

This Report therefore provides:

(1) an account of the methodology we used;

(3) a list of the sources we collected, with an indication of those which fitted the rigorous selection criteria developed;

(2) a mapping of the field of research on the postgraduate research student learning experience, showing the spread of UK research; and

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[1] The UK GRAD Programme now uses '**postgraduate researcher**' instead of 'research student', arguing that the term 'researcher' gives more status and is consistent with European terminology, since many European Union doctoral candidates have employment status. The EURODOC organization on the other hand describes itself as 'the European Council of **doctoral candidates and young researchers**'; while many countries talk of '**doctoral candidates**'.

In this report we shall continue to speak of '(postgraduate) research students' because 'researcher' already identifies a specific position in UK universities (staff whose job is research); while 'postgraduate research' can also cover Masters degrees by dissertation. Not calling those registered for a degree 'students' misses a lot of the terms and conditions under which they work. There is, however, certainly an issue of the worthy designation of 'student' is currently being downgraded in the UK by treating doctoral studies as 'basic training' and under-rating the contribution doctoral candidates make to the production of original knowledge.

(4) a focus on what we know about a particular area which is of concern to the sector - viz the effects on students of the viva.

This is therefore not what commonly constitutes a literature review in academic work: locating a new study within an existing field (as can be found for instance in most PhDs). Nor is it a scholarly reflection - partial and positioned, conceptual and constructive, c.f. the essays commissioned for the Carnegie Initiative on the Doctorate in the USA (Golde et al. 2006). Rather it is a systematic review, deriving from the tradition of the Cochrane and Campbell collaborations[2] in the health care and social, behavioural and educational fields, which reviews what is known and supported by several different studies, about the effects of interventions, in order to help make well-informed policy decisions and to inform research commissioning.

Our report hopes to identify what we know about how UK students experience their doctorate, and specifically how their working context and the support they (do or do not) receive impacts on their progress. The advantage of our approach is that we employed transparent searching methods, established clear criteria for inclusion and exclusion of work, covered a lot of data sources thoroughly to find what has been researched and reported (though not as thoroughly as a full systematic review should do because of resource constraints, see on), and hence could produce a full and relatively unbiased searchable database (or at least one with its biases clearly recognisable).

But not only did we have to limit our search process due to time constraints, we were also unable to evaluate fully the quality of most of the literature, except in relation to one small area: research on the viva (described in the in-depth review in section 5). Even here we could not use the stringent criteria of a full systematic review. What this section on the viva does show, however, is the weakness of the evidence base in the field of doctoral experience. Hence one of our central recommendations is for more research on this topic in the UK since it is under-going rapid change.

1.2 Background to the review topic

UK universities are currently facing a new series of directives to recast doctoral education. Since research and knowledge production is increasingly seen as important to a country's international economic competitiveness, the British (and Australian and New Zealand) governments have sought to redefine the doctorate as a training for future researchers, rather than as primarily about the production of new knowledge or individual education (cf. the Carnegie initiative which is about 'preparing stewards of the disciplines'). The UK approach is also being promoted across the EU following the Lisbon Accord (2000) and the intergovernmental initiative aimed at creating a European Higher Education Area by 2010. The latter was agreed by the conference of European Ministers Responsible for Higher Education in Bologna (1999) and extended to doctoral education at a later conference in Berlin in 2003.

These recent changes followed swiftly upon others in the UK from the late 1980s through the 1990s, aimed at speeding completion times, improving supervision, and providing approved disciplinary methodology training. They include policy interventions aimed at raising general standards in the traditional PhD and ensuring research students get training in employment-related skills and attributes. Doctoral students will be involved in Personal Development Planning from 2005-06 and

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[2] See www.cochrane.org/ and www.campbellcollaboration.org/

Research Degree Programmes are now part of regular Quality Assurance Agency (QAA) audits. New funding arrangements for research students have also come into play, with the Funding Councils monitoring institutional completion rates and the QAA audits. There have also been proposals to concentrate research and research degrees into a smaller number of high RAE-rated HEIs. These have been resisted for the moment, especially by the former polytechnics, which have worked hard for the last decade to raise their research and doctoral teaching, profiles.

In addition to these government-originated changes, there have also been changes to the traditional PhD introduced by the universities themselves. These are aimed at increasing postgraduate numbers and in particular international student numbers. Postgraduates, both taught and research postgraduates, and international students have become essential to the sector and the largest area of growth. They have helped to bridge funding gaps and are a means of forming new relationships with local and international external partners. To this end, universities have established new forms of the doctorate from the early 1990s - professional doctorates and new modes of the traditional PhD (the New Route PhD, the PhD Plus and, with the Research Councils, the '1+3' mode and MRes). They have also developed new modes of delivery, including web enrichment of courses, use of email, and off-shore learning. Deans with responsibility for postgraduate students have formed an association, the UK Council for Graduate Education, and many universities have set up Graduate Schools and increased the support staff for research postgraduates. Since 2003, staff involved in research degree programmes have also been given support by a Research Councils funded organisation, the UKGRAD Programme, which has a central office in Cambridge and a national network of regional Hubs.

The numbers of international postgraduate students in UK universities look set to rise further. Their relative importance at both masters and doctoral level will also increase if 'home' students are discouraged from undertaking postgraduate and especially doctoral study by accrued undergraduate debts and/or the attraction of high incomes immediately after graduation in some fields (e.g. in physics or economics). Universities' external partnerships are also likely to continue to grow as research and research training occurs increasingly in a range of locations outside academe and as university researchers engage more with industry and 'end users' in interdisciplinary team-based knowledge production and corporate universities.

As doctoral study has become increasingly important to the financial health of the universities, to the sustainability of the UK academic base and ultimately to the UK economy, it is not surprising that there have been so many initiatives in recent years. However, given another emphasis of the UK government, its stress on evidence-based policy-making, it is disappointing that so few of these initiatives were based on appropriate research nor have they been adequately monitored and evaluated. Hence we hope this literature review will be useful in identifying the research base which does exist, and especially which factors within research degree programmes influence the research student's learning experience. This should highlight the many 'gaps in the field'.

The remainder of this report covers two main aspects of the literature review. Chapter 2 covers the methodological approach to the review and our reflections on the process of conducting the review. Chapters 3 covers the results of the literature review and Chapter 4 the results of the in-depth review of a particular question on the viva. Finally, Chapter 5 presents our conclusions from the study and Chapter 6 makes some recommendations.

2. The Methodological Approach

This chapter describes how we conducted the review, including:

- the stages in defining the topic (2.1)
- using the methodology developed by the Evidence for Policy and Practice Information and Co-ordinating Centre (EPPI-Centre) (2.2)
- identifying, selecting and categorising studies to provide a map of existing research on the experience of UK doctoral research students (2.3-2.5); and
- identifying and appraising studies of students' experience of the *viva voce* examination (2.6-2.9).

This chapter will be of interest to those wanting to know how the review was conducted and researchers or others particularly interested in systematic review methodology. Other readers may wish to move straight to chapter 3.

2.1 Defining the review topic 1

Our initial assumption was that there had been relatively little funded or systematic research on the doctorate in the UK the last 20 years (that is to say, since the Research Councils started to apply pressures to improve completion rates and times in 1987). We knew of a number of textbooks addressed to students – this being a major area of publishers' expansion - including some specifically for doctoral students. Many of these contain illustrative vignettes drawn from the authors' experiences. We also knew of a 'flurry' of policy statements, some of which had involved the Funding Councils in commissioning a few 'dip stick' studies to guide their decisions; and a lot of 'think pieces' by academics, reflecting in journals on the initiatives and their current and possible future consequences. We have ourselves contributed to these and to organising and participating in active discussion and exchange of 'good practice' among Deans and postgraduate student support staff in the UKCGE and UK GRAD Programme conferences and publications. Some of this good practice has also been written up and evaluated.

But our general impression was that there was not a great deal of empirical evidence on 'what works' in relation to the working context and support of the postgraduate research student learning experience, despite an active postgraduate section within the Society for Research in Higher Education. Specifically we felt that the research student voice was missing generally. Most of the existing literature is written from the perspective of (i.e. is based on the thoughts of) policy makers or HEI managers or supervisors and/or support staff. Rarely is it based on interviews with or observation or surveys of students themselves.

Because we thought there was relatively little information on what postgraduate research students (or indeed funders or employers) think about doctoral studies in the UK, we proposed to go wider afield and to include research from other countries with the 'British' doctorate. That is to say, to cover South Africa and New Zealand, and especially Australia, where there has been a substantial amount of writing on the doctorate. We also hoped to gain insights from studies of the doctorate in other countries, believing an international perspective to be important given the increasing globalisation of higher education and particularly postgraduate education. So we initially included the EU and the USA and Canada within our remit, given the North

American doctoral model's numerical dominance and the "Bologna' concerns with cross-EU practice.

We also considered and slightly rephrased the original Academy topic formulation to broaden the review to all aspects of the research degree experience:

> *What are the effects of different elements of the learning context on doctoral researchers' experiences and outcomes?*

For definitions of all these terms see Appendix 2.

2.2 EPPI-Centre Methodology

We specified in our bid that we would work with the EPPI-Centre at the Institute of Education, which specializes in 'developing and promoting participatory and user-friendly systematic reviews addressing important questions in different domains of policy, practice and research in the public interest' (EPPI-Centre mission statement).[3]

> *A systematic review is a piece of research following standard methods and stages … A review seeks to bring together and 'pool' the findings of primary research to answer a particular review question, taking steps to reduce hidden bias and 'error' at all stages of the review. The review process is designed to ensure that the product is accountable, replicable, updatable and sustainable. The systematic review approach can be used to answer any kind of review question. Clarity is needed about the question, why it is being asked and by whom, and how it will be answered. The review is carried out by the review team/group. EPPI-Centre staff provide training, technical and methodological support and quality assurance to the review team.*

This approach was supported by the Academy who wanted to conduct a meta-analysis of various modes of reviewing.

The EPPI-Centre provided us with guidance and support in their roles as institutional colleagues and because improving systematic research synthesis practice is covered by their generic funding as an ESRC National Centre for Research Methods. Members of our review group attended their three-day course on an *Introduction to Systematic Research Synthesis* and we followed their guidelines. We were given customised advice by one of their staff members, Katy Sutcliffe, and we used their specialist software EPPI-Reviewer (developed with DfES funding). In addition, Mark Newman, who co-ordinates EPPI-Centre work on HE, was a member of our Advisory Group. However, **this is not an EPPI-Centre review**. Because of time and resource constraints imposed by the tender, we could not follow all their recommended processes for completing a systematic review. The EPPI-Centre therefore does not provide any quality assurance of our activities.[4]

This review followed each of the standard stages the EPPI-Centre recommends, including the development of a protocol and rigorous internal quality assurance checks, Producing a protocol requires researchers to clarify the review question and associated definitions, and to plan how it to conduct the review (search strategies,

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[3] http://eppi.ioe.ac.uk/cms/
[4] The EPPI-Centre had itself been invited to bid for one of the Academy reviews, but although interested in systematic reviewing in the field of higher education, they declined, since in their experience a systematic review synthesis to their standards requires a substantially larger budget, of £60-80,000.

etc.) - and then to adhere to the plan. The main point at which we diverged from their standard methods was at the stage of the in-depth review of studies exploring students' experience of the Viva. The EPPI-Centre has developed tools to extract detailed data on the design and conduct of studies in order to make transparent the reliability of their findings and conclusions. Whilst we did considered the quality of studies on which the findings and recommendations of this review are based, our time-frame meant that the tool we used was much less detailed and not applied in as a systematic fashion.

Additionally, EPPI-Centre reviews require external quality assurance of key-wording and data extraction by EPPI-Centre staff, and for the report to undergo peer review and specialist editing. We had insufficient resources within the project to follow the report-related guidelines. However, our Advisory Group provided us with some element of external quality assurance.

2.3 Identification and Selection of the Literature

Initially we hand-searched higher education journals and electronic databases, making photocopies of articles and printing copies of papers, which were then filed. Each reference and details of how it had been found and where it could be accessed was entered in an Endnote file. We then followed up the lists of references in the most relevant journal articles to find books and chapters in books, which are often not on electronic databases such as the British Education Index (BEI) and the Education Resources Information Center (ERIC). We also searched websites for materials produced by organisations (including the UK Research Councils, which again are also often not on BEI) and for conference presentations. We all also searched our personal libraries and JISC mailing lists. For full details see Appendix 3.

As we worked, it became clear that there was much more material than we had anticipated (this commonly happens in systematic reviews) and we could not deal with the quantity we were recovering and recording. Three and a half months into the project we already had 777 references in an Endnote file, without having fully searched ERIC,[5] which had yielded 12,555 hits for 'doctoral'. We were therefore forced to decide to stop collecting material on the North American doctorate, partly because of differences in its system, but mainly pragmatically: because we could not deal systematically with the weight of information. However, we kept a record in the Endnote file of any North American resources which are centrally on 'the effects of the learning context on doctoral students' experiences and outcomes', in the hopes of possibly finding extra resources to follow these up.

We also later decided to exclude non-English language sources, even though members of the team can read French, German and Dutch and we were offered help from a Norwegian-speaking colleague.[6] However, we could not search systematically for non-English sources within our budget. Access to the digital libraries of Dutch universities, for instance, is only available to staff and students at universities in the Netherlands, while the Dutch database 'OCenW-databank' has not been electronically

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[5] A bibliographic database of education literature sponsored by the Institute of Education Sciences (IES) of the U.S. Department of Education
[6] Thanks to Akylina Samara.

accessible on the Internet since the beginning of 2006. 7 There was also insufficient time within the length of the project to obtain foreign material on inter-library loan.

A month from the end of the project, the Endnote file included 1135 references, consisting of 415 UK studies, 334 Australian, 103 US, 11 New Zealand, 10 South African and seven Canadian studies. The other 255 studies focused on (non-UK) Europe. This gives an indication of the importance of Australian work, but cannot be taken to reflect the spread accurately because, although at first we had collected broadly and included systematically any North American and foreign language European material on the doctoral experience we encountered, we progressively drew tighter boundaries and were more selective. We continued to collect Australian, New Zealand and South African printed references for longer, but we did not conduct the same follow up of citations and searches of websites and grey literature as we did for UK material.

Finally we decided to focus exclusively upon UK material and, within that, on material specifically on students' experience. That is to say, studies were included if they:

- Refer to doctoral level postgraduate research studies (including the M.Res) in the UK
- Are about experiences as students or in the short period after their studies
- Focus on their working/ studying/ researching/ domestic and financial context
- Are research-based: that is to say, are not merely reflective, theoretical, conceptual or philosophical accounts, but providing some kind of empirical evidence or data. This data could be quantitative or qualitative, an evaluation or a secondary analysis of data.
- Published in or after 1985, and
- Written in English.

Some studies that we excluded provided useful background material (either as a country study or as a 'think piece') and this fact was recorded in the overall Endnote file. It would therefore be possible to continue the present work and look at the other, excluded, UK sources, or to resume and complete searches for sources elsewhere in the world, because of the systematic way in which we recorded our procedures.

We also followed up the lists of references in all the texts we included, and we did one exercise using the Social Sciences Citation Index to note all the authors who had cited a key text (Delamont et al 2000), and hence whose own work might be relevant to us.

We did not have time to search as many websites as we would have liked (we had a list of at least 20 more we had wanted to search), nor to write to institutions to see if they had internal reports, nor to chase other forms of grey literature. Where we did write to a few key individuals asking for copies of papers, they often sent us other less relevant papers. We would have liked to have done more of this. We could also profitably have done a repeated search of the British Library Index of Theses, since some theses do not appear on the BEI and others have titles which are 'clever and catchy' but not revealing of their contents (Zeller and Farmer 1999).

In the end we still had around 100 references which might have been relevant (though the titles were unclear) but where we did not have the full text. We had to leave them

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7 Alternatives would be a search for Dutch articles on ERIC/BEI, limiting the search language to Dutch; or to use Google Scholar and a freely accessible database on subsidised research in the Netherlands. We did not follow these up because of time constraints.

aside because they were not readily available to us (in either the Institute of Education or University of London Senate House libraries, nor on-line. A full EPPI –Centre review would have devoted more time to following these up.

We then closed the Endnote file and screened all 415 UK texts.[8]

2.4 Selection for inclusion (screening)

Full papers were obtained for all studies that obviously meet our criteria. Where we could not be certain and had only a title and abstract, we obtained the full text and re-applied the inclusion and exclusion criteria.

To ensure consistency among the team, we conducted an initial screening exercise on a total of forty items. Three team members each read and classified ten papers, and then we compared, adjusted the criteria and re-viewed the papers and repeated the exercise until we got more than 95% agreement.

We found a total of 120 items that met all our criteria: 108 were published and 12 unpublished texts. The principle reasons why many of the 415 UK studies were not included following screening was because many studies were not research-based but were rather reflective discussions or guidebooks[9] addressed to supervisors and students based on secondary sources, or they contained only anecdotal, not systematic evidence. Many were based on supervisors' or policymakers' (and less often employers') views and/or what they thought were students' views, not on students' own views and experiences. Some potentially useful research had to be excluded because it did not differentiate between postgraduate taught degree and postgraduate research students.

Means by which UK based research reports on students' experience were initially identified *(The total is greater than 120 as some sources were identified by several routes)*

How identified	Number
Handsearch of journals and books	69
Electronic database	50
Internet search	12
Citation by an included text	10
Personal contact	8

2.5 Categorising the included studies (key wording)

All the 120 UK studies classified as eligible following the initial screening were then downloaded into a customised version of the specially developed EPPI-Centre systematic review software and we constructed a set of keywords using

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[8] For simplicity this report has been written as if the activities were sequential, but we were of course already developing our inclusion criteria and screening material while still searching for new sources
[9] There are also a few videos and CDs.

- The seven categories which it had been agreed would be common to all five reviews being produced for the Academy;
- Any of the EPPI standard keywords for education which are relevant to this review (EPPI-Centre 2003); and
- A range of key words relating to doctoral study which we developed specifically for this study.

This involved three members of the review group conducting repeated key-wording exercises with 30 complete texts that fitted the inclusion criteria. We coded, compared our assessments and discussed any inconsistencies, adding additional categories and refining others, and working towards agreed definitions. In the end we were satisfied that the review-specific keywords fully and appropriately described the contents, and that our assessments were consistent.

We had particular difficulties with the categories to include within the keyword 6b: *'What is/are the main topic focus/foci of the study?'*. We had to develop a classification to cover the range of areas relevant to the doctorate because the standard EPPI data extraction tool taxonomy was inadequate for our purposes. We eventually differentiated:

- Motivation to undertake a doctorate
- Working/studying context
- Pedagogy and curriculum
- Peer support (face to face or online)
- Personal
- Family and employment support and responsibilities
- Assessment
- Outcomes and
- Student diversity (where this was a specific concern of the study).
- We also grappled with the EPPI categories for *'Which type(s) of approach is adopted in this report?'*. We modified their standard format, which is:

  A. Description (e.g. a descriptive survey or account of experiences or events)
  B. Exploration of relationships (developed analysis of links between two or more variables)
      a. qualitative
      b. quantitative
  C. Evaluation (outcome of a change in policy or practice)
      a. external intervention
      b. researcher-manipulated
  D. Methodological account
  E. Review
      a. Systematic review
      b. Other review (including expert committee reports).

  To these we added a sixth:

  F. Problematising the categories used and/or self-reflexivity about the researchers' role. [10]

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[10] We added 'basic' to the EPPI category 'description', and the subcategories qualitative and quantitative to their 'exploration of relationships' category, and the sixth category to capture interpretative and post-structural work.

We needed repeated exercises to be confident of consistency in our classification of types of approach, but once we were, we coded the whole set. The full list of key words is given in Appendix 4.

We thus produced a searchable database which could give a rich description of work carried out in the field of students' doctoral experience and allowed for easy cross-tabulation across 32 variables. From it we could readily produce a broad overview of the range and frequency of literature on the types and range of experiences and outcomes identified for those undertaking doctoral research in the UK, and also note the gaps in the literature.

This database has subsequently been uploaded onto the REEL database (the Research Evidence in Education Library) on the EPPI-Centre website. This is available for public access and can be searched by key words, though these are restricted to standard EPPI key words, which are not designed specifically for higher education. REEL can also be searched by a 'free text search' that will look in all text fields for the words specified. However, although REEL allows for combining selected searches, it isn't possible to do the cross-tabulations available in EPPI-Reviewer, so future researchers with specific interests would need to contact the team at the Institute with their request.[11] Some of the material has also been put onto an Endnote file available on the HE Academy website.

NB, however, that neither the map we have drawn from EPPI-Reviewer nor the REELdatabase include an evaluation of the results of the studies included. They therefore carry a strong health warning that **we have not appraised the methodology of the studies included and so cannot vouch for their findings.**

2.6 Defining the review topic 2

Systematic reviews are designed as much if not more to answer specific questions as to provide general maps. We therefore proposed to our Advisory Group, which included representatives of the HE Academy, the UK GRAD Programme, and the National Postgraduate Committee, that there was probably sufficient literature available to answer questions on 'what works' in relation to a number of areas of 'the research student learning experience' (see Davies et al. 2000).

We agreed that the assessment of the doctorate is an issue the sector needs to address; and although there are, of course, many aspects of it that this current review cannot address, and many views on the viva other than those of the student, we can provide an in-depth account of the research on the latter. That is to say, what we do know about students' own preparation for their viva, the support they are given, the impact of the viva itself on students' learning, and how their experience of the viva affects their future plans. We therefore used our database to address the following question:

> *What is the impact on research students of the process of examination of a doctoral thesis by viva voce?*

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[11] D.leonard@ioe.ac.uk

2.7 The in-depth Review

We identified 21 publications and reports among our UK included studies that had been key-worded with the terms 'assessment of the thesis' or 'viva'. However, six of these were subsequently excluded because they did not give sufficient detail of the viva element of assessment or were not sufficiently from the student perspective. The remaining 17 studies are listed in Appendix 5. Some of the reports were based on data from the same research project, so, although we summarised 17 reports, these cover a total of 14 studies.

Having established the question and located studies in our collection, we would then have liked to be able to conduct further searches on this specific area, specifically citation searches of the grey literature. However, with our resource constraints this was not possible.

Moreover the timetable we were working to also did not enable us to use EPPI-Reviewer to undertake a full 'data extraction and quality assessment'[12] of these 17 reports. We used instead a much briefer tool, the production of structured summaries, which nonetheless reflects the EPPI data extraction process. It is designed to capture the results of the studies together with information on the strengths of the methods used to collect these results. We also attempted to identify the policy and practice implications of the findings presented.

2.8 Structured summaries

The headings for the structured summaries were derived from the key-wording framework and focused on the review question above. They were:

- Bibliographic details
- Study focus
- Population focus/sample
- Discipline
- Educational setting, including status of the Higher Education Institution (HEI), if known
- Details of the assessment/viva process studied
- Evaluation details (including theoretical underpinnings, if discernible, and research methodology)
- Findings
- Assessment of validity and reliability of findings based on agreed criteria taken from a model provided by Brunton et al. (2005) [13]

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[12] See the EPPI-Centre (2003) Review Guidelines for Extracting Data and Quality Assessing Primary Studies in Educational Research.
[13] These were:
  - The aims and objectives were clearly reported
  - There was an adequate description of the context in which the research was carried out (including a rationale for why the study was undertaken)
  - There was an adequate description of the sample used and of the methods for how the sample was identified and recruited
  - There was an adequate description of the methods used to collect data and of the methods used to analyse data
  - The reliability of data collection tools
  - The validity of data collection tools
  - The reliability and validity of the data analysis methods
  - Appropriate data collection methods for helping people to express their views were used

- Implications for policy and practice

The structured summaries can be found in Appendix 6.

We did not apply the quality assessment criteria systematically but rather used them as a guide to appraise the studies and to write a brief overview of the reliability and validity of their methods. The full criteria are quite stringent, and we are bound to say that none of the included studies met all of them; or if they did, the methodologies were not reported in enough detail for us to be able to judge. We therefore assessed studies relatively, judging some to be more reliable than others.

2.9 Reflections on the methodology

Overall, working with the EPPI-Centre approach has ensured that we undertook a systematic, rigorous procedure that provides a high level of transparency for other users of this review.

When starting any project we each bring our preconceptions, with data to support them, and we find more to support our interests by selective data searching (conscious or unconscious). We can, for instance, select just the results of a small part of the research evidence and take the claims of eminent research authors at face value. We can be seduced by well argued pieces with little evidence and assume we know things which are not stated in the texts. Drawing up a protocol, after really unpacking the question, and then systematically searching, with very strict criteria on what to include and exclude, with processes for checking individual and team consistency, and with an EPPI staff member constantly referring us back to the question and holding us firm to the decisions we had made, is a more formal and robust approach than the standard academic literature review. This holds true even when one cannot complete all the procedures of a full systematic review.

Doing such an exercise can therefore be recommended for academics and research students generally. It makes one much more aware of how poorly empirical work is described in some academic articles. It also made us aware how much of the evidence on what research students supposedly think and feel is actually indirect and derived from interviews with (or just the anecdotal experience of) those they work with (supervisors, employers, funders) rather than from students themselves. It also makes us aware of how often only particular sets of students are included, rather than the full range.

EPPI-Reviewer is a flexible tool that allows for the creation of many fields with many different alternatives in each. It also enables one to structure the approach in a question/answer format with on-screen guidance for answering each question, and to compare the inputs from different team members. Once on EPPI-Reviewer, it is possible for the reviewer to do sophisticated cross tabulation – if time allows! It subsequently enables systematic searching by other researchers using predefined keywords and free text.

- Appropriate methods were used for ensuring the data analysis was grounded in the views of the respondents, and
- The respondents were actively involved in the design and conduct of the study.

It would be possible to continue this work worldwide because of the systematic way in which we recorded the procedures and sources we employed and the explanations for the screening decisions we made which we recorded in the main Endnote file.

In retrospect, our assumption that there was little UK material focussing on doctoral education and that we needed to widen the search to include other countries, was unfortunate. But it was partly the result of our trying simultaneously to map a broad field and do a systematic review of a particular topic. As a consequence we spent a lot of time gathering material and then screening it out. Had we focused on a tighter question earlier, we could have done more searching of websites and grey literature for relevant UK – and other – material.

3. Review of research on the doctoral experience

We remarked in 2.3 that on systematic searching we found more literature on the doctorate than we had anticipated. We had an initial 1135 items on our general Endnote file when we had to call a halt. When we screened these and included only UK focused studies, the number reduced to 425; and when we then applied our selection criteria (that studies be based on students' perspectives, focused on empirical data about students' working, studying, researching, domestic and financial contexts, been published since 1985, and written in English), it reduced further, to 119. A list of these studies, which are overviewed in the following map, is given in Appendix 1. However, we did not appraise the methodology of the studies included and so cannot vouch for their findings

3.1 Overview of the research evidence

Other reviewers might argue for including, for example, work based on supervisors' or research deans' views of the experiences of students. But what our approach does stress is the low proportion of research in this field that involves discussion with students - and students often see things differently from academics and policy-makers (as 4.2 on the viva will show). We did however include small scale and exploratory studies because, although their findings may not always be methodologically robust, in the present state of research they may be of interest.

1985-95

Prior to 1985 there was little research on postgraduate research students except for a series of funded studies by Rudd on postgraduate failure. The last of these falls within our time frame (Rudd 1985). This was followed by the exploratory work for the Social Science Research Council's Winfield report of 1987 (Young et al 1987) and the subsequent ESRC Research Programme, headed by Robert Burgess. Projects in this Programme focused on supervision, writing skills, and QA in both the sciences and the social sciences, and also training in quantitative methods, completion rates and times and labour market demands in the social sciences. It produced an edited collection from its constituent projects (Burgess 1994) and one of its constituent projects obtained further funding to produce a key study (Delamont et al 1997 and 2000) which focused on how postgraduate research students acquire the _habitus_ of the various disciplines: the views of the world acquired through different learning processes in various types of laboratories, fieldwork, supervision and departmental culture. A second key study on the same topic, by Becher et al (1994), developed partly from an international comparative project (Clark 1993) and partly from Becher's own doctoral thesis (see Becher 1989).

However, both the original ESRC Programme and these two studies were based on fieldwork conducted before the main pressures on universities to improve supervision, to speed up time and rates of completion of doctorates, and to provide taught classes in methodology began to have effect.

1995-2005

Little research on the UK doctoral experience has been funded in the subsequent twelve or more years. The only relatively well-researched area has been the first ten years of the professional doctorates and most of this has been more from the institutional and sociology of knowledge angle – how academic and applied knowledge production can be supervised and assessed - rather than the students' (or employers') perspectives. The other foci of empirical research in the UK have been supervision and some recent initial work on the viva. Although several studies contrast experiences of science and social science candidates, and some looks at practice-based doctorates in the arts and humanities, there is little qualitative research evidence available on the doctoral student experience in science. Medical and health-related and business and management doctoral research are severely under-studied.

What research there is has come from:

- Individual academics with an interest on the doctorate working unfunded or with small sums from their home universities, and/or as evaluation of their own practice. These are mainly small scale, positioned by their authors' interests and done 'in the margins of people's time, purely out of interest'. They are mainly focused on the social sciences and Education, since they can constitute sociological or educational research. But there are no Research Asessment Exercise (RAE) points for, for example, a pharmacist or historian if they write about the doctorate. It would count as teaching-related, not research.
- Studies by some funders (e.g. the various Research Councils and the Wellcome Trust) of their own students (e.g. Wellcome Trust 2000b; Office Sciemce and Technology (OST), 2002; Metcalf et al 2005). But these reports are generally tucked away on websites and not recorded on the BEI, so many practitioners do not know of them. Moreover, Research Council funded research students are largely young, full-time home students, in science and technology, and in Russell Group universities. So although they are a very important group, the reports on their progress do not cover the full range of research students. But they profoundly influence policy thinking.
- Reports based on postal questionnaires by the UK Council for Graduate Education (UKCGE) to its representatives (usually the head of the graduate school) in HEIs. However, given the UKCGE's constituency, these are not surprisingly usually based on Deans' and faculty's concerns and written from their perspectives. They seldom include students' views directly.
- There are a few unpublished PhD theses on the doctorate and some publications deriving from such work (e.g. Hockey 1991, 1994). In our included literature they include Felix-Corral (1997), Cook (1998), Chiang (2002) and Zainal Abiddin (2004). We believe we would have found more if we had had more time to search.
- There are also accounts by individuals of doing their own PhD, mainly in the social sciences but also including some in science and maths. These are often fuelled by anger, occasionally at being (as they see it) exploited by their supervisor, but more often at having failed or been referred at their viva (e.g. Humberstone1997 and see also Green and Powell, 2005).
- There is also some activist work that is concerned to draw attention to and to change the situation of students. For example, surveys funded by the National Postgraduate Committee and some of the publications in their *Journal of Postgraduate Studies*; and work on women students and those from an international/ or non-English speaking background (NESB). Unfortunately

much of this literature does not differentiate between Masters and Doctoral level postgraduate studies, and so is excluded from our review.

3.2 Conceptual Perspectives

The data presented was predominantly qualitative (N=85) with a minority presenting a balance of qualitative and quantitative material (17) or predominantly quantitative data (18). There was only one non-randomised controlled trial (Torrance and Thomas 1994). Most (86/120) of the studies included in our database did not however specify any guiding theoretical framework.

Type(s) of study described	Number
Exploration of relationships	51
Description	46
Evaluation: Naturally occurring	29
Problematising categories used and/or self-reflexive about the researchers' role	13
Evaluation: Researcher-manipulated	2
Methodology	2
Review: Other review	2

Of the 34 entries which did specify a framework (and some studies said they drew on several theoretical perspectives):

5 studies were action research	Hughes, Denley and Whitehead, 1998; Wisker 2000a, 2000b, 2004; Wisker et al 2002
3 adopted feminist perspectives	Bhalalusea, 1998; Felix-Corral, 1997; Humberstone, 1997
5 used the work of Bourdieu	Delamont, Atkinson and Parry, 1997, 2000; Parry, Atkinson and Delamont, 1994; Pryor, 2004; Rowley, 2003
4 that of Bernstein	Delamont 2001; Hunt, 2001; Parry, Atkinson and Delamont 1994: Pryor, 2004
2 that of Vygotsky	Pryor 2004
1 used a Weberian construction of ideal types	Chiang 2004, Haggis 2002
1 was based on Dewey	Rowley 2003
2 were based on Foucault	Rowley 2003, Humberstone 1997
5 were (auto)biographies interwoven with analysis	Wallace and Marsh 2001; Felix-Corral 1997; Holliday et al, 1993; Humberstone 1997; Rakhit 1998
5 studies used symbolic interactionism (again 3 by the same authors)	Acker, Hill and Black 1994; Hill, Acker and Black 1994; Hockey and Allen-Collinson 2005; Parry, Atkinson and Delamont 1994; Rowley 2003
3 social constructivism	Busher 2001; Pryor 2004; Salmon 1992
3 ethnography,	Rowley 2003; Trafford and Lesham 2002; Humberstone 1997

3 grounded theory	Hasrati 2005; Pole 2000; Humberstone 1997
2 personal construct theory	Denicolo, Boulter and Fuller 1999; Denicolo and Pope 1994
2 used critical discourse analysis	Rowley 2003
1 stressed knowledge as cultural and political production	Hallam and Marshall 1993
1 used a cultural historical activity theory	Croussard 2004

3.3 Who is included in the studies

Most – but by no means all – the included texts gave information on the types of students covered. Half were specifically focused on differences among doctoral students.

Characteristics of the students noted in studies focused on diversity	Number
Gender	29
Discipline	20
Domicile/ cultural heritage/ international	16
Entry qualifications, prior experience	14
Age (or 'young', mature/ experienced)	12
Mode of study	11
E2L/ Non English Speaking background (NESB)	7
Mode of funding	6
Type of doctorate (PhD/ professional doctorate)	5
Race	4
Social class	3
Special needs	3
Other (please specify)	12
The study has no specific focus on student diversity	60

The other studies might just record details of the sample but did not then make comparisons between groups – and a surprisingly number did not give details of their sample.

3.3.1 Type of research degree

Most of the existing literature on research students is, not surprisingly, focused on the PhD, though there has been considerable interest shown in those studying for the professional doctorates introduced from the 1990s, and especially those undertaking an EdD. Those studies focused on the PhD together with other doctorates usually did not always explore the differences between them.

Type(s) of research degree the study focuses upon	Number of studies
PhD	116
Professional doctorate (eg EdD)	15
MPhil	8
MRes	5
Doctorate other (Please give details)	3

Studies may have covered more than one type of research degree so the numbers in all the following tables are not additive

Professional Doctorates

Of the 15 studies that gave attention to the professional doctorate, eight explicitly focused on the EdD, while the other seven did not specify which type of 'professional doctorate' they covered, so they may also have included EdD students. However, only two studies (Barrett 2003; Pryor 2004) were focused entirely on the EdD, another (Scott, Brown et al. 2004) was focused entirely on professional doctorates but included DBA and EngD students as well as EdDs; while in the other five studies (Dinham and Scott 1999; Busher 2001; Crossouard, Pryor et al. 2004; Leonard, Becker et al. 2004; Leonard, Becker et al. 2005) EdD students were part of a larger sample which also included students working towards other doctoral qualifications.

MPhil studies

Eight studies included a focus on MPhil students (Torrance, Thomas et al. 1992; Dunkerley and Weeks 1994; Fisher and Taithe 1998; Humphrey and McCarthy 1999; Park and Ramos 2002; Rowley 2003; Leonard, Becker et al. 2004; Green and Powell 2005; Leonard, Becker et al. 2005). These include both students who received MPhils as a final qualification and those who were registered for MPhils as a transitional stage towards a doctorate. In almost all cases, MPhil students were part of a larger sample which also included PhD (and other doctoral) students: MPhil students were always a minority compared to the PhD students. Only one study (Fisher and Taithe 1998) used a sample consisting of only MPhil students.

MRes studies

Five studies mention their samples included MRes students (Shaw 1991; Frame and Allen 2002) and in the one (Shaw 1991) the sample consists of 21 male PhD students and only one female MRes student. In the other four studies a slightly larger number of MRes students were part of larger samples which also included PhD (and sometimes MPhil and professional doctorate) students.

Other

Of the three studies identified as 'doctorate other' (Dinham and Scott 2001; UK GRAD Programme 2004; Green and Powell 2005; Hockey and Allen-Collinson 2005), one study focused on a practice based doctorate in Art and Design, one included a focus

on a PhD by published work and practice-based doctorates, one used 'PhD' as a generic term to cover all PhD qualifications, and one did not further specify the form of doctorate.

3.3.2 Field and location of study

Field of study

Some of the key studies of the doctorate (Becher et al., 1994; Delamont, et al., 2000 and 2004) have a central focus on disciplinary differences – in both cases how students acquire the ways of thinking of their subject areas. Research overall on the doctorate has usually noted the disciplinary area(s), but tended to be located disproportionately on the social sciences and Education.

Discipline(s) researched by the doctoral students studied	Number of studies
Social Science	55
Education	39
Science/Engineering/Technology	35
Arts and Humanities	28
Medical and related/ health	13
Business and Management	13
Interdisciplinary (specify)	2
Other (specify)	7
Not stated	27

Twenty studies specifically compared student experiences across the disciplines. In these, some subjects are under-represented: only four (Dunkerley and Weekes, 1994; Wright, 2003, Metcalf et al., 2005, OST, 2002) look at those studying medical and health related areas, and four (Dunkerley and Weekes, 1994; Pearson et al., 1991; Metcalf et al., 2005, OST, 2002) students doing research in business and management. Science and social science are again well represented: of the 20 comparative studies, 16 look at science and 15 at social science and eight at education. Only 10 include a focus on the arts and humanities.

In the studies that compare student experiences/outcomes in the sciences, arts and humanities, and/or social sciences, the following (well established) points are made:

- Science students, because they are often grouped in laboratories, usually have a permanent base in their departments and regular contact with colleagues, whereas students in the social sciences and arts and humanities often do not have their own working space in the university.
- Students in the social sciences report many more problems of loneliness compared to science students. Science students are more likely to be involved in group work, with postdocs and technicians also present.
- Students in Students in the social sciences and arts and humanities are more dependent on their supervisor, whereas science students are only largely dependent on their supervisor in the beginning of their PhD and gradually receive guidance from the surrounding group in their laboratory.

- Science students were more likely than arts and humanities students to submit their thesis within four years (64% against 51% in a 2000 study). The same was the case for submission within ten years (82% vs 70% respectively), possibly because science and engineering students do more group work and receive more supervision than arts & humanities students, and possibly also because research outcomes are more predictable in science and engineering studies.

Location

All 120 studies included students studying in universities, but a few also included research students outside HEIs. Most of these did not, however, distinguish between the various educational settings in their analysis. Only the three studies with a focus on students study and their workplace, provide separate data (Irwin, 1996; Hughes et al., 1998; Scott et al. 2004).

One study of Wellcome Trust funded students in universities, private research institutes and government research institutes (Frame and Allen, 2002) found that for most students the encouragement of a prospective supervisor and potential bench colleagues was the crucial factor influencing a student's decision to do research in a certain place or in a particular laboratory, regardless of the particular research project on offer. That is to say, for potential science PhD students, the potential working environment and the nature of the training provided is as, if not more, important than the research project itself, which is in contrast to the arts and humanities and social sciences where the topic, supervisor and location are key.

The setting(s) of the study	Number of studies
Higher education institution	121
Private research Institute	2
Workplace	3
Government Research Institute	1
Other educational setting (specify)	2

Approximately half of the studies did not say anything about the nature of the universities where the research was conducted. Of those that did, studies in Russell Group universities were under-represented, given that they teach the majority of doctoral students. Sixteen studies focused on a combination of Russell group and post-1992 universities. However, while these studies drew their research sample from both types of institution, they do not distinguish their data to compare and contrast students' experiences in the two types of universities. Nor is there any comparison between the four countries of the UK.

Type(s) of HEI researched	Number of studies
Not known/not stated	59
Specified non Russell Group	29
Russell Group	17
Combination of RG and other	16

Most of the studies of part-timers were in non-Russell Group HEIs (16 studies of part-timers were stated to be in the non-Russell Group against four that were in the Russell Group). Studies of full-timers, on the other hand (insofar this was stated) were equally divided between the Russell Group and the non-Russell Group.

3.3.3 Mode of study and funding

The majority of studies give little information on the mode of study.[14] We are surprisingly frequently not told whether the students in question are full or part time, nor if they are being taught face to face or with some distance learning and/or web-enrichment elements, nor how they are funded.

Where information is given on intensity of study, the focus is evenly divided between full and part-time students which over represents part-timers.[15] Most of the studies of part-time students were in non-Russell Group HEIs (16 studies of part-timers were stated to be in the non-Russell Group against four in the Russell Group). Studies of full-timers, on the other hand, where stated, were equally divided between the Russell Group and the non-Russell Group.

Intensity of attendance	Number of studies
Not stated	52
Full time	39
Part-time	33
Mixed full and part-time attendance	20

Where the information was given, most students within the studies had experienced face-to-face teaching. Not surprisingly, the 14 studies that focused on mixed face-to-face and distance learning were published relatively recently (one in 1994, roughly two each year between 1998 and 2003, and four in 2004).

Mode of study	Number of studies
Not stated	64
Face to face	46
Distance Learning	2
Mixed f2f and distance	14

Where information is given on sources of funding, students are equally divided between self and Research Council funding, with some 'other' awards and employer funding. Surprisingly few (to us) are reported as combining several sources

Mode of student funding	Number of studies
Not stated	88
Self-funded (inc. family)	20
Research council award	20

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14 In some studies it was possible to deduce the mode of study. However, working under the quality assurance mechanisms of the EPPI, we refrained from doing this. We would encourage researchers to specify such important information.
15 Of those starting doctorates in 1996-97 at a UK HEI, 19,191 were full-time and 5,150 part-time (HEFCE 2005 p8). Currently overall, of students registered for postgraduate research degrees 51% are full-time (HESA 2005, Table C).

Other award	15
Employer-funded	15
Combining several sources (give details)	10

3.3.4 The characteristics of the students

Widening participation has not been an issue in past or recent policy on postgraduate studies, unlike undergraduate access and retention.

Social class background

Almost no research gives information on the social class background of research students, which is remarkable given its salience in most work on education. It is mentioned in only three studies. (Note we ourselves didn't ask if social class was recorded.) Occasional accounts do however comment on the high proportion of researcher students and young academics that are the children of academics.

Most attention is given to social class in Acker (1999), which is based on interviews in Britain and Canada. This study finds that in the British interviews two working class students hinted at mismatches between supervisor and student based on class: both students felt very uncomfortable in a 'public school'/'middle class' atmosphere. On the other hand, one student in the Canadian interviews mentioned that she felt comfortable with her supervisor despite coming from a different social class because of common family and community ideas. The author concludes it is a combination of characteristics (class, age, gender) that produce comfort or diffidence in student-supervisor relationships.

The age of students

We are also often not told the age range of the students in a study, nor whether they have progressed directly from a first degree or masters to a doctorate. However, where we do have this information, the students studied are mostly not 'young researchers', as HEFCE publications nowadays routinely designated all research students, but mature men and women.[16]

Age of students (years)	Number of studies
Not specified	88
21-25 ('beginning researchers')	17
26-35	28
36-50	29
50+ (late career/retirement)	14

16 For full-time students, 35% progress directly from a first degree or MSc in the same HEI, and 27% from a different HEI. The equivalent figures for part-time students are 12% and 9% (HEFCE 2005 p2).

Gender

With gender, however, we are much more likely to be given some information, but it is usually minimal. Whether the study deals with men and/or women gets recorded, but as a 'face sheet variable': something which should be included but researchers don't know what difference it might make, and do not explore it further. However, 29 studies did pay some attention to gender issues and five of these had it as a major focus (Hallam and Marshall 1993; Conrad and Phillips 1995; Bhalalusesa 1998; Rakhit 1998; Acker 1999). Several studies explicitly call for greater sensitivity to gender issues to improve diversity and equity.

Gender of students in the study	Number of studies
Mixed sex	71
Female only	14
Male only	6
Not stated	31

'Race' and ethnicity

Only four of our included studies mentioned race issues, and even here the topic was not strongly emphasised - except by Rakhit 1998, whose own PhD research was on race/ethnicity and women school teachers and whose chapter is published in an edited collection on race and research, and Hallam and Marshall (1993) reflecting on personal experiences.

Ethnicity of students in the studies	Number of studies
Not stated	81
Majority ethnic group of country of study	19
Minority ethnic group of country of study	4
International students	21
Mixed group	8

One study showed that university faculty saw overseas students (and particularly students from 'other' races) as highly problematic, mainly because their greater needs and expectations for close supervision resulted in extra work for the supervisor (Acker, 1999).

Domicile of student

We did not find any studies of international doctoral students published between our starting date of 1985 and 1990. However, as the political-economic context has changed and international students have become increasingly important to universities, research has followed suit and 20 studies mentioning international

students were published between 1991 and 2000, and the same number again between 2000 and 2006.

Given that international students are currently around a third of all research[17] students, they would seem to be now disproportionately represented in research – though not if all the projects which do not specify are in fact about home students. One contribution to the amount of work on international students is the useful work in theses by international students themselves.

The population focus/foci of the study	Number of studies
Home students (of the country of study)	59
International students	41
Research students (not otherwise specified)	57

Special needs

Virtually the only work on students with disabilities is the Premia project on making research education accessible (2003-2005) funded by HEFCE (two reports published in 2004 and an excellent website). This was not an area explored by researchers in regard to the individuals in their samples: in 118 cases it was not specified if informants had any special needs.

3.3.5 Significant others

Studies are often concerned not only with students (the condition, of course, of their being included here) but also students' inter-relationships with staff of their HEI and include some interviews with other participants. The interaction prioritised is mainly with supervisors or sometimes other members of the teaching staff. Very few studies consider HEI support and academic-related staff, despite the important role Cryer (1996), for example, has shown administrators and librarians can play in research students' lives.

Additional population focus/foci of the study	Number of studies
Teaching staff inc supervisors	29
Senior or departmental management	4
Post doctoral fellows	3
Non-teaching staff	2
Employers	1
Other (specify)	10

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[17] Of the 110,840 higher degree (research) students registered in 2003/04, 39% were domiciled outside the UK (HESA 2005, Table C).

There is also very little attention paid to relationships between students and their employers (where they have them), or members of their families (spouses and children) or student households. Only 18 studies mentioned any demands on students' time and energies from other aspects of their lives. There is almost no discussion of student unions or student organisations or student social life or interaction with the locality.

3.4 Students' experiences of starting and during the course of their studies

Currently most research starts with the students once they have enrolled, and is concerned with the period of their candidature. That is to say, there is relatively little research on what motivates students to undertake a doctorate or what use they make of it subsequently.

The decision to do a doctorate is mentioned in 35 studies but generally with no more than a sentence or a paragraph, stressing the primacy of 'love of the subject'. We certainly do not know what factors influence the choice of a particular HEI, in contrast to work on undergraduates' choice of university, though one study does show students' use of networks/social capital to find out possibilities for PhD study. A few studies look at issues in the first year of doctoral study: expectations of the doctorate, problems with registration, the choice of discipline and defining the topic, methods of organisation and planning, and the learning process in the first year. Two studies are general accounts of undertaking a PhD (Salmon, 1992; Dickinson et al., 1997). There is also general work on the learning process and meta-cognition/ meta-learning styles, adult learning and processes of meaning-making; and the influence on doctoral experience of students' social and psychological well-being: their sense of uncertainty, frustration and disorientation or sense of direction, logic and intuition, plus their use of insight, hunches and feelings (e.g. Hockey, 1994; Delamont et al., 1997; Bunting, 2003).

3.4.1 The context of study and support during a research degree

Around half of the studies in our review mentioned the impact of support on the postgraduate student learning experience in the UK, the most frequently mentioned elements being students' views on supervision; the departmental context and whether or not there is a 'critical mass' of research active staff and other students; and overall provision by the HEI (courses and general facilities). However, in the majority of these studies, this is not their main focus, and a large number say only a few sentences on support received. Those that do give more attention focus mainly on the help and encouragement provided by supervisors; students sense of well being and satisfaction; identity change; other research students in informal peer support groups and research teams; and help with academic literacy. There is limited attention to departmental support, including students' access to other staff members and seminars, and to family and friends. Few studies mention student unions and societies or professional associations as sources of help.

Which aspects of the research study period is the object of	Number

study	
Supervision	59
Perception of doctoral experience (quality of teaching, feeling of belonging or loneliness, poverty, inc satisfaction surveys)	53
Informal peer support groups, friendship, isolation, work groups	38
Departmental context (research quality and intensity, support, student access to other staff, seminars)	33
Number/'critical mass' of other research students, peer cultures and social life in department	28
Identity change/ academic socialisation/ induction	26
Courses/training (Subject specific courses, Research methodology, M Res, Generic/ transferable, skills courses)	25
Institutional provision (Postgraduate Schools, office accommodation for students, housing, computing facilities, library)	21
Academic literacies, writing and publication skills	12
Other teaching	11
Research teams	10
National changes	9
Pastoral support, counselling and mentoring	9
Communication (distance learning, email supervision, web enrichment)	8
Students unions and societies	2
Computer Moderated	2

Supervision

The nature of supervision proves to be one of the main factors influencing the student experience. However, since the supervisor-student relationship in the social sciences depends heavily on individuals, rather than on more diverse research teams, we found considerable differences in how students see their supervisors and in whether or not they would like more than one person to be involved (see e.g. Pole, 1998; Deem and Brehony, 2000). Several studies show a need for supervisors to be more

aware of the way in which their relationship with a student is developing and to encourage students to discuss any problems (e.g. Acker, 1999), especially since the supervisor-student relationship cannot be made predictable. Supervisors should assess students' expectations of supervision at the beginning of the programme and provide an orientation to the existing system (Archibong, 1995). One, now perhaps dated, study found that the infrequency of supervision was a problem for first-year doctoral students, and more so for non-science than for science students. Also that the supervisor should emphasise managing the thesis workload within the time allowed more (Wright and Lodwick, 1989). Another study found that few students changed supervisors, even when they were dissatisfied. Instead, they appeared to devise strategies for coping with their situation (Acker, Hill and Black, 1994). There is commonly attention to interpersonal issues in student-supervisor relationships (such as gender, intimacy, power relations, sexual harassment, class and ethnic tensions) but less commonly such issues as the doctoral supervision of colleagues

Suggestions made to achieve greater sensitivity (especially gender sensitivity) in postgraduate-supervisor group processes include:

- the use of different modes of communication and interaction styles,
- facilitation rather than institutionalisation of co-operative and supportive student support groups,
- raising awareness of the behaviour and influence of the supervisor on female students, and
- paying more attention to interaction processes in addition to the content or task of the group.

These studies also point to the importance of developing support groups (especially women's support groups) and forms of patronage in universities.

One study, which focused on doctoral students in the natural sciences, found that the range and extent of the students' expectations of their supervisors, both in relation to the progress of the PhD and in introducing the students to academic networks, raised questions about the extent to which it is always possible for supervisors to fulfil these demands, considering the rest of their workload (Pole et al., 1997).

Departmental context, academic culture and critical mass

One study found that access to other academics (in the department or at conferences) gave students great motivation to make progress with their research (Egharevba, 1999). Another that international students and part-time students had experienced most difficulty in accessing peer and academic cultures (Deem and Brehony, 2000). Darwen (1995) reported problems of student isolation because many postgraduate research students do not have their own desk or computer at university, while Wisker (2000) pointed to the particular support mechanisms needed for international distance education students in the form of clarification of academic and registration procedures, regular contact with the UK-based supervisor and – if they would be available – video-conferencing links between individuals or the groups of students and the university supervisors. This study also stressed the need for international distance education students to have open-minded discussion with their supervisors about different cultural knowledge traditions.

Again there are a number of studies reporting gender issues, even where the study had not specifically asked about them, noting that women students sometimes find

access to research cultures more difficult than men students. There are fewer opportunities for women in their 30s and 40s especially to get research grants, and some reports of sexist behaviour and sexual harassment of female students by male staff.

There may also be important disciplinary communities and professional organisations. Two studies look at these in relation to construction of disciplinary identities (Parry et al., 1994; Delamont et al., 1997).

HEI provision – courses and facilities

There is, as yet, relatively little investigation of students' views of research training courses. Certainly, not all students approached them enthusiastically and/or had positive experiences. Some self-funding and part-time students resented having to learn a range of methods, especially if they were pursuing their degree as a hobby. Some full-time students too were highly resistant to research training courses, seeing them as impinging on their autonomy and as an interruption to their research (Deem and Brehony, 2000). International students were far more likely than home students to feel positive about them and to see themselves as deriving significant benefits (Deem and Brehony, 2000). However, the social dimension of training courses may itself be invaluable for social science students who otherwise work largely alone.

Several studies showed how the facilities provided by universities can contribute to a positive learning and working experience. One study suggested that for PhD students in science the working environment and the nature of training provided was as, if not more important, than doing the research project itself (Frame and Allen, 2002). Overall, students who had access to a shared common room in a university department generally felt more involved with the department than those who had no space at all (Humphrey and McCarthy, 1999; Deem and Brehony, 2000). Research students - especially when they were in their first year - were likely to experience loneliness and confusion and the stress of isolation could be minimised by providing them with office space and by organising student seminars (Wright, 1991). On the other hand, one fairly early study showed that even when opportunities for interaction between first-year research students existed within a university, more still needed to be done to encourage student participation and to foster a sense of collegiality (Wright and Lodwick, 1989). Moreover, some part-time and international students, were not made aware of the facilities on offer in the department (Acker et al., 1994). Deem and Brehony (2000), in a frequently quoted study, found international students from less affluent countries had particular concerns about a lack of facilities (such as access to a telephone, photocopying, and the provision of postage stamps for questionnaires) because their absence meant more expenditure.

Reading groups were sometimes experienced as intimidating by students for whom English was a second language (Deem and Brehony, 2000) and this study found very few international students mentioning attending them.

Almost no studies focus on institutional facilities for disabled research students (Farrar, 2004; Premia, 2004).

Peer groups and research teams

Research teams and student support groups are both generally valued as a form of peer support (e.g. Delamont et al., 1997a, 1997b and 2000; Frame and Allen, 2002; Pole et al., 1997; Shaw, 1991; Darwen, 1995; and Newbury, 1995). Several studies have identified social and/or intellectual isolation as a problem for many postgraduate research students and Rudd's early study (1985) showed that many problems of motivation and non-completion arise from this. Collaborative student groups are generally found to complement the supervisor's role as an advisor and to counteract the effects of isolation (e.g. Armstrong et al., 2000). Such groups are especially valuable in the social sciences, where there is no tradition of the research group socialising together (Delamont, 2001) and/or after group formal research training ends. In the natural sciences, where much doctoral research takes place within formal research teams, the support role of a postdoctoral researcher is a crucial factor in ensuring pedagogic continuity and in giving postgraduate research students the confidence that their project is 'doable' (Delamont, Parry and Atkinson, 1997).

However, some studies report difficulties with the formation or the nature of research teams. One (Conrad and Phillips, 1995) found that student support groups were often based on 'male' conventions of communication, thereby not always adequately serving the educational needs of women and attention should be given to interaction processes as well as to the content of the discussion so that diverse interaction styles are encouraged. In supervisor-led groups, the supervisors should be especially aware of the effects of their behaviour on minority students. Another study noted difficulties in encouraging students to work together and to collaborate within the framework of doctoral level study, where goal structures are individual rather than cooperative (Barrett, 2003). Here an online community of doctoral students on a professional doctorate programme was very helpful as a support group for a very small group of students, but the majority of students (who were studying part-time) did not take part.

Academic literacies and other student support services

Those specialists who teach academic literacy have been quite active in researching their field, and as a result this support area is reasonably well investigated (e.g. Shaw, 1991; Torrance et al., 1992; Torrance and Thomas, 1994; Torrance et al., 1994). Topics covered include writing habits, writing strategies, experiences of writing and writing productivity, tensions in bringing together 'making' and 'writing' aspects of the doctorate, willingness to seek help in writing, the degree of pleasure gained from writing, emotions and worries about writing, and English language courses.

Several studies focus on the experiences of female postgraduate students (with one study focusing on South East Asian female students) and identifying the particular support structures needed by them (Jennings, 1994; Conrad and Phillips, 1995; Bhalalusesa, 1998; Rakhit, 1998; Brina et al., 1999).

Other student support services are much less well covered. One study focuses on research development programmes to support learning and writing of international distance students (Wisker, 2004) while another examines online support mechanisms for part-time doctoral students (Finlay, 2001). A third focuses on support provision in universities for non-UK research students (Henderson, 1996).

3.4.3 Support (and demands) outside the HEI

Domestic life

Many students perceived support from family and friends as important during their studies (see e.g. Dickinson et al., 1997). This included family providing people to discuss their work with or to provide IT support. Postgraduate research studies can also, however, create a lot of tensions, especially when close family and friends do not understand research life and pressures and resent time spend away from home or sequestered in study (e.g. Leonard et al., 2005). There may be some impact on family/marital relationships and a particular impact on the experiences of wives and children (and a the few husbands) who come to the UK with spouses who are doing PhDs, or who experience long periods of separation.

Again it is noted that there are extra difficulties for women postgraduates who do not have access to (or feel allowed to use) family funds for their own studies if they do not get grants.

Employment

Many research students are now employed and studying part-time for the whole or part of their period of registration. There are a number of specific discussions of their situation and of the different career positions of students at the start of their doctorates.

Five studies report experiences of doctoral students combining different roles and/or working in mixed environments:

- the combination of being a postgraduate research student and a PGCE student at the same time (in an MPhil/PGCE scheme) (Fisher and Taithe, 1998);
- being employed as a graduate teaching assistant while doing a doctorate (discussing the status of students who teach and mentioning income and teaching experience as their benefits, and workload and in some cases low payment as problems) (Park, 2002; Park and Ramos, 2002);
- doing part of the EngD research in a university and part in industry; and
- combining working as a research assistant on a funded project and being a doctoral student, which produces difficulties for project planning and the need to work simultaneously to different time scales, plus potential conflict of interest in two roles (Newbury 1995).

Studies of professional doctorates frequently include views of how students (as well as universities) construct relationships between academic and professional knowledge and how the doctorate intersects with career (e.g. Thorne and Francis, 2001; Scott et al., 2004).

3.4.4 Retention and drop-out

While a clear cause for concern to students as well as supervisors, graduate schools and the Research Councils, we know little systematically about issues of retention and

causes of dropout at doctoral level. Even the official HESA statistics are severely limited and have only recently started to distinguish Masters and Doctoral level students. We certainly know very little from the students' point of view. It would also be useful to possibly balance the gloom of 'drop out' with an exploration of what people may have gained (as well as lost) from a period as a research student, even if they do not complete.

Currently we have to look back to Rudd's work (1985 and 1986) or to accounts (e.g. Buckley and Hooley, 1988; Dinham and Scott, 1999) focused on personal characteristics which lead to drop-out: viz (i) the qualities of the student: persistence, time taken to decide on research topic, ability to write, (ii) personal problems: marital breakdown, accidents, having a baby, and (iii) problems inherent in the research: failure to gain results and having no alternative path to finish PhD.

3.4.5 Other

A number of other aspects of student experiences are covered by just one or two specific studies. For instance:

- exploitation of students' work when staff are under pressures to publish
- students' views of the proposed changes to the PhD
- student experience of a specific programme used at a university, using an inventory and a questionnaire
- the webs of power within the departmental culture and within the research process itself, and
- using one's own experience as a resource and shared gender and skin colour to encourage participants to be open in interviews.

3.5 Assessment and outcomes

While of great concern to students, there is little research on their views of the assessment processes for various doctorates, nor specifically on the *viva voce*. There is however a small amount of research on formative assessment (feed-back while still working on the doctorate) by tutors and peers and the usefulness of mock vivas. There is rather more work on students' sense of the fairness, equity and rigour of the assessment of their work (or lack thereof); and a little on the impact of negative feedback on their confidence to write and to continue to do research – which we shall examine in Section 4.

Aspects of assessment focused upon in studies	Number
Formative assessment	11
QA, monitoring progress	8
Assessment of thesis	12
Viva	17
The study does not focus on assessment	90

We also know little of what happens to doctoral researchers shortly (nor indeed some years) after their doctorate – and especially little about international students who are

not included in the analyses of the HESA 'First Destinations' surveys. That is to say, there has been some research on macro labour market demands for postgraduates, but very little on research students' subsequent employment/ promotion, nor how they feel about whether their experience was worthwhile, nor if and how they subsequently dissemination any of the results of their research. Did they feel elated or depressed? Would they recommend the experience to other potential doctoral candidates?

Outcomes of doctoral study which are the focus	Number
Employment patterns	14
Completion rates and times	13
Non-completion/drop out	12
Dissemination	3
Other (please specify)	15
The study does not focus on outcomes	79

3.6 Gaps in the literature

There is no comprehensive evidence available on the doctoral experience from the students' points of view as a basis to build policy and practice. The field is mainly 'gaps'. Or, putting it another way, there is limited literature in relation to the doctorate on any of the areas identified in Malcolm Tight's (2003) overview of 'Researching the student experience'. Viz:

- Accessing higher education
- The on-course experience
- Success and non-completion
- The experience of different student groups
- The transition from higher education to work.

As regards the specific concern here - on-course learning experience and support - there is little work on the UK, certainly as compared to the development of this field in N America. We also have next to nothing on differences between HEIs. Samples may often include Russell and other HEIs, but they do not analyse differences in students' experiences within them. Nor has UK research looked at differences by ethnicity, or by home domicile (cf. Australia which has a store of experience on improving the experience of international and non-english speaking background students), or by social background. We know very little about the off-course parts of research students' lives: how research students live, their personal lives and employment (when they have a job) and how these and the doctorate impact on each other. We especially need information on the likelihood of accessing and remaining in doctoral studies, and students' progress afterwards.

We thus have no benchmark from which to judge the effects of recent changes, such as the new emphasis on transferable skills. There has not been initial work to explore the experiences students have of them nor how useful or appropriate different groups (younger/older, home/international, in different disciplines) of students think they are. There is much general talk of inter-disciplinarity and internationalisation in relation to

the doctorate, but next to no research on whether and how disciplinary and national academic identities may be changing. We do not know the effects on all students' experiences of there being now more international and more part-time students enrolled or of supervisors each having responsibilities for more research students.

It would be interesting to know the extent of 'knowledge transfer' to and from university effected by doctoral students. We should also track how the 'original knowledge' produced in theses is or is not disseminated/ published/ used, and discuss co-publication by supervisor and student to help the student (but in a way that prevents exploitation). We need to know more about life after the doctorate: e.g. follow-up studies of doctoral alumni to see the difference made to their lives – to their employment, their sense of self, the affect on their identity, and, in the case of international students, their feelings towards and continuing contact with the UK.

There is a clear need for more systematic and theorised work generally. But, after looking closely at existing work, we would also stress the more immediate need for all researchers to say more about their sampling frame and about the characteristics of those in their achieved sample, even if 'they don't see it as relevant' (see Newman and Elbourne 2004). It would also help if titles and abstracts were clearer as to the content of a book or article, and if work at Masters and Doctoral level studies were always distinguished. Finally, we have noted that a large number (86/120) of the studies on our database make no comment as to the theoretical frame which they were using. We believe, however, that all work, including positivist work, should also justify itself epistemologically.

4. In-depth review of research on the viva

Following the EPPI Centre process, we examined whether there was sufficient literature of adequate quality to answer a specific question on 'what works' in relation to 'the context and support for the research student learning experience.. We agreed to look at assessment, and particularly at students' perspectives on the viva.

This overview presents data from the 17 texts we identified which presented sufficient information on the viva (from 12 separate studies), under the following headings:

- elements of the assessment process
- preparation for the viva
- the viva itself
    - assessment of research skills and academic content
    - assessment of other types of academic knowledge
    - the conduct of internal and external examiners
- the period soon after the viva.

For details of the included texts, see Appendix 5 and for the structured summaries of each text (described in 2.8) see Appendix 6.

Studies included in the in-depth review

Denicolo, P.; Boulter, C.; Fuller, M. (1999) The higher degree viva - a case of constructive alternativism
Denicolo, P.M. (2001) Doctoral degree assessment criteria: transparency through exploring teacher thinking
Hartley, J. (2000) Lifting the veil on the viva: The experiences of psychology PhD candidates in the UK
Hartley, J.; Fox, C. (2002) The viva experience: examining the examiners
Hartley, J.; Fox, C. (2004) Assessing the mock viva: the experiences of British doctoral students
Hartley, J.; Jory, S. (2000) Lifting the veil on the viva: the voice of experience
Hughes, J.; Denley, P.; Whitehead, J. (1998) How do we make sense of the process of legitimising an educational action research thesis for the award of a PhD degree? A contribution to educational theory
Humberstone, B. (1997) Challenging dominant ideologies in the research process
Jackson, C.; Tinkler, P. (2001) Back to Basics: a consideration of the purposes of the PhD viva
Phillips, E.M. (1994) Quality in the PhD: points at which quality may be assessed
Rudd, E. (1985) A New Look at Postgraduate Failure
Tinkler, P.; Jackson, C. (2002) In the dark? Preparing for the PhD viva
Trafford, V.; Leshem, S. (2002) Anatomy of a doctoral viva
Utley, A. (1998) Grilling left student burnt out
Wallace, S.; Marsh, C. (2001) Trial by ordeal or the chummy game? Six case

studies in the conduct of the British PhD viva examination
Wisker, G. (2004) Achieving a doctorate: metalearning and research development programmes supporting success for international distance students
Wisker, G.; Robinson, G.; Trafford, V.; Warnes, M. (2002) Getting there in the end: contributions to the achievement of the PhD

4.1 Elements of the assessment process

Phillips (1994) considers the various stages in the assessment process, leading up to the viva. She argues there are five key decision point which will affect the PhD student's experience, starting with the selection (admission) process. Other points are: upgrading (where there is a wide variety of practice), monitoring work in progress (for example through annual reports), preparation for the viva (which she found to be generally inadequate) and the viva itself, including procedures for selecting examiners and examiners' conduct towards students.

Denicolo *et al* (1999) present findings from a pilot case study, which suggest that examiners were concerned about thesis readability and presentation, as well as substantive content. Supervisors concerns were focused more on the ability of candidates to present themselves adequately during the viva. There is little mention of the students' perspectives, apart from some quotes from interviews that seem to indicate that students felt that there was lack of support for preparation for the thesis, and that they expected the experience to be challenging.

Denicolo (2001) further reports that research carried out in her department indicated that there was a lack of common understanding among staff and students about what examiners are looking for in when assessing a thesis and what is the relative importance of the viva and the thesis. Denicolo *et al* (2000) bring together findings from their research studies in a reflective paper. It confirms their findings that there is confusion and lack of clarity about the viva process and that this is shared by supervisors and students.

4.1.1 Preparation for the viva

Hartley and colleagues (Hartley and Fox, 2002, 2004, Hartley, 1999 and Hartley and Jorey, 2000) have focused on students' expectations and experiences of the viva process using questionnaire surveys.

Hartley (1999) reports that students prepared for the viva by either re-reading the thesis, re-reading papers by the external examiner, experiencing a 'mock viva', seeking advice from colleagues or making a summary of the thesis and anticipating questions. Half their sample (54%) reported that they had little or no help from their supervisor in preparation.

Hartley and Fox (2004) report a study of the 'mock viva', using a sample of students from UK universities who had experienced this form of preparation. They found huge variations in the amount of advice given about how to prepare for the mock viva. The great majority of candidates (90%), however, had found the experience useful.

Two articles by Wisker and colleagues (2002 and 2004) give details of an innovative approach taken at Anglia Polytechnic University with cohorts of distance learning students. They have used a continuous assessment tool to encourage 'meta-learning' and workshops to prepare for the viva. They found students benefit from opportunities to discuss and defend their research in workshops, as well as from feedback on their learning processes from the use of the assessment tool.

Tinkler and Jackson (2002) argue from their data (which is part of a larger study) that the viva is extremely variable, and thus unpredictable, and that it is therefore difficult for supervisors and candidates to prepare for it. Assessment of the research skills and academic content of the thesis is the most predictable element, but the assessment of broader issues and the conduct of the examiners themselves are less predictable, and highly variable. Among their sample, 90% drew on advice from supervisors and 57% on advice from other students to help prepare themselves.

4.1.2 The viva itself

Wallace and Marsh (2001) provide case studies of the viva experiences of six successful candidates, using open-ended interviews. Although small-scale, their study is one of the more methodologically sound examples in our sample. They found that, even for successful candidates, the viva process had been generally negative in four of the six cases. This was seen mainly to be because of the attitude and behaviour of the examiners. There was, as discussed above, a mismatch in the expectations of candidates and the process of the examination. They confirm the findings of Denicolo and colleagues that there is a lack of clarity about the purposes of the viva.

Hartley and Fox (2002) explicitly set out to test some of the propositions put forward by Wallace and Marsh. They reanalysed the data from an earlier survey of a sub-sample of 85 psychology PhD candidates who had been successful in their viva (Hartley and Jory, 2000). Their findings partly support those of Wallace and Marsh, in that 81% of those who had positive feelings about their examiners felt that the viva experience was positive, whereas 75% of those who expressed negative attitudes, experienced the viva as negative overall. Hartley and Fox suggest that the role of the supervisor during the viva might have some influence on how it is experienced.

Hughes *et al* provide an account of the reactions of the candidate, her supervisor and a senior member of staff to a viva which resulted in pressure to do a major rewrite of a thesis within a different paradigm to the one in which it was originally carried out. This was resisted and the thesis was ultimately examined by someone else. This is an individual account, but makes a more general point about the lack of clear criteria and the role of paradigms and philosophical approaches in assessing PhDs. A similar experience is also recounted by Humberstone (1997) in an account of her personal experience of a clash of paradigms. Rudd (1985) in his study of postgraduate failure found only two students in his study had progressed as far as the viva. They reported that their failure at this late point was due to ideological differences between them and their examiners about the approach they had taken.

Tinkler and Jackson (2002) report a widespread feeling of lack of regulation and feelings of powerlessness among PhD candidates in relation to the viva. In their ethnographic account of the process of one viva, Trafford and Lesham (2002) document the processes involved in a positive viva experience. They argue that the student's experience was shaped by three factors – the quality of scholarship in the

thesis, the personal resilience of the candidate and interpersonal awareness of all concerned.

4.1.3 After the viva

The impact of the viva on students' feelings of confidence and self-worth is, in some cases, quite considerable. For example, Utley (1998) reports on a student who was so traumatised by his viva that he gave up a post in academia. However, this extreme case was found in a newspaper report and does not form part of a research study.

Jackson and Tinkler (2001) report that 17% of their sample experienced a decrease in their sense of intellectual competence, but 53% experienced an increase; 16% expressed a decreased desire to work in academia compared to 19% who were more keen to do so. Jackson and Tinkler conclude that, overall, the viva has a negative effect on one in six candidates **but** that the 'disillusioned' students are evenly divided between those who passed and those who were referred.

4.2 Commentary on the findings from the in-depth review on the viva

One notable finding from this review is the lack of direct evidence (from students themselves) about their experiences of the thesis examination and the viva. Another is the modest or even poor quality of the evidence. Few of the studies summarised above could be assessed as of high quality, either because of poor research design **or** because we are not given sufficient evidence on which to base an assessment of their quality, because the methodology is not reported in enough detail. We thus lack any robust research on the viva – a key element in doctoral assessment.

However, there appear to be some consistent themes emerging from the analysis:

- There is a lack of clarity on the part of examiners, supervisors and candidates about the purposes of the viva
- The viva is perceived by both supervisors and candidates as an unpredictable process and difficult to prepare for
- 'Mock' or practice vivas are a rare occurrence, although candidates who experienced them reported that they were useful
- Mismatches between the research paradigms of the student and the examiner can lead to disagreement about the validity of a thesis, particularly in the social sciences, and
- The attitude and personal conduct of examiners is a key factor in whether the viva is perceived as a positive experience, even among successful candidates.

5. Implications of these findings for policy and practice

One of the main outcomes of this study has been the identification of the general paucity and sometimes inadequacy of the existing literature on the working context and support for postgraduate research students in the UK. It is difficult to formulate implications for policy and practice on the basis of what is available.

5.1 Implications of the findings from the mapping review

Much of the literature we encountered on the UK was written from the perspectives of policy makers, or consisted of academics' reflections on the changes being made to doctoral studies. The latter expressed feelings of powerlessness about what was 'being done to' the doctorate (and hence to doctoral students). But we know little about what students think of these changes.

Our findings and the lack of research suggest doctoral students are not (yet) seen as 'customers' to be attracted and consulted – not even to the same extent as undergraduates. Research students numbers have been small in the past, but they have grown recently especially in applied fields, while doctoral students' contribution to scholarship is less and less recognised. The 'original contribution to knowledge' is likely to be further down-played by the current stress on the doctorate as a training. Issues of widening participation at postgraduate level, any research on it, has also not been a national priority.

However, with increasing international competition for doctoral students (especially with Australia and North America) and the UK's lead role in moves to a more structured PhD within the EU, it is important that we evaluate the changes underway. We need to know better what we are moving from, in order to establish past strengths and problems, and to, in order to evaluate how effective new initiatives may be. Many recent policy decisions have been based on a slender knowledge base. If policymakers are saying 'look at how much money we invest in HE, you must be accountable', we would respond, 'but look at how little you invest into research into what we do'.

This is not because people are not interested in doing the research. We met several who had applied for funding repeatedly, but been unsuccessful despite alpha ratings. One suggestion would be to make research on the doctoral students in ones own field eligible for the RAE for non-Educationalists. We would also encourage the Research Councils and Funding Councils when they commission research, not just to look at the research students they themselves fund or are responsible for, but across the board. They should recognise and bear in mind the diversity (age, gender, domicile, discipline) of research students, so that initiatives aimed at full-time home science students do not have unforeseen knock-on effects on, for instance, mature students in philosophy or anthropology.

5.2 Implications of the findings from the in-depth review of the viva for policy and practice

The themes emerging from the studies make clear that more could be done to improve students' experience of the viva and to ensure it encourages them to do further research and to publish. Much of this is consistent with the requirements and

guidance contained within Precepts 22- 24 in the new QAA Code of Practice for research degree programmes. Our in-depth review endorses the importance of these precepts and there is no disagreement among the studies we reviewed. Institutions should consider whether their vivas achieve the following practice:

- There needs to be a clear understanding established between examiners, supervisors and students about the purposes of the viva.
- There should be agreed standardised procedures for the conduct of vivas, including the presence of a neutral chair and the supervisor.
- Supervisors should pay more attention to viva preparation and use a variety of techniques to support students to prepare. These can include workshops to present findings and receive peer feedback to encourage and appropriate defence of the thesis, attending conferences to note the sorts of questions likely to be asked, as well as support from the supervisor and a mock viva.
- Selection of examiners needs to be done with care, focusing not just on subject knowledge but also on the philosophical approach to the subject matter.
- Training should be available for PhD examiners in all aspects of the examination, including the effects of their behaviour during the viva.
- Students should familiarise themselves with their external examiner's work.
- Students and supervisors should ensure that the thesis is 'as good as it can be' before submission for examination. This includes presentation as well as substantive content. The use of an internal reader is recommended.
- Vivas should be held in conditions that allow students to perform to the best of their ability. Attention should be paid to issues of gender, race, disability and English as a second language status in interactions.

6. Recommendations

Although proposing recommendations is not strictly within the terms of reference of the study, as the work progressed it was clear that it raised issues for both on-going activities relating to the literature review and to the development of policy and practice within research degree programmes.

6.1 Recommendations relating to the methodology

We suggest that the Academy should encourage HE researchers to specify fully the details of their sampling frames and of the individuals in their studies. In the case of research on postgraduates, the latter should include information on the level and type of course (differentiating Masters and Doctoral levels), mode of study, funding if any, age, domicile, ethnicity and gender of the students sampled.

HEIs and official bodies should ensure theses and their own publications are recorded on BEI and made available electronically.

We recommend that the Academy consider the EPPI Centre methodology and particularly the EPPI-Reviewer tool as a future mechanism for literature reviews. The transparency and rigor of the methodology provides a reproducibility that will allow reviews to be updated regularly and therefore kept current. The flexibility of EPPI-Reviewer compared to Endnote provides researchers with far more opportunity to explore the literature in a systematic manner – as we ourselves hope to do in future academic articles.

We recommend that this report is made available through the EPPI-centre site as well as from the Academy.

6.2 Recommendations relating to policy and practice

To maximise the value of the Academy's investment in this review and the benefit to the sector, it is critical that this review is the start of an on-going database of the literature relating to doctoral education for the use of researchers in this field and policymakers.

We recommend that the Academy consider ways update periodically the literature map for doctoral education through the EPPI-Centre. Alternatively, they may wish to consider methods for individual researchers to add relevant literature to the Endnote file by using the key-wording template, with necessary checks for consistency of coding. (It is likely that this route would still require a periodic review for quality assurance purposes.)

We are conscious also that, despite our preconceptions of the lack of research in the area of doctoral education, we have only scratched the surface of the relevant literature. By focusing our activities on UK research that relates directly to the student experience, we have not explored the bulk of material that relates to other aspects of UK doctoral education.

Furthermore, we have not had the resources to explore research studies conducted outside of the UK. In particular, there is a wealth of research in Australia that is likely to have applicability to the UK environment. We are aware of an attempt to undertake

a review of the Australian literature by Dr Adam Chapman at the Graduate Research School at the Australian National University. Although there may be issues with compatibility of techniques, it might be possible to link into this study.

We recommend to the Academy, or other funding bodies, that they consider extending this literature review using the same methodology to other aspects of doctoral education.

Conversely, it is clear from the lack of relevant studies that much of the current policy initiatives lack a sound research base, particularly one based on the views of the researchers and the students involved. Given the emphasis the UK government places on evidence-based policy, and customer consultation, it is important to ensure that there is both the funding and resources to instigate research into the current changes in doctoral education.

This lack of an appropriate evidence base has been highlighted by the Rugby Team[18], a sector-led group that is exploring ways to measure the effectiveness of skills development of researchers within the context of the recommendations of Sir Gareth Roberts' review *SET for Success*. In their recent strategy paper they say:

> *Given the level of recent activity relating to RDPs and research staff, we (the Rugby Team) make a general recommendation to the UK HE funding bodies and research councils that they commission a study into the impact of recent changes to national funding and policy on PGRs and research staff. This study should build on existing evidence from, among others, the SET for Success review and the Careers in Research Online Survey (CROS) and examine how the supervision and training of PGRs and the management of early career research staff is developing in response to revisions to the QAA Code of Practice (PGR), the Roberts investment in transferable skills training and other related initiatives.*
>
> *The study should also establish the basis for longitudinal work – allowing funders or other stakeholders to repeat the study and thus build up an impression of development over time. We further recommend that the study should be conducted within the current academic year, if possible, to allow as far as possible a comparison to be drawn between the experiences of PGRs and research staff before and after the most recent changes in policy and funding.*

We endorse this recommendation.

It has been clear throughout this study that our review is of interest to the sector. A map of the literature relating to doctoral education has been lacking and we commend the Academy for commissioning this small study. To ensure that the sector benefits from our activity, it is important that the both the findings and the substance of our review is widely published and accessible and we support the current Report being reworked into a briefing papers for different audiences and purposes.

We recommend to the Academy that, as part of their dissemination activities, they use the networks of the key bodies concerned with postgraduate education, such as the UK GRAD Programme, UKCGE, SRHE, NPC and BERA. The UK GRAD Programme

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[18] www.grad.ac.uk/rugby team

has a national network of Hubs that have key contact points within every institution with specific interest in doctoral education.

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Appendix 1: Texts on students' experience of the doctorate the UK which are the basis for this review

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Youngman, M. (1994). "Supervisors' and students' experiences of supervision", in R. G. Burgess. Postgraduate education and training in the social sciences: processes and products. London, Jessica Kingsley: 75-104.

Zainal Abiddin, N. (2004). Effective supervision of research students: a study of United Kingdom University practices and overseas students' experiences. PhD. Manchester University.

Appendix 2: Definition of terms

Doctoral students (or postgraduate researchers, or doctoral candidates, see footnote 1) include all those registered and studying for the traditional and the New Route PhD and professional doctorates, such as EdD, D. Eng. etc; and also students in the UK registered for the MRes. (a Masters degree that is now a compulsory training for AHRC and ESRC-funded PhD study). It includes all disciplines – sciences, engineering and technology, social sciences, humanities and arts (including practice-based doctorates). It includes part-time and full-time students, those funded by grants and scholarships or by employers, as well as self-funded students.

Context refers to the institution in which research students are working (normally a university or other higher education institution), but may also include those based in research institutes and government-funded agencies, such as Ministry of Defence research establishments and linked to universities.

- Context also includes the location of the university and whether elite (Russell Group) or other, variation by different disciplinary settings, the RAE rating of the department (in the UK), the research environment in the department, the postgraduate or doctoral school provision for doctoral candidates (including study areas) and other facilities (libraries, laboratories, grants, equipment, IT support, financial and careers advice, language support, etc.).
- The national and institutional policy context (the emphasis given to completion rates and times, the redefinition of the doctorate to stress transferable skills/employability e.g. through compulsory courses on research skills and methods).
- The existence of a 'research community' either within the institution or across the discipline, and support for research student networks/support groups, conference attendance and publication.
- Whether the research student is part of a research team or working individually.

Elements of the learning context include:

- Research students' personal circumstances and characteristics (e.g. age, financial situation, gender, accommodation during studies, family responsibilities, full- or part-time or mixed study modes, residential status, nationality, language ability, the relation of the doctoral research to employment (including existing academic employment) during the doctorate, experiences of teaching and other research involvement during the doctorate).
- Pedagogy – for example, the pattern of taught courses at doctoral level, including on research methodology and transferable skills; how supervision is delivered and monitored; language and writing support, and the mixture of face-to-face and distance learning.
- Assessment – forms of formative assessment and quality assurance (e.g. annual reports and upgrading procedures), thesis and oral examination and other forms of assessment, including assessment of performance or art work.

Experiences refer to the perceptions and evaluations of the research students and their supervisors of their doctoral studies within the dimensions outlined above, including the ways in which research students learn and work, how they feel about it,

their sense of identity, sources of support, and how contextual elements helped or impeded their progress.

Outcomes refer to success or non-completion of doctoral studies and the length of time to completion, effects on current and future careers and employability, and effects on personal and social relationships and identities. It also includes the knowledge, skills and understanding – subject specific and generic - acquired during the doctorate, and attitudes to doing further study and research.

Effects imply some kind of causal relationship between the elements of the learning context and research candidates' experiences and outcomes.

Appendix 3: Journals, databases, websites and reference lists searched

1. Key higher education journals

We have hand searched the following for the period January 1985 to 2005 unless otherwise stated:

- Australian Universities' Review (from Vol.35, 1992, as available in IoE library)
- Higher Education
- Higher Education in Europe
- Higher Education Management and Policy
- Higher Education Policy
- Higher Education Quarterly (from Vol 41, 1987, as available in IoE library)
- Higher Education Research and Development
- Higher Education Review
- Journal of Graduate Education
- Journal of Higher Education
- Quality in Higher Education
- Research in Higher Education
- Review of Higher Education
- South African Journal of Higher Education (from Vol.3, 1989, as available in IoE library)
- Studies in Higher Education
- Teaching in Higher Education

These hand searches found around 190 articles.

2. Databases

The following have been searched using key-word and free text searches:

Australian Education Index
The following search terms were used in AEI:
doctorate (29-12-2005)
PhD (29-12-2005)
doctoral supervision (29-12-2005)
supervision (29-12-2005)
doctoral + experience + support (29-12-2005)
doctoral experience (29-12-2005)
PhD + experience + supervision + satisfaction (29-12-2005)

The freely available **Australian Education International** database was also checked but no additional material found.

British Education Index
BEI has been searched by a combination of the following search terms: doctor$ OR postgrad AND experience, doctoral OR postgrad$ AND experience, doctoral OR postgrad AND support, doctoral OR postgraduate AND satisfaction, doctoral OR postgraduate AND community, doctoral OR postgraduate OR research student,

doctoral OR phd AND experience, doctoral OR phd AND support, doctoral OR phd AND supervision, doctoral OR phd AND satisfaction, doctoral OR phd AND community. These sets were combined and duplicates dropped, which resulted in 1109 references, of which a selection has been made on the basis of the title. (02-12-2005)

Educati*onLine*
Educationline was searched using the following search terms:
postgraduate (in title field, 09-12-2005)
postgraduates (in title field, 09-12-2005)
doctoral (in title field, 09-12-2005)
doctoral theses (in subject field, 09-12-2005)
doctoral degrees (in subject field, 09-12-2005)

British Education Index Resource Catalogue (BEIRC) and the **Social Sciences Information Gateway (SOSIG)** were also searched for useful references.

ERIC
Search (1) PHD.NT. (2) PHD or ph.d. (3) 2 not 1 (4) 3 or doctoral or doctorate (5) experience or support or satisfaction or community or supervis$ or studies or education or training (6) 4 and 5 > gave over 5,500 hits, too many so not followed up (27-01-2006)
ERIC was searched again (27-01-2006) using the following search terms for the period 1985-2006:
doctoral experience: 17 hits that were skimmed on relevance by abstract
doctoral support: 2 hits (idem)
doctoral satisfaction: 1 hit (idem)
doctoral community: 1 hit (idem)
ERIC search (27-01-2006):
    1. experience OR satisfaction OR support OR community (in title or abstact)
    2. ph.d. OR phd OR doctoral OR doctorate
    3. 1 and 2
2,421 hits, 200 of which were skimmed on relevance by abstract
ERIC search (22-11-2005): doctoral OR graduate students AND experience

Search term 'doctoral' gave 12,555 hits and some dozens have been skimmed to check which key words are used.

ERIC was also searched for specific references to doctoral study in Australia, New Zealand and South Africa.

Google
Search term 'doctoral experience' (26-01-2006) gave around 15 references, right on topic but mainly on the US.

Google Scholar
Google Scholar was searched using the following search terms:
doctoral community (15-12-2005)
PhD student satisfaction (15-12-2005)
doctoral supervision (15-12-2005)

(British Library) Index to Theses
The Index to Theses was searched using the following search terms:

research students (15-11-2005)
phd (15-11-2005)
research studies (15-11-2005)
research education (15-11-2005)
research supervision (15-11-2005)

The Institute of Education Library catalogue was searched for possible material and some individual chapters of books were checked.

Other databases

Around 20 references were found on CSA databases (i.e. in **Sociological Abstracts**, **ASSIA** [Applied Social Sciences Index and Abstracts], **LISA** [Library & Information Science Abstracts] & **Social Services Abstracts** using search terms doctoral and experience [on 06-02-2006]. Half of these references have been useful, while the other half was excluded after viewing the full papers.

ZETOC (which provides access to the British Library's electronic tables of contents of journals and conference proceedings) was searched for doctoral and experience or completion or supervision, and produced a small number of additional references.

CERUK (Current Educational Research in the UK) was searched using search term 'doctoral'.

The Web of Science Citation Indexes were searched for references to work by Sara Delamont, which lead to around 10 articles, none of which was subsequently included.

Websites

The following websites have been searched for useful references:

Association of Dutch Universities
www.vsnu.nl

Centre for Women Studies, The University of Western Australia
www.cloe.uwa.edu.au/outskirts

Centre for the Study of Higher Education, University of Western Cape
www.epu.uwc.ac.za/

Department for Education and Skills
www.dfes.gov.uk

Education Conference Programmes
http://brs.leeds.ac.uk/~beiwww/becp.htm

Eurodoc (European Council of doctoral candidates and young researchers)
www.eurodoc.net

Eurydice: the information network on education in Europe
www.eurydice.org

Higher Education Funding Council for England
www.hefce.ac.uk

National Postgraduate Committee
www.npc.org.uk

Observatory on Borderless Education
www.obhe.ac.uk

Research Councils UK (but not individual Research Councils)
www.rcuk.ac.uk

South African online information net
www.sabinet.co.za

Quality Assurance Agency
www.qaa.ac.uk

Quality in Postgraduate Research Conferences
www.QPR.edu.au

Society for Research into Higher Education
www.srhe.ac.uk

Times Higher Education Supplement
www.thes.co.uk

UK GRAD Programme
www.grad.ac.uk

UK Council for Graduate Education
www.ukcge.ac.uk

Wellcome Trust
www.wellcome.ac.uk

4. Reference lists

Reference lists of key books and articles

We searched the following reference lists of key books and articles to find chapters in edited books.

Higher Education Research and Development (Vol. 4, No. 2 May 2005), special issue

Studies in Continuing Education (Vol. 26, No. 3, Nov 2004), special issue

Research into Higher Education Abstracts (Vol. 38, No. 3, Oct 2005)

Burgess, R.G. (ed.) (1994) *Postgraduate Education and Training in the Social Sciences: Processes and Products* (London: Jessica Kingsley)

Delamont, S, P. Atkinson, and O. Parry (2000) *The Doctoral Experience: Success and failure in Graduate School* (London: Falmer)

Graves, N. and V. Varma (eds.) (1997) *Working for a Doctorate: A Guide for the Humanities and Social Sciences* (London: Routledge)

Green, H. and S. Powell (2005) *Doctoral Study in Contemporary Higher Education* (Maidenhead: SRHE)

Kivinen, O., S. Ahola and P. Kaipanen (eds.) (1999) *Towards the European Model of Postgraduate Training* (Turku: University of Turku)

Leonard, D (2001) *A Woman's Guide to Doctoral Studies* (Buckingham: Open University Press)

Reference lists of included articles

Reference lists from all the UK texts entered into EPPI-Reviewer were hand searched for relevant articles (resulting in around 150 new relevant chapters and articles). This hand search also lead to several conference websites which were searched for relevant papers.

Appendix 4
Keywording sheet

1. Identification of report
Citation
Contact
Handsearch
Unknown
Electronic database
Internet search
(*please specify which*)
…………………………………………
…………………………………………
…………………………………

2. Status
Published
In press
Unpublished

Public (i.e. available and where)
Private (i.e. not available)
(tick all that apply)

3. Linked reports
Is this report linked to one or more other reports in such a way that they also report the same study?
Not Linked
Linked *(please provide bibliographical details and/or unique identifier)*
………………………………………
………………………………………
………………………………………
4. Language *(please specify)*

English
Other (specify)……………………

5. In which country/countries was the study carried out? *(please specify)*

……………………………
……………………………
……………………………
……………………………
……………………………

6a. Type of research degree
PhD
Professional doctorate (eg EdD)
MPhil
MRes
Doctorate other

6b What is/are the main topic focus/foci of the study?

Motivation to undertake a doctorate, aspirations

Working/studying context
- National changes
- Institutional provision (Postgraduate Schools, office accommodation for students, housing, computing facilities, library)
- Departmental context (research quality and intensity, support, student access to other staff, seminars)

- Number / 'critical mass' of other research students, peer cultures and social life in department,
- Pastoral support, counselling and mentoring
- Other (specify) ……………

Pedagogy and curriculum
- Supervision
- Teaching
- Computer Moderated Communication (distance learning, email supervision, web enrichment)
- Courses/training
    Subject specific courses
    Research methodology
    M Res
    Generic/ transferable skills courses
- Academic literacies, writing and publication skills
- Research teams
- Other (specify) ………..

Peer support (f2f or online)
- Informal peer support groups, friendship, isolation, work groups
- Research teams
- Students unions and societies

Personal
- Identity change/ academic socialisation/ induction,
- Perception of doctoral

experience (quality of teaching, feeling of belonging or loneliness, poverty, inc satisfaction surveys)
- Other (specify) ………..

Family and employment support/ responsibilities

Assessment
- formative,
- QA, monitoring progress,
- of thesis
- viva

Outcomes
- Employment patterns
- Completion rates and times
- Non-completion/drop out
- Dissemination
- Other (specify) ………….

Student diversity, where a specific concern of the study. Differences by:

- Gender
- Race
- Social class,
- Age (young, mature/ experienced),
- Domicile/ cultural heritage/ international,
- E2L/ Non English Speaking background (NESB)
- Entry qualifications, prior experience
- Mode of study
- Mode of funding,
- Discipiine
- Type of doctorate (PhD/ prof doc)
- Other (specifiy) ……………..

7a Mode of study (tick all that apply)
Full time
Part-time
Mixed full and part-time attendance
Not stated

Face to face
Distance learning
Mixed f2f and distance
Not stated

7b Mode of funding (tick all that apply)
Self-funded (inc. family)
Research council award
Other award
Employer-funded

Combining several sources *(give details) …………………….*
Not stated

8. Discipline (tick all that apply)
Science.,/Engineering/Technology
Arts and Humanities
Social Science
Education
Medical and related/ health
Business and Management
Interdisciplinary (specify) ………..
Other (specify) …………………
Not stated

9. What is/are the population focus/foci of the study? (tick all that apply)

Home students (of the country of study)
International students (specify country if known ………………)
Research students (not otherwise specified)
Post doctoral fellows
Senior or departmental management
Teaching staff inc supervisors
Non-teaching staff
Employers
Other *(specify)……………………*

10 Age of learners (years) (tick all that apply)
21-25 (Beginning researchers)
26-35
36-50
50+ (late career/retirement)
Mixed or not specified

11. Characteristics of learners
Gender
    Women only
    Men only
    Mixed or not specified

Ethnicity
    Majority ethnic group of country of study
    Minority ethnic group of country of study
    Indigenous/aboriginal
    International students
    Mixed group
    Not stated

Special needs   Y/N
(If YES, give details)

12. What is/are the educational setting(s) of the study?
Higher education institution
Private Research Institute
Government Research Institute
Government Department
Workplace
Other educational setting
    (specify)……..…….

12b Status of HEI
High status
Medium/low status
Not known/not stated
Combination of high + low status

13. Which type(s) of approach is adopted in this report? (tick all that apply)
A. Basic description (e.g. a descriptive survey or account of experiences or events)
B. Exploration of relationships (developed analysis of links between two or more variables)
    a. qualitative
    b. quantative
C. Evaluation (outcome of a change in policy or practice)
    a. external intervention
    b. researcher-manipulated
D. Problematising categories used and/or self-reflexive about the researchers' role.
E. Methodology
F. Review
    a. Systematic review
    b. Other review (including expert committee reports)

14. To assist with the development of a trials register please state if a researcher manipulated evaluation is:
Controlled trial (non-randomised)
Randomised controlled trial (RCT)

15. Theoretical underpinnings of study.
Specified (write in) …………………
Not specified

Appendix 5: Table of studies included in the in-depth review of the viva

Item	What is/are the population focus/foci of the study?	Age of students (years) (tick all that apply)	What is the gender of students in the study?	What is the enthnicity of students in the study?	Do the students in the study have special needs?	Within which discipline(s) do the doctoral students study ?	What is/are the educational setting(s) of the study?	Which aspects of assessment does the study focus on?	Which type(s) of study does this report describe?	Which outcomes does the study focus on?
Denicolo, P.; Boulter, C.; Fuller, M. (1999) The higher degree viva - a case of constructive alternativism	Research students (not otherwise specified) Teaching staff inc supervisors Other (specify) *Examiners*	Not specified	Not stated	Not stated	Not stated	Education	Higher education institution	Viva	Problematising categories used and/or self-reflexive about the researchers' role	The study does not focus on outcomes
Denicolo, P.M. (2001) Doctoral degree assessment criteria: transparency through exploring teacher thinking	Research students (not otherwise specified) Teaching staff inc supervisors	Not specified	Not stated	Not stated	Not stated	Not stated	Higher education institution	Assessment of thesis Viva	Description	The study does not focus on outcomes
Hartley, J. (2000) Lifting the veil on the viva: The experiences of psychology PhD candidates in the UK	Research students (not otherwise specified)	Not specified	Mixed sex *60% women, 40% men*	Not stated	Not stated	Social Science *all psychology PhD students*	Higher education institution	Viva *experiences of viva*	Evaluation: Naturally occurring	The study does not focus on outcomes
Hartley, J.; Fox, C. (2002) The viva experience: examining the examiners	Research students (not otherwise specified)	Not specified	Not stated	Not stated	Not stated	Social Science *Psychology*	Higher education institution	Viva *Compared the experiences of candidates who had an external and an internal examiner only with those who also had a chairperson or a supervisor present at the viva.*	Evaluation: Naturally occurring	The study does not focus on outcomes

Item	What is/are the population focus/foci of the study?	Age of students (years) (tick all that apply)	What is the gender of students in the study?	What is the enthnicity of students in the study?	Do the students in the study have special needs?	Within which discipline(s) do the doctoral students study ?	What is/are the educational setting(s) of the study?	Which aspects of assessment does the study focus on?	Which type(s) of study does this report describe?	Which outcomes does the study focus on?
Hartley, J.; Fox, C. (2004) Assessing the mock viva: the experiences of British doctoral students	Research students (not otherwise specified)	21-25 (Beginning researchers) 26-35 36-50 50+ (late career/ retirement)	Mixed sex	Not stated	Not stated	Science,/ Engineering/ Technology Arts and Humanities Social Science *Psychology* Education *Educational technology*	Higher education institution	Viva *Mock viva*	Evaluation: Researcher-manipulated	The study does not focus on outcomes
Hartley, J.; Jory, S. (2000) Lifting the veil on the viva: the voice of experience	Research students (not otherwise specified)	Not specified	Mixed sex *60% of sample women, 40% men*	Not stated	Not stated	Not stated *doctoral students from Keele University*	Higher education institution	Viva *preparation for viva, viva arrangements, experience of viva, feelings after viva*	Exploration of relationships Evaluation: Naturally occurring	The study does not focus on outcomes
Hughes, J.; Denley, P.; Whitehead, J. (1998) How do we make sense of the process of legitimising an educational action research thesis for the award of a PhD degree? A contribution to educational theory	Home students (of the country of study) Teaching staff inc supervisors	26-35	Female only	Not stated	Not stated	Education	Higher education institution Workplace	Assessment of thesis	Description Problematising categories used and/or self-reflexive about the researchers' role	Other (please specify) *Validation of knowledge in a thesis and process of resubmission after referral.*

Item	What is/are the population focus/foci of the study?	Age of students (years) (tick all that apply)	What is the gender of students in the study?	What is the enthnicity of students in the study?	Do the students in the study have special needs?	Within which discipline(s) do the doctoral students study ?	What is/are the educational setting(s) of the study?	Which aspects of assessment does the study focus on?	Which type(s) of study does this report describe?	Which outcomes does the study focus on?
Humberstone, B. (1997) Challenging dominant ideologies in the research process	Home students (of the country of study) Other (specify) *Examiners*	Not specified	Female only	Not stated	Not stated	Social Science *Feminist sociology of sport and physical education* Education	Higher education institution	Assessment of thesis *Issue of an examiner insistent that an alternative paradigm be included: issues of assessment of the credibility of research.*	Description Problematising categories used and/or self-reflexive about the researchers' role	Other (please specify) *Requirement that the thesis be changed substantially and in a way which the student found antithetical.*
Jackson, C.; Tinkler, P. (2001) Back to Basics: a consideration of the purposes of the PhD viva	Research students (not otherwise specified) Teaching staff inc supervisors Other (specify) *Examiners*	Not specified	Mixed sex	Not stated	Not stated	Science,/Engineering/Technology Arts and Humanities Social Science	Higher education institution	Viva	Exploration of relationships	The study does not focus on outcomes
Phillips, E.M. (1994) Quality in the PhD: points at which quality may be assessed	Research students (not otherwise specified) Teaching staff inc supervisors	Not specified	Mixed sex	Not stated	Not stated	Social Science *anthropology, economics, geography, industrial relations, psychology, sociology, international relations.* Business and Management	Higher education institution	Formative assessment QA, monitoring progress Assessment of thesis Viva	Exploration of relationships	The study does not focus on outcomes

Item	What is/are the population focus/foci of the study?	Age of students (years) (tick all that apply)	What is the gender of students in the study?	What is the enthnicity of students in the study?	Do the students in the study have special needs?	Within which discipline(s) do the doctoral students study ?	What is/are the educational setting(s) of the study?	Which aspects of assessment does the study focus on?	Which type(s) of study does this report describe?	Which outcomes does the study focus on?
Rudd, E. (1985) A New Look at Postgraduate Failure	Home students (of the country of study)	Not specified	Mixed sex	Not stated	Not stated	Not stated	Higher education institution	Assessment of thesis	Exploration of relationships	Non-completion/drop out
Tinkler, P.; Jackson, C. (2002) In the dark? preparing for the PhD viva	Research students (not otherwise specified)	Not specified	Mixed sex	Not stated	Not stated	Science,/Engineering/Technology Arts and Humanities Social Science	Higher education institution	Viva *The study examines quality and standards issues that arise in relation to setting uo and preparing for the viva.*	Description	The study does not focus on outcomes
Trafford, V.; Leshem, S. (2002) Anatomy of a doctoral viva	Research students (not otherwise specified) *1 student (viva candidate)* Teaching staff inc supervisors *1 supervisor (present at viva)* Other (specify) *2 examiners*	Not specified	Not stated	Not stated	Not stated	Not stated	Higher education institution	Viva	Description	The study does not focus on outcomes
Utley, A. (1998) Grilling left student burnt out	Home students (of the country of study) *only 1 person (author's experiences)*	Not specified	Male only	Not stated	Not stated	Science,/Engineering/Technology *biology* Not stated	Higher education institution	Viva *student passed viva with substantial rewrites, says he was grilled in the viva, says that after viva he lost confidence and several good job opportunities*	Description	Other (please specify) *loss of confidenec and employment opportunities after disillusionment with viva*

Item	What is/are the population focus/foci of the study?	Age of students (years) (tick all that apply)	What is the gender of students in the study?	What is the enthnicity of students in the study?	Do the students in the study have special needs?	Within which discipline(s) do the doctoral students study ?	What is/are the educational setting(s) of the study?	Which aspects of assessment does the study focus on?	Which type(s) of study does this report describe?	Which outcomes does the study focus on?
Wallace, S.; Marsh, C. (2001) Trial by ordeal or the chummy game? Six case studies in the conduct of the British PhD viva examination	Research students (not otherwise specified) Other (specify) *Examiners*	36-50	Mixed sex	Not stated	Not stated	Social Science Education	Higher education institution	Assessment of thesis Viva	Description Evaluation: Naturally occurring	Other (please specify) *Outcomes of the viva and students' experience of the examination.*
Wisker, G. (2004) Achieving a doctorate: metalearning and research development programmes supporting success for international distance students	International students (specify country if known) Teaching staff inc supervisors	Not specified	Not stated	International students *Israeli students*	Not stated	Not stated	Higher education institution *Anglia Poly-technic University*	Formative assessment QA, monitoring progress Viva	Evaluation: Naturally occurring	Completion rates and times Non-completion/drop out
Wisker, G.; Robinson, G.; Trafford, V.; Warnes, M. (2002) Getting there in the end: contributions to the achievement of the PhD	Home students (of the country of study) International students (specify country if known) Teaching staff inc supervisors	Not specified	Not stated *Assume mixed group*	Inter-national students Mixed group *Some from UK and some from Israel*	Not stated	Science,/ Engineering/ Technology Arts and Humanities Social Science Medical and related/ health	Higher education institution	Formative assessment QA, monitoring progress Viva	Evaluation: Naturally occurring	Completion rates and times

Appendix 6: Structured summaries of texts on students' experiences of the viva

Denicolo, P., C. Boutler, and M. Fuller (1999)
'The higher degree viva – a case of constructive alternativism'
In: J.M. Fisher and D.J. Savage (eds.) *Beyond Experimentation into Meaning (Farnborough: EPCA Publications), pp. 43-52*

Study focus: This paper is part of the author's ongoing research project on Higher Degrees by Research and has its origins in the author's professional experience. The aim of this project is to make more transparent and to inform and improve the practice of examination of doctoral degrees in the social sciences, with a specific focus on education in the UK. This article is an attempt to start to describe viva experiences from the different viewpoints of the participants in the viva examination.

Population focus: Data presented are based on documents from 'all' UK HEIs. The project plans to examine 15 specific examination cases by interviewing research students, teaching staff (including supervisors) and examiners. However, the data presented in this study only include interview quotes from research students, supervisors and examiners in two pilot case studies (no information is given on their number and on how they were selected).

Discipline: Education

Educational setting, including status of HEI, if known: UK Higher education institutions (not further specified)

Details of the assessment/viva process studied: The research project focused on:

i. finding patterns in institutional regulations and procedures for the examination of PhD degrees in the social sciences in the UK;

ii. how these institutional regulations are interpreted and operationalised in practice in the sample institutions;

iii. the nature of critical points in the examination process from the perspective of viva candidates, supervisors and examiners; and

iv. further development of policy and practice in PhD examination to ensure equity and consistency while preserving diversity/institutional individuality.

The data presented in this article are based on two pilot case studies of vivas and only include four quotes from students (two quotes on viva preparation, one general quote on the viva experience, and one quote on feelings of isolation after the viva). A few quotes from examiners and supervisors are presented.

Evaluation details (including theoretical underpinnings, if discernible, and research methodology): The methods of the project would include:

i. documentary analysis of viva regulations and criteria in order to identify similarities and differences and to use this information to derive a sample of the range for in-depth study;

ii. interviewing registrars, deans, heads of departments, research directors, experienced and novice supervisors and examiners how regulations are interpreted and operationalised in practice;

iii. describing experiences of 15 examination cases of education doctorates on the basis of interviews with supervisors, examinee and internal and external examiners (these data would be collected before and after the viva).

The report problematises categories used and presents predominantly qualitative data. The data would be analysed *at a later stage* by using personal construct theory to recognise experiences from different perspectives; however, this is not yet done in this article.

Findings: Only the documentary analysis was almost completed and only two pilot studies were done to analyse viva experiences. Preliminary findings of the documentary analysis: there is little agreement about the expected standard and format of theses though this may be related to the vagueness of the documents analysed. Findings from the two pilot case studies were that examiners were concerned about thesis readability, presentation and readability, and that supervisors were concerned with thesis substance and candidate's presentation of self.

Assessment of reliability of findings based on agreed criteria: The aims of the wider research project are clearly reported, but when this article was published only the first stage of the project's analysis was completed. There is a clear description of the methods that have been and would be used to collect data. However, there is no clear description of the number of UK HEIs that the documents studied were drawn from, nor of the criteria for identifying the sample for in-depth study. The article does not mention criteria/details for choosing these specific two pilot studies.

The article mentions that the documentary analysis (first stage of the project) was nearly completed, but only spends a few sentences on reporting one result derived from the documentary analysis.

Implications for policy and practice: *Potential* implications mentioned: presenting a survey of UK PhD regulations to inform policy, the production of a strong explicit basis for new PhD examiners, raising the quality and consistency of the PhD examination process.

Denicolo, P. (2001)
'Doctoral degree assessment criteria: towards transparency through exploring teacher thinking'
Paper presented to ISATT conference, Faro, Portugal, 21-25 September.

Study focus: The first part of the paper presents the views of supervisors and examiners on problems with how the doctoral degree is currently assessed, especially as reported in various meetings organised by BERA, SRHE SIG and UKCGE round 2000. It then moves on to a study, undertaken following the work of Hartley and Jory (2001), which aimed at promoting reflection on staff and (research) students' understandings of the form and purposes of PhD assessment in the author's own Department. It 'confirms the presence of generic problems at the micro-level'. That is to say, there is a lack of commonality (a disparity) of understandings and a lot of uncertainty between and within staff and students as to what assessors are looking for, and the viva's importance relative to thesis.

Population focus/sample: Questionnaire sent to 80 staff and current and recent students (ie those who completed in previous 4 years) in one faculty. 32 responses were received (to date of paper presentation), ranging from research students in progress to experienced examiners. No details are given of proportions of each academic status among the respondents, nor their ages, gender, race etc., but the respondents do include some international students.

Also contains quotations for two 'ultimately successful overseas students', both academics in their home countries. Not clear how these relate to the main survey, if at all. They are cited as evidence of cultural plurality in supervision and the examination process: the difference between what they expected and what they met in England. But do not obviously relate to the viva.

Discipline: Education

Educational setting, including status of HEI, if known: Education department, Reading University (not Russell Group)

Details of the assessment/viva process studied: Variety of understandings among staff and among students, even in one discipline/ department due to the 'lack of overt criteria for assessment of doctoral work'.

Evaluation details (including theoretical underpinnings, if discernible, and research methodology): There is no specified theory underpinning the research. It is based on a small descriptive self-completed questionnaire survey. It is not indicated how this was distributed, how long it was, what it covered (other than by the subheadings used to cover the description of the data), nor how it was analysed. It is not easy to distinguish the student responses from those of examiners and supervisors. Some difference between current students and previous candidates are remarked upon.

Findings: Thinking about the topic itself 'raised a lot of issues in the department' (i.e. the topic is not usually thought about). Current students (unlike examiners, supervisors and previous candidates) do not mention assessors are looking for a

'contribution to the body of knowledge' but rather that they are 'checking if research methods were appropriate'. Both recent candidates and current students gave a range of answers as to how important the viva was; but all said the thesis was the highest priority. Many students thought the viva was 'just to check its your work'. Most students want requirements, including presentation and English, to be stringent to get a pass. A majority thought other forms of evidence than the thesis and the viva responses (progress reports, information about engagement in the field like giving conference papers) should be taken into account.

Assessment of reliability of findings based on agreed criteria: This is an interim report from a small-scale study undertaken primarily for staff development purposes. 40% response rate, but little information on the questionnaire structure (were there some open-ended sections from which the quotations were taken?). No information on analysis and no systematic results are presented.

Implications for policy and practice

- Departments need to clarify and communicate agreed practices to give clear criteria to students and supervisors.
- Training is needed for examiners.
- The process of doing research as well as the products should form the basis of assessment.
- The current process is too subjective.

Hartley, J. (1999)

'Lifting the veil on the viva: the experience of psychology PhD candidates in the UK'

Sent by the author in Nov 1999.

Study focus: The author sought to collect more representative data than the then existing mainly negative anecdotal evidence on UK research students' preparation for, and experience of, their PhD vivas. Appendix on different PhD assessment procedures in different countries. There are considerable overlaps with Hartley and Jory (2000) (see below) so similar material is coloured here.

Population focus/sample: See Hartley and Jory (2000).

Discipline: Psychology

Educational setting, including status of HEI, if known: Wide range of old and new universities across the UK.

Details of the assessment/viva process studied: Students' preparations for the viva, the viva arrangements, the viva experience, feelings immediately afterwards and subsequently, and recommendations they would make.

Evaluation details (including theoretical underpinnings, if discernible, and research methodology): No theoretical framework specified. Questionnaire (developed following semi- structured interviews with Psychology academics and recent graduates at Keele), with 57 items uses Lickert scaling and open-ended questions. Piloted outside Keele and revised. Sample drawn by email contact with HoDs of Psychology (c 100) requesting names and addresses of those who graduated in past few years, and a follow up letter was sent asking specifically if there was anyone who had failed or been referred, since there were so few in the list sent in reply to first letter. A letter asking for volunteers was put into the professional journal of BPS. 115 questionnaires were distributed and 83 respondents obtained from the first enquiry, 4 from the follow-up asking for those who had been referred, and 13 from the journal (11 of them women). Questionnaire is provided and 18 tables

Findings (not included those also reported in Hartley and Jory, 2000):

8% said they had English as a second language, but their responses were no different so included in the overall analysis. Few differences by gender or full/part-time; but statistically significant differences by results of the viva.

Overall finds that 85% were successful in their vivas and almost equally divided between those who found it positive and those who found it negative. The great majority thought their viva fair, though more than half had suggestions for improvement. Concludes the picture is rather more positive than anecdotal accounts suggest

85% of candidates had some say in choice of examiner and over 50% reported considerable influence. Most had little personal knowledge of their external examiner but 60% were well aware of his/her research.

Students employed a range of strategies in preparation for the viva – only 1 respondent did nothing, some one or two strategies, but mostly 3, 4 or more. Women used twice as many as men. Re-reading the thesis (85%), re-reading papers by the external examiner (30%), mock viva (23%), re-reading relevant papers (20%), anticipating questions (19%), seeking advice from colleagues (9%), made summaries (6%). ¾ sought advice form other people and ¼ from the literature. 22% got 'quite a lot' of help from their supervisors, 38% got a little and 14% none. Most found preparation helpful in some way but some found it increased anxieties.

A question added midway through asked if any examiners' worries had been fed to the candidates beforehand (20% had). Not all candidates found this helpful: could be alarming.

Concerns about the viva were grouped into three, each noted by roughly 1/3 of sample: fear of making a fool of oneself, fear of overall failure, fear of problems with statistics or unforeseen flaws, 3 (all men) had no concerns.

Time from submission to viva was approx 3 months, but with a somewhat wider range (1-8 months) for part-time students.

In 9% of cases there was an independent chair, or in 2% an observer. Those who had to do major revisions reported being statistically significantly more likely to have felt less confident at the start. 16% overall said no effort was made to put them at their ease (no difference by result). 42% of internal examiners played an equal role to that of the externals and 28% played a supportive role. Where internals were adversarial, candidates were more likely to be required to do major revisions. Almost 60% of supervisors did not attend the viva, and those that did usually did not speak. One or two (only) took notes, which helped with revisions. One (at least) attended against candidate's wishes.

2/3 were told of examiners recommendations after the viva (many commenting they were sent out and called back in – not always told at the start that this would be the procedure); 1/3 were told the result at the beginning, including half of those who passed outright.

After the viva 1/3 thought their previous fears had been justified; half said not; but with clear difference depending on the result -12/14 major revisers thought it was worse than they expected. 82% thought amendments required were fair, including 9/15 of the major revisers.

2/3 felt the viva had boosted their morale and 1/5 that it had reduced it – statistically significantly more of those who had to make major changes. Half of those who passed outright felt it hadn't changed them. Overall 44% positive, 39% negative.

Asked about advice to others on how to prepare for the viva, the outright passers stressed knowing the thesis well and anticipating questions more than did others (61% overall). ¼ mentioned getting help for others including having a mock viva; ¼ relaxing; and 1/5 choosing supervisor/external with care and knowing the external's work.

Assessment of reliability of findings based on agreed criteria: The author identifies problems in how the sample was drawn; and that it consists of self-reports. It is likely to under-represent those who had problems as would not want to take part. But he notes the 75% response rate to his originally sent questionnaire.

Implications for policy and practice

- Supervisors should be informed of what appears to help students pass and tell them advice exists in books and videos– re-reading the thesis and anticipating questions seems to help, as does having a mock vivas.
- All students should be advised to familiarise themselves with their external's work.
- There should be departmental guidelines on what to expect, better training for examiners, and examiners should follow more standard procedures.
- Someone (generally the supervisor) should take notes of required revisions.
- Better statistics on the results of doctoral vivas would enable researchers to know if their samples were representative.

Hartley, J. and Jory, S. (2000)
'Lifting the veil on the viva: the voice of experience'
Psychology Teaching Review, 9 (2) 79-90

Study focus: To investigate how frequently the viva is a negative experience by establishing some necessary basic information due to lack of previous research. The main results were published in Hartley and Jory 2000. This paper gives attention to 'the voice of experience'.

Population focus/sample: Psychology students who had experienced a viva between 1997-1999. Names and addresses provided by Heads of Departments of Psychology. [For more information we are referred to Hartley and Jory 2000.] 100 replies [75% response rate], 60 women and 40 men; 71 full-time. 29 part-time, 5 who had changed over. Median age late twenties full time and late 30s part time. Most respondents had passed, 11 with major amendments, 3 with further viva and 1 rejected.

Discipline: Psychology

Educational setting, including status of HEI, if known: Range of HEIs with psychology departments

Details of the assessment/viva process studied: Students' preparations for the viva, the viva arrangements, the viva experience, feelings immediately afterwards and subsequently, and recommendations they would make.

Evaluation details (including theoretical underpinnings, if discernible, and research methodology): No theoretical framework is specified. Questionnaire (developed following semi- structured interviews with academics and recent graduates at Keele) with 57 items. The questionnaire is attached with 6 full tables. Results tested for statistical significance with Chi squared.

Findings

There were few differences by sex or between full and part-time students. Main differences are between those who passed outright and those who had to make major revisions. There is no discussion of the one individual who failed.

Beforehand nearly half thought that the viva was mainly to check the thesis was the students' own work and their understanding of the material; a quarter that it was to enable a defence when examiners disagreed with arguments or methods. A third were confident, and a third moderately to extremely anxious. Statistically significantly more part-timers were anxious than full-timers, but there were no differences between those who passed outright and those who had to do major revisions.

Vivas were held in places unfamiliar to the candidate in 1/3 of cases (especially in the case of part-timers). Exam boards were 40% mixed, but women were often examined by a board of men. However gender composition was not found to produce significant differences in the outcome. The median length of viva was 2 hrs with range 45 minutes to 4+hrs. Vivas for part-timers were statistically significantly slightly shorter,

and those for outright passers a whole hour shorter. Overall those who had to do major revisions experienced significant more stress in the viva than outright passers (and women more than men but not statistically significant). 56% felt poor physically and 22% were very anxious during the viva.

Immediately after the viva, the majority were physically drained but uplifted, though this obviously varies with the result. 64% said morale was boosted, 20% reduced – including 1/16 of the outright passers and 9/15 of major revisers. 75% were positive about their examiners but 16% negative (especially about external examiners) – 1/16 of the outright passers and 9/15 of major revisers. 82% thought the requested amendments were fair or mostly fair, including 9/15 of those who had to do major revisions.

Later recollections were 40% positive and 40% negative overall, but (not surprisingly) statistically significantly different by the result. Even so, 8 outright passers had negative memories. Overwhelmingly these former candidates thought the viva was fair, though 7 major revisers gave other answers (and no mention of the 1 fail). More of those who had to do major revisions had shifted their views, but equally divided between more positive and more negative views. ¾ (especially those who passed outright) had not changed their views on the purpose of the viva, but some now saw it as an initiation/rite of passage (as did some staff).

When asked for recommendations, 60% suggested changes to the viva/mode of examining a thesis: standardising procedures (18%), changing the nature of the exam (18%), change in the role of examiners (5%). But there was little difference in kinds of suggestion by result of their own examination, though significantly more (14/15) major revisers had suggestions. Respondents also mention that assessment of the PhD should be kept tough to maintain the value of the degree.

Assessment of reliability of findings based on agreed criteria: The sample is of modest size and Heads of Department may not have passed on the names and addresses of the most dissatisfied and/or failing former candidates. Members of this group might also have been less likely to respond if approached. (This is discussed and the attempt to correct for it is discussed in Hartley 1999). But given the limitations on the validity of self-completed questionnaire data, this exploratory study seems reasonably robust.

Implications for policy and practice

- Students need to be better informed about what examiners understand to be the purposes of viva.
- Although most candidates see their viva as fair, and would not want the examination made easy, there should be more standardised procedures.
- To be encouraging for future work, the viva should be made a more positive experience for all who pass outright.
- Vivas should be held in conditions that enable the candidate to perform to the best of his/her ability. This includes holding it in a familiar environment and paying attention to the gender (and race, etc) composition of the exam board.
- There is a pressure from students for change/improvement in the mode of examining the thesis.

Hartley, J and Fox, C (2004)

'Assessing the mock viva: the experiences of British doctoral students'.
Studies in Higher Education, 29 (6) 728-38.

Study focus: This was a questionnaire survey of students' experiences of the 'mock' or practice viva and the differences between this and a 'real' viva.

Population focus/sample: Candidates from British universities who had experienced a 'mock' and a real viva in the years 2001-2003. The achieved sample comprised 29 students.

Discipline: Arts – 2 respondents, Social Science (including Education, Psychology and Educational Technology) – 19 respondents and Sciences – 8 respondents.

Educational setting, including status of HEI, if known: Universities in the UK.

Details of the assessment/viva process studied: The researchers asked for details of the arrangements for the mock viva, the experience itself and the students' feelings about it.

Evaluation details (including theoretical underpinnings, if discernible, and research methodology): Emails were sent to heads of departments of psychology in UK universities and to approximately 20 other colleagues of the researchers in UK universities, asking for the names and email addresses of doctoral students who had experienced a mock and a real viva in the years 2001-2003. A questionnaire was emailed to these students and 37 completed questionnaires were returned. Of these, three were ineligible because the mock viva had been part of an upgrading process and a further five had not experienced mock vivas, only real ones. The sample contained 12 men and 17 women. They were evenly divided between full- and part-time students. The findings are analysed and presented generally as descriptive statistics, with results for men and women, and full- and part-time students presented in tables. Illustrative qualitative comments are also used.

Findings

There were huge variations in the amount and nature of the advice given about how to prepare for the mock viva. One third of the sample said they had received no advice. Generally, it was the supervisor, sometimes alongside another colleague, who would conduct the mock viva. The time lapse between the mock and real vivas varied between one day and six months. The median was two weeks. The median time devoted to it was one hour, which was the same median reported time for the real viva.

The majority of candidates (90%) found the mock viva useful and would recommend its use to others. Women candidates tended to feel more anxious then men *before* the mock viva, and full-time women candidates tended to remain so after the viva, although generally most felt encouraged or relieved.

Assessment of reliability of findings based on agreed criteria: It would be difficult to generalise from this study, as the sample was a small opportunistic one and could

not be said to be representative of the range of students who might have experienced a mock viva or the types of arrangements that might be made for them.

Implications for policy and practice: The authors suggest the following policy and practice implications based on their findings:

- Mock vivas organised and conducted along the lines of a real viva are useful for students and institutions should be encouraged to make them common practice.
- Candidates should be given advice about preparation for both the mock and real vivas.
- Students need to take both mock and real vivas seriously and to prepare thoroughly for them.
- Although this was not addressed in the research, it seems likely that mock vivas would be especially useful for candidates whose first language is not English.

Hartley, J and Fox, C (2002)
'The viva experience: examining the examiners'.
Higher Education Review, 35 (1) 24-30

Study focus: This study takes as its starting point the findings of Wallace and Marsh (2001) that the behaviour of examiners during the viva will be the main factor in determining whether successful candidates find the experience positive or negative.

Population focus/sample: The sample was one drawn by Hartley and Jorey (2000) of 100 psychology PhD candidates for a questionnaire survey. The sub-sample for this study consisted of 85 candidates who had been successful in their viva or had only minor corrections to make.

Discipline: Psychology.

Educational setting, including status of HEI, if known: UK universities.

Details of the assessment/viva process studied: The viva, and in particular, the role played by examiners.

Evaluation details (including theoretical underpinnings, if discernible, and research methodology): The researchers reanalysed the answers to three questions in the original survey (see above). These related to how the candidates felt about the internal and external examiner and how they would sum up their viva experience. They investigated whether there was a relationship between the candidates' positive or negative feelings about the examiners and their summary assessment of the viva experience.

Findings: Their findings partly supported the findings of Wallace and Marsh, in that 81% of those who had positive feelings about the examiners rated their viva experience as positive and 75% of those who expressed negative attitudes experienced the viva as negative overall. The authors suggest that the less than 100% correspondence between feelings about the examiners and their overall assessment of the viva experience indicates that there are other intervening factors, one of which, they suggest, is the role played by the supervisor.

Assessment of reliability of findings based on agreed criteria: This study was based on a re-analysis of data collected as part of an earlier questionnaire survey. No details are given of the way in which the sample was drawn or of the measures taken to minimise bias or to ensure the reliability or validity of the instruments used. However, the techniques used in the re-analysis did attempt to minimise bias in the interpretation of responses.

Implications for policy and practice: These findings lend some support to those of Wallace and Marsh, that the behaviour of examiners is an important component of the way in which the viva is experienced by candidates. Thus the policy and practice implications will be similar.

Hughes, J, Denley, P and Whitehead, J (1998)

'How Do We Make Sense of the Process of Legitimising an Educational Action Research Thesis for the Award of a PhD Degree? A contribution to Educational Theory'.
Educational Action Research, 6 (3) 427-452.

Study focus: The study focuses on the development of understandings about impact of failing the viva and resubmission on the development of a PhD using action research, from the perspectives of a PhD candidate, a supervisor and a senior colleague.

Population focus/sample: The subjects of the study are the three individuals described above, who each give their own accounts of the process.

Discipline: Education.

Educational setting, including status of HEI, if known: University of Bath.

Details of the assessment/viva process studied: The article does not give details of the viva *per se*, but discusses the issues around the reasons for the resubmission and the ways in which the thesis was restructured to improve it for the second viva. The main issue raised was the conflict between the epistemological positions of the candidate and her supervisor, on the one hand, and the external examiner, on the other. This resulted in the standing down of the first external examiner and the appointment of a new examiner for the examination of the resubmitted thesis.

Evaluation details (including theoretical underpinnings, if discernible, and research methodology): This account is very strongly underpinned by the theoretical frameworks of action research and the development of 'living theory' based on practice. The article consists of personal accounts of the reactions of the three individuals involved to the process of failure, rethinking the thesis and resubmission.

Findings: From the three accounts one can see that there was inadequate preparation for the viva and a lack of rigour in the feedback given on the readiness of the thesis for submission. The re-worked thesis was subject to much more rigorous appraisal and feedback from colleagues within the university's action research group, as well as from an experienced tutor. However, the main finding is that it is important to select an examiner who can understand and work within the research paradigm chosen by the candidate.

Assessment of reliability of findings based on agreed criteria: It is difficult to apply these criteria to an account of this nature, which is made up of three personal stories about the reactions of individuals to one event. These can be taken as accurate representations of the feelings and experiences of these individuals, which raise interesting questions about the nature and politics of action research.

Implications for policy and practice: Clear criteria need to be employed for the judgment of the quality of theses, which take into account the research paradigm within which they are being assessed.

The choice of examiners needs to take account, not only their substantive knowledge of the subject area, but also the research paradigm within which they operate.

Supervisors and internal readers need to ensure that theses are 'the best they can be' before they are entered for examination.

Humberstone, B (1997)

'Challenging Dominant ideologies in the research process'
In G. Clarke and B Humberstone (1997) *Researching Women and Sport.*
London: Macmillan.

Study focus: A personal account of ideological conflict between a PhD candidate and an internal examiner of her thesis.

Population focus/sample: 1 female PhD candidate.

Discipline: Feminist sociology of sport

Educational setting, including status of HEI, if known: HEI

Details of the assessment/viva process studied: No details given, except that the author was asked to rewrite part of the thesis to include numerical data to triangulate her results and she refused to do so. Instead she rewrote her methodology chapter to explain her approach and why using the quantitative data would have undermined her commitment to working within an interpretative paradigm.

Evaluation details (including theoretical underpinnings, if discernible, and research methodology): N/A

Findings: N/A

Assessment of reliability of findings based on agreed criteria: Not reporting research. A personal account.

Implications for policy and practice: This account shows the power of examiners to undermine the integrity of a piece of research by imposing an alternative paradigm. There need to be clear established criteria for judging research on its own terms, provided that the research design and methodology are appropriate to answering the research question.

Jackson, C. and Tinkler, P. (2001)
'Back to basics: a consideration of the purposes of the PhD viva'
Assessment and Evaluation in Higher Education, Vol 26 (4) pp 355-366.

Study focus: Discussion focuses on the roles of the viva as delineated within university policy; the purposes of the viva from the perspectives of examiners and supervisors; and the purposes of the viva from the perspectives of students. This summary focuses on the third part of the paper.

Population focus/sample:

Draws from three main data sets collected from 1999-2000:

Documentary datasets from 20 British universities, using stratified sampling to ensure the inclusion of both 'old' and new universities; and

Questionnaire data from 88 former PhD candidates (46 women, 42 men) who had had their vivas the previous year; plus 42 supervisors; and 54 external and 46 internal examiners.

The questionnaires to the former students focused primarily on their own viva, hence were influenced by what happened on this occasion (though we are not told how many passed first time and how many were referred). However, they were also asked to outline, in general, what they saw as the purpose(s) of the PhD viva.

Discipline: The former students were drawn from natural sciences, arts, humanities and social sciences. There is no information on the sampling frame.

Educational setting, including status of HEI, if known: Two 'old' universities in the North of England.

Details of the assessment/viva process studied: What former students (and academics and HEIs) see as the purposes of the viva; and how former students retrospectively viewed their own viva – its tone, intellectual content, whether it improved their sense of academic competence, desire to work in academe and/or in the field of the PhD, and how it influenced their perceptions of the publishability of their work.

Evaluation details (including theoretical underpinnings, if discernible, and research methodology): No specified theoretical stance. Provides straightforward runs of descriptive statistics.

Findings:

New graduates identified a range of purposes served by the viva, but stressed two in particular: (1) authentication of the thesis (that the work was done, and the thesis written and understood by the student); and (2) a range of assessment activities. We are not told if/what other purposes were mentioned. Former students also stressed summative assessment while academics saw elements of the viva as formative.

In talking about their own vivas, few mentioned getting any advice and guidance from examiners. Although just over half said the viva was encouraging, some talked of very negative experiences: 60% described the tone in positive ways (relaxed, friendly, enjoyable) but 20% described it as negative (biased, pedantic); 53% said they experienced an increase in their sense of intellectual competence (17% said it had decreased); 19% expressed an increased desire to work in academia (16% a decrease); and 57% perceived their work as more publishable after the viva (13% as less). Overall, the viva serves a negative function for one in six, and the 'disillusioned' candidates are divided evenly between those who were referred and those who passed.

It is noted that there were no gender differences, and potential age effects were hard to discern as the sample was skewed towards the under 30s. But there were interesting differences between science and non-science students. The viva was more likely to have an effect (positive **or** negative) on the perceptions of non-science candidates than science candidates in 3 areas: desire to work in academe, to continue working in the field of the PhD, and perceptions of publishability.

32% were informed of the examiners' decision at the start of the viva (47% in the arts, humanities and social sciences and 15% in the natural sciences). There were also substantial differences in the average length of the viva: 27% of arts, humanities and social sciences candidates had vivas of up to one hour compared to 3% of natural scientists; and 15% had vivas that lasted 2-3 hrs against 43% of scientists.

[Data from examiners don't throw any further light on the importance of the viva in examiner's decision-making in the sciences, but do show that in the non-science disciplines the viva is not, in the majority of cases, the site of decision-making – examiners had decided beforehand. The authors suggest the viva may serve different purposes for science and non-science candidates.]

Assessment of reliability of findings based on agreed criteria: The aims and objectives of the research are clear and the mode of approach appropriate, but the size of the sample of former students is relatively small (compared to that of the staff). Since the sampling frame and the response rate are not described the generalisations drawn and the percentages cited need to be taken cautiously.

Implications for policy and practice:

1. Ways need to be found to stop the viva discouraging 1 in 10 successful candidates from a life an academic career and to encourage them to publish.

2. Advice from examiners re career development and publishing should perhaps be given subsequent to the viva, which is too emotionally charged and assessment focused, at an occasion when the candidates is better able to recall advice, or recorded on paper.

3. There should be clarification of the role of the viva, and the differences (if any) noted between the natural sciences and the arts/humanities/social sciences.

Phillips, E (1994)
'Quality in the PhD. Points at which quality may be assessed.
In R. Burgess (1994) Post-graduate Education and Training in the Social
Sciences. London: Jessica Kingsley.

Study focus: The study focuses on how quality in the PhD is assessed at various points: selection of candidates into the system; upgrading from MPhil to PhD; monitoring of work in progress; pre-examination or preparation for the viva; and, the final examination or viva.

Population focus/sample: Forty-one students and 58 members of academic staff in their roles as supervisors, examiners and research tutors were interviewed. Of the 41 students, 9 were in their first year, 8 in their second, 12 in their third and 10 in their fourth. Two students had completed. 23 students were male and 18 female. 49 staff members were male and 9 female.

Discipline: Eight social science disciplines, including anthropology, business studies, economics, geography, industrial relations, psychology, sociology and international relations.

Educational setting, including status of HEI, if known: Four institutions, including one polytechnic were studied. The selected institutions represented both high status universities and those that had been blacklisted by the ESRC for failing to meet submission standards.

Details of the assessment/viva process studied: The research attempted to ascertain what criteria examiners apply when assessing the PhD and the expectations that students have of the standard of excellence required. Special attention was given to the role of the external examiner.

Evaluation details (including theoretical underpinnings, if discernible, and research methodology): Individual semi-structured, open-ended interviews were conducted lasting about an hour and a half. In addition, there were two group discussions covering the same topics. One group comprised 8 members of staff and the other 12 postgraduate students.

Findings:

These are presented under five key decision points:

Selection – there were wide variations in the selection process, some with elaborate procedures including interviews and an assessment of the quality of the research proposal, others much less rigorous. A key factor seemed to be funding, with some good home students being refused due to lack of funding, whereas weaker overseas students were accepted as they brought in more revenue.

Upgrading – There is wide variety in the way this is handled, both at departmental level and across institutions. Some institutions had a rigorous procedure and in others it was merely a formality. The student experience also varied, with some students having negative and some positive experiences, depending on the approach of the upgrading panel.

Monitoring work in progress – Annual report forms are becoming more common, but there is variation in the quality and depth of annual reviews.

Preparation for the viva – very few students had a mock viva or any other preparation for the oral examination. Supervisors read and commented on draft chapters, but generally, are ill prepared for the examination of the thesis.

The viva – procedures for selection of examiners varied across the institutions, but generally approval had to be sought from a research committee. Students were not always consulted by supervisors nor informed about who their examiners would be. The conduct of the examiners towards the student was found to be an important issue, mentioned by both students and staff. It was also reported that their examiners felt it necessary to resist the pressure to pass sub-standard work.

Gender issues – the gender imbalance among senior academic staff was reported to be an influence on the assessment process, both during the research supervision phase and the examination. It was reported that women felt disadvantaged because of the unequal power relations within the academy.

Assessment of reliability of findings based on agreed criteria: The aims and rationale for the study were clearly stated, as was the final make-up of the ample, which incorporated a range of HEIs of different statuses. There was no information about how the data derived form interviews was analysed or how the analytic categories were generated. There was also no attempt to link findings to the status of the HEIs, although there was some presentation of data related to gender. Overall, there are some useful indications of ways in which the assessment process, including the viva could be improved.

Implications for policy and practice: There are wide variations across and within institutions with regard to assessment of quality in Social Science PhDs. These need to be addressed.

Rudd, E (1985)
A new look at postgraduate failure.
Guildford: SHRE and NFER-Nelson

Study focus: The study focuses on postgraduate failure, at Masters and PhD level.

Population focus/sample: Over 100 students were interviewed, but it is not clear how many were doctoral students. Data were gathered between 1978 and 1980.

Discipline: No precise details given, but seems to cover science, arts and humanities and social science disciplines.

Educational setting, including status of HEI, if known: Universities and colleges in England.

Details of the assessment/viva process studied: The chapter entitled 'Fairness in the examination of the thesis' gives one case study of a student from his sample who had failed his oral examination.

Evaluation details (including theoretical underpinnings, if discernible, and research methodology): The research is based on qualitative interviews with over 100 ex-students. The sample was obtained by contact with 13 universities and colleges, asking them to send out letters to postgraduate students who had recently withdrawn from their course. The author acknowledges the potential biases in his sample.

Findings: Since most of the students had dropped out before the final examination stage, there are few data about this aspect of doctoral study. Of the 3 cases cited, one is based on a letter written to the author outside the remit of the study. The other two reported that they thought that their failure was due to ideological differences between them and their examiners about the approach they had taken.

Assessment of reliability of findings based on agreed criteria: It is difficult to distinguish findings about doctoral students from those about other postgraduates. The study is of *failure* and so is biased towards those whose experience was less than positive. Very few details about the viva or other assessment are given.

Implications for policy and practice: The author makes a number of recommendations, but it is difficult from the data presented about the viva, to draw any firm conclusions about the implications.

Tinkler, P. and Jackson, C. (2002)
'In the dark? Preparing for the PhD *viva*'
Quality Assurance in Education, Vol 10 (2) pp. 86-97.

Study focus: The study addresses issues of quality and standards in relation to supervisors' setting up and students' preparation for the examination of the PhD thesis - specifically the ways the examination is organised and examiners chosen, and the ways in which candidates can and cannot prepare for the viva because of its unpredictability. It explores how the viva affects the ways in which those recently awarded their doctorate think and feel about themselves and their work, and suggests how the viva might be made a more constructive experience.

Population focus/sample:

Draws from three main data sets collected from1999-2001:

i. Documentary institutional datasets;

ii. Questionnaires from 88 PhD candidates (46 women, 42 men) who had had vivas the previous year; 42 supervisors; and 54 external and 46 internal examiners; and

iii. Semi-structured interviews with candidates in two universities, 24 (7 women, 17 men) before and 11 (5 women, 6 men) after their PhD vivas.

Discipline: Questionnaire data and interviews with students in natural sciences and technology, arts and humanities and social sciences.

Educational setting, including status of HEI, if known: Two pre-1992 universities in the North of England. (These may be different universities for the questionnaires and interviews – it is not clear.)

Details of the assessment/viva process studied:

Information was collected on staff and students' gender, age and experience, and on the process of selection of examiners, the viva panels composition and procedures, outcomes, staff and students' perceptions of the purpose(s) of the viva, candidates expectations and experiences of the viva, their feelings about the process, and their career plans.

The authors draw on their whole data set to stress the variability of the viva and hence its unpredictability and how difficult it is for supervisors and students to prepare for it. They deconstruct the event in terms of the most likely sources of variation, identifying

- a basic skills component – the viva depends on oral communication, thinking on ones feet and performing under pressure;
- the academic content – which covers (using a typology from Pole 2000) substantive knowledge, technical skills and craft knowledge (which includes the ability to manage a project), and also any other types of knowledge deemed appropriate by an examiner (labelled 'the broader context');

- and conduct: how the examiners behave (their personal and academic agenda) and how the various participants interact.

Evaluation details (including theoretical underpinnings, if discernible, and research methodology): No theory is specified, but by setting up a model of the viva as having three components and considering what within it can be controlled and/or prepared for, they are then able to evaluate candidates' preparations in relation to this and to suggest improvements.

Findings:

The basic skills element in a viva is least variable, hence most predictable. But both the academic content (especially 'the broader context') and examiners' conduct are highly variable. This is partly because the purpose of the viva depends on the examiners' assessment of the thesis – so there are different types of viva for good/ borderline/ and failing theses since examiners are seeking to explore and decide upon different things. But the purpose of the viva also depends upon the examiners' academic agenda and this varies with discipline and the individuals concerned.

Supervisors try to control the viva by recommending submission of only 'good' theses and to chose examiners whose academic agenda they can judge– hence to use ones they know, hence the student may have met them too. They also try to prevent the appointment of someone who may behave in an inappropriate way. They may discuss this with the student as an element of academic life.

To prepare for their viva most candidates draw on advice from their supervisor(s) (90%), other students experiences (57%) and grapevine stories (55%) - and 76%, 48% and 30% respectively found these useful. Less common sources were their experience at an upgrading (23%), books (18%), a mock viva (11%), departmental training session (10%) or other formal training (1%). Of these, only the upgrading is found useful by more that 20% overall. Grapevine stories were found unhelpful by 25% and supervisor by 13%.

For the 'basic skills' element, students find preparation short-term in mock vivas: where available are seen as useful. But the authors comment that students need to develop verbal skills long term by accessing academic cultures;

For the content element, students prepare by discussion with their supervisor, though supervisors can't predict content, even though they try. A quarter of students got no help from their supervisor or saw it as of little use. Students expect the viva to centre on the thesis – so they re-read it. But the authors comment that gaining involvement in academic culture in and outside the department helps [in showing perhaps the frequent mismatch between papers and questions at seminars].

On content and conduct, students access a range of informal sources – grapevine and peers' experiences. These focus on how the candidate was made to feel and give extreme examples of bad and good experience. There is a sense of widespread lack of regulation, feelings of powerlessness, and a sense that examiners may not be fair. The authors comment that the only long term pre-preparation possible is knowledge of how academics engage with each others work, including how to handle hostile styles.

Most candidates find the viva affects how they think and feel about themselves and their work – and 17% perceive it decreased their academic confidence. This includes 1 in 10 of those who were awarded the degree with no or minor corrections.

Assessment of reliability of findings based on agreed criteria: The text somewhat confuses students' and supervisors' knowledge and it is hard to sort them out. The context and rationale are well described and there is a good description of the size (but not mode of selection) of the sample. There is nothing systematic on social class though the text mentions the advantages of knowledge acquired through coming from an academic background. Data analysis not discussed, nor is it clear how the 3-part model they use emerged. Several datasets of reasonable size allow triangulation (but differences if any in information is not discussed). Qualitative interview data is presented, though typicality is not discussed, and only one table of quantitative data, giving straight runs, is provided.

Implications for policy and practice:

1. Certain aspects of the current system of oral examining are problematic and should be contested. The viva must vary according to the examiners' views of the state of thesis submitted, within the terms of the discipline. But aspects of the current examination of content and conduct are academically unconstructive and indefensible and the enormous potential for variability militates against uniformity of standards and also against fairness.

2. Transparency about the purposes of the viva is needed and clear guidelines about acceptable content and conduct. There then needs to be a means of enforcement of institutional guidelines.

3. Overall preparation for the viva should then be a positive learning event and the quality of the actual experience should be improved.

4. For a quarter of candidates the viva is a key site of assessment (because the thesis is poor). They need to be well prepared.

5. There should be further consideration of whether verbal skill does indicate other competences. What of individuals who require time and certain conditions to think? Or have E2L?

6. Supervisors' current attempts to control the selection of examiners casts doubt on whether examiners can be seen as independent.

7. Monitoring of PhD awards within and between HEIs is needed to ensure national and international standards.

Source of funding if any: Curriculum Innovation at the University of Manchester, UMIST, and the University of York.

Trafford, V and Lesham, S. (2002)

'Anatomy of a Doctoral Viva'

Journal of Graduate Education, 3 (2) 33-40

Study focus: The study focuses on the process of the viva.

Population focus/sample: It is an ethnographic account of a single viva.

Discipline: Not stated

Educational setting, including status of HEI, if known: Anglia Polytechnic University

Details of the assessment/viva process studied: The process of the oral examination from the perspectives the five participants - the candidate, 2 examiners, the supervisor and the chair of the viva.

Evaluation details (including theoretical underpinnings, if discernible, and research methodology): This was an ethnographic study that took a ground theory approach. The authors were two of the five participants in the viva, but it is not stated which two. The other three were asked to give an account of the process under 10 open-ended topic areas. These were put alongside the accounts of the other two participants. The analytical process was based on a content analysis of the five sets of data. Documentary analysis was also conducted on the thesis and the examiners' reports.

Findings: The analysis concluded that the successful defence of a thesis depended on three main factors – (1) explicit scholarship appropriate to the subject area; (2) personal resilience; and (3) interpersonal awareness. The conjunction of the three domains generated enthusiasm and excitement about the research, the thesis and its contribution to knowledge; willingness and ability to defend the 'doctorateness' of the thesis; and confidence in the architecture, design and conceptual conclusions of the doctoral research.

Assessment of reliability of findings based on agreed criteria: This was a clearly explained and explicitly detailed piece of research. The authors recognise its limited generalisability, but 'offer a proposition to be tested by others'.

Implications for policy and practice: This study shows the positive features of a viva examination. The candidate felt in control and that she was treated with respect and had the space to defend her thesis adequately. The presence of a chair and the supervisor seems to have been positive in this respect.

Utley, A (1998)
'Grilling left student burnt out'
Times Higher Education Supplement

Study focus: The personal experience of one PhD candidate.

Population focus/sample: N/A

Discipline: Ecology

Educational setting, including status of HEI, if known: Not known

Details of the assessment/viva process studied: Report on the impact of the viva on one candidate.

Evaluation details (including theoretical underpinnings, if discernible, and research methodology): N/A

Findings: This student was so traumatised by the negative behaviour of his external examiner that he suffered mental health problems and gave up a post in academia.

Assessment of reliability of findings based on agreed criteria: This is a newspaper report and not a report of research, therefore the criteria are not applicable.

Implications for policy and practice: This is anecdotal evidence of the negative impact that an examiner can have on the confidence and self-esteem of a PhD candidate. However, there would have to be more reliable evidence on which to draw policy and practice implications.

Wallace, S and Marsh, C. (2001)

'Trial by ordeal or the chummy game? Six case studies in the conduct of the British PhD viva examination'

Higher Education Review, 34 (1) 35-59

Study focus: The study focuses on the process of the PhD viva as experienced by candidates. It describes and analyses the mismatches between expectations, which have been generated by the supervision process, and the reality of the viva as perceived by the candidates.

Population focus/sample: The sample was six PhD candidates aged in their forties. Their nationality and ethnic origins were not given, but they were given fictitious names, which indicated there were four women and two men. They were chosen from institutional records of successful candidates over two years (1997-99).

Discipline: The six respondents had gained PhDs in the Social Sciences, including education.

Educational setting, including status of HEI, if known: It is not clear what the educational setting of the candidates was, although the account indicates that they were from higher education institution. No details are given of the setting.

Details of the assessment/viva process studied: The accounts given by the candidates were of six different experiences of the viva. These were held under different conditions, for example, with and without the presence of the supervisor, with one, two or three external examiners, or with examiners already known by the candidates. The study looked at three stages in the process: *before the viva* – candidates' expectations, the role of the supervisor, and the choice of examiners; *during the viva* – introductions and first impressions, the process: manner, rigour and relevance, and the outcome; and, *after the viva* – immediate reactions, and reflections on the experience.

Evaluation details (including theoretical underpinnings, if discernible, and research methodology): This article is a report of a pilot study into the conduct of PhD vivas. The aim was to investigate how this examination is experienced by successful candidates. Details of the sample are given above. Only social science candidates were sampled, in order to achieve some likelihood of commonality in the type of research and the way it was examined. Attempts were made to minimise bias, by choosing only successful candidates, so that their views of the process were not contaminated by the experience of failure to obtain the degree. The six case studies were treated as biographies, and the interviews were open-ended and not led by the researchers' agenda, but by that of the respondents. Analytic categories were derived from the data and broadly corresponded to themes emerging within the various stages of the viva, viz. before, during and after the experience.

Findings: There were clear differences between the perceptions of two of the candidates, who already knew their examiners, and the other four, who did not. The viva process seems to have been approached differently in the case of the former two candidates who found it a positive experience. In these cases, the examiners were non-aggressive and confirming. For the other four, however, the process was less satisfactory. The main source of negative feelings was the perceived aggressive

questioning by the examiners over trivial matters. None of these candidates felt that their thesis had been thoroughly examined or challenged on a deep level. These candidates did not feel that they had been able to have a stimulating intellectual debate with the examiners, which is what they had been expecting. Generally there had been a lack of respect and sensitivity shown to these candidates. In one case, two of the three examiners had never examined a thesis before, and the candidate felt that they had been unduly influenced by the more experienced examiner. The authors conclude that there was a lack of clarity about the purposes of the viva; that the tone and manner of questioning was inappropriate in some cases; and that power relations within the process disadvantaged some candidates. Their overall finding is that: 'It is the behaviour of the examiners, rather than their final decision, which is the key factor in making the viva an affirmative or a destructive experience for the successful candidate'.

Assessment of reliability of findings based on agreed criteria: Using the EPPI-centre quality-screening tool, the reliability of the findings of this study is judged to be high.

Implications for policy and practice:

There need to be clear guidelines and a code of conduct for examiners about the process of viva voce examinations.

The expectation should that the viva will be conducted with formality and rigour and focus on substantive aspects of the candidate's work.

The supervisor or a chairperson should ensure that the viva is conducted with respect and fairness to the candidate.

Training in the conduct of the viva, for the procedural, intellectual and affective aspects, should be mandatory for all examiners.

Wisker, G., G. Robinson, V. Trafford and M. Warnes (2002)
'Getting there in the end: contributions to the achievement of the PhD'
In M. Kiley and G. Mullins (eds.) *Quality in postgraduate research: integrating perspectives* (Canberra: CELTS, University of Canberra), pp. 152-166

Study focus: The study examines which factors are associated with success in the completion of the PhD. The focus thus is on the final stage of the PhD, and examines students' experiences of the processes of and success in the viva. The study particularly focuses on the generic and generalisable support and development processes and interactions, and their influence on PhD students and PhD completion.

Population focus: The sample includes 5 English PhD students and two groups of Israeli PhD students, and teaching staff (including supervisors). 5 students (i.e. 4 Israeli and 1 UK) had completed their PhD, the rest were near completion.

Discipline: Students were drawn from several disciplines: science/ engineering/ technology, arts & humanities, social sciences, and medical and related sciences.

Educational setting, including status of HEI, if known: Higher education institutions of medium/low status

Details of the assessment/viva process studied: The article focuses on the students' learning approaches and processes in the final stage of the PhD, problems they might produce, ways of overcoming these problems, and reasons for the different choices made by students' colleagues.

Evaluation details (including theoretical underpinnings, if discernible, and research methodology):

The study is based on action research involving the students themselves as collaborators. The article evaluates an approach (i.e. a research development programme the PhD students participate in) used by a higher education institution. Action research methods in the final stage programme include:

- a questionnaire (repeated from stage 1 of the project) to compare data from the beginning of the PhD process to the end of it (stage 3 of the programme that this article reports on).
- workshop focus groups reflecting upon the development and clarification of conceptual frameworks, links between aims and outcomes, theoretical perspectives, methodology and methods, analysis and findings, conclusions of the research, writing up and viva preparations.
- individual and supervisory dialogues towards the end of the PhD process to identify developmental and decision-making moments, supportive strategies and practices, identification of overcoming hurdles.
- mock vivas with students completing their PhDs
- individual interviews (semi-structured open ended self-interviews which are taped) with students successful in PhDs to identify factors which have contributed to this success.

Inventories and questionnaires are used to obtain statistical data about student learning approaches. Qualitative methods of focus groups and supervisory dialogues (analysed using NVivo) enabled to capture the students' own views on the factors that helped them complete.

Findings:

The article identifies the following factors that contribute to the achievement of the PhD:

- student learning approaches and styles, research-as-learning, initial indicators of potential success at PhD and *achieved success*
- clarity and further clarification and development of conceptual framework, research methods and *outcome achievement*
- the contribution made to that success by support and development programmes, student networks, and supervisory relationships.

Assessment of reliability of findings based on agreed criteria: The reliability of the findings is high as the aims of the article/project were clearly reported, and as there is an adequate description of the research context, of the sample used, and of the methods adopted to collect and analyse the data.

Implications for policy and practice: Focused research development programmes, carefully managed supervisory dialogues and mock vivas support students in achieving successful outcomes in their thesis and viva.

Wisker, G., Robinson, G., Trafford, V., Lilly, J. and Warnes, M. (2004)

'Achieving a doctorate: metalearning and research development programmes supporting success for international students'
Innovations in Education and Teaching International, Vol. 41 (4) pp 473-489

Study focus: The study describes the work of a doctoral development programme which involves 'diagnosis of dissonance' between students' approaches to research-as-learning and their intended outcomes using the Reflections on Learning Inventory; and then provides workshops and supervisory dialogues aimed at encouraging research students' metacognition (awareness of how one learns) and metalearning (critical self-awareness of ones learning needs, problems and achievements). It suggests that this programme helps students to succeed in gaining their PhDs. This paper describes the early and later stages of students' work.

Population focus/sample: International [probably Israeli], distance, mid-career learners who 'present a challenge' in terms of numbers and cultural differences, including specifically differing learning approaches and preconceptions of studying at postgraduate level. We are also told the programme includes a 'diversity of students studying part or full time', including some local (home) students. But there is no information on numbers or other characteristics.

Discipline: Not specified

Educational setting, including status of HEI, if known: Anglia Polytechnic University

Details of the assessment/viva process studied: In the 'third stage' of the doctoral progress, the supervisory dialogues and the workshop 'explicitly focus on answering questions which usually appear in [a] viva'. This helps students become comfortable with 'the metalanguage of research processes', so they can easily articulate reflections on their research and justify their choices. The workshop includes mock viva training, which is here a hybrid of a viva and a supervisory session.

Evaluation details (including theoretical underpinnings, if discernible, and research methodology):

There is extensive discussion of the theories of learning underlying the programme structure, but it is hard to sort out the process by which the programme is evaluated.

We are told that this article reports part of an action research project which has been on-going since 1998 and that the students are fully involved as active members in the research process, reflecting on and contributing to it by making suggestions on the interpretations of the results, and using findings which fit their own situation. Also students are scored (using RoLI) and interviewed initially and during the third phase of their work, and after they have completed their PhD, as to the usefulness of (and how they see) the dialogues, interviews, materials, peer support and workshops, including the mock viva. The dialogues and interviews are transcribed; and 55 students have gained PhDs and one short 'success story' is recorded.

Findings:

The authors claim that 'Preliminary findings seem to suggest a negative correlation between dissonance, lack of involvement in the programme, poor metalearning activities and lack of progress or success in the Phd.D. research; conversely, non-dissonant results and engaged involvement in the programme seem to support students in their postgraduate research success.'

Current and past students seem to see the mock viva as a way of rehearsing for the viva itself and as encouraging and embedding metalearning – increasing their awareness of the ways in which their research has developed and how its elements articulate with each other. Using a metalanguage of research helps them to describe, discuss and defend their work in a manner that may impress examiners.

Assessment of reliability of findings based on agreed criteria: Given this is part of a wider project, other published accounts of it may give convincing details of the process of evaluation. But on the basis of this text, it is unclear. It appears to be being conducted by the staff involved in its teaching and to be inter-twined with initial evaluation of student needs and both workshop teaching and supervision. The politics and ethics of this are not discussed, nor is there any suggested of any means to maintain critical distance and/or reflexivity. In addition, the absence of information on the numbers of candidates who start the programme and who have quit or are still in progress, and any systematic analysis of the data, mean that the suggestion that this particular approach is effective is far from robust.

Implications for policy and practice: It may be helpful to give students some specific help with how to talk about doing and thinking about research as well as how to actually do research.

Appendix 7: Members of the Review Group

The work was conducted by a team at the Institute of Education, University of London, between October 2005 and April 2006 on a budget of £25,000.

Dr Rosa Becker has recently completed a PhD at the Institute on 'The Politics of Performativity and Universities: a comparative analysis between England, the Netherlands and Germany'. Her thesis included an analysis of the emerging effects of current rules for university performance on the nature of knowledge and academic work, including doctoral education. She has published several comparative papers on higher education reforms and recently worked with Professor Leonard as a research assistant in a HEFCE-funded project on doctoral studies, professional careers and knowledge transfer in the UK. She is currently employed 0.6 on an EU funded project on 'European Universities for Entrepreneurship: their role in the Europe of Knowledge' in the Centre for Higher Education Studies at the Institute of Education. She is fluent English, German, French, and Dutch.

Jennifer Evans is recently retired from her post as Senior Lecturer at the Institute of Education. She was a member of the Management Section of the School of Educational Foundations and Policy Studies. She has been involved in two previous systematic reviews with the EPPI-Centre, and has published an article reflecting on the process of systematic review – *Systematic Reviews of Educational Research: does the medical model fit?* (BERJ 2001, 27 (5) 527-542). She has a continuing interest in research methodologies and systematic reviews

Professor Diana Leonard holds a Chair at the Institute of Education in the Sociology of Education and Gender and is the author of an Open University textbook*, A Woman's Guide to Doctoral Studies* (2001). This includes discussion of research evidence on the experience of PhDs and professional doctorates from a research candidate perspective. She has spent study leaves attached to the Graduate School at the University of California, Berkeley and NYU, looking at the North American doctorate, and is a regular visitor to Australia, holding an Honorary Chair at Deakin University in Melbourne and contributing to its biennial conferences on Research on Doctoral Education (RODE). She has taken early retirement from autumn 2005 and her 1/3 buy-back is devoted to uninterrupted time for research, project management and consultancy.

Dr Janet Metcalfe is director of the UK GRAD Programme, which is committed to working with institutions and individuals to support the personal and professional development of postgraduate researchers. Working through the UK GRAD Programme and its predessor, the Research Councils' Graduate Schools Programme, she has extensive direct experience of research degree programmes throughout the UK. She led the HEFCE funded study on 'Improving Standards in Research Degree Programmes (2001)' in association with the UK Council of Graduate Education (UKCGE). This study included research into doctoral programmes including the USA, Canada, Australia and several European countries. She has spent time in Australia looking at research degree programmes and was keynote speaker at their biennial conference on ' Quality in Postgraduate Research 2004', the Australian conference for those who research in the area of postgraduate education. She is also a regular speaker at European events focusing on doctoral education.

Gwyneth Price is Student Services Librarian at the Institute of Education. She is particularly interested in information literacy and its impact on student progression.

Katy Sutcliffe is a researcher and PhD student based within the EPPI-Centre at the Institute of Education. Over the past four years Katy has developed skills in methods for systematic reviews through conducting a number of reviews in the fields of education and health promotion, through developing methodology and tools for systematic reviewing, and also through providing training and support for groups undertaking systematic reviews.