



UK Council *for* Graduate Education

QUALITY AND STANDARDS

OF

POSTGRADUATE

RESEARCH DEGREES

First published in 1996 by the UK Council for Graduate Education

© UK Council for Graduate Education

ISBN 0 9525751 9 1

CONTENTS

FOREWORD	4
SUMMARY	6
1. INTRODUCTION	6
2. SOME CONTEXTUAL FACTORS	7
Rising demand	7
The growth of concern for quality	7
Labour market factors	9
Enhancing quality	10
3. WHAT IS 'QUALITY' IN POSTGRADUATE RESEARCH EDUCATION	11
Definitions of quality	11
Purposes of the doctoral qualification	12
Non-traditional doctorates	13
The doctoral programme	14
Examining the doctorate	15
4. THE ASSESSMENT OF QUALITY	16
The dimensions of quality	16
Input factors	17
Process factors	18
Output factors	20
5. INTERNATIONAL DIMENSIONS	21
6. CONCLUSIONS	22
7. REFERENCES	25

QUALITY AND STANDARDS OF POSTGRADUATE RESEARCH DEGREES

FOREWARD

The UK Council for Graduate Education is an organisation established to promote the interests of graduate education in all disciplines in higher education institutions. The Council was established in 1994 and has over 100 institutional members. This paper on quality and standards of postgraduate research degrees is the second of a series investigating key issues in graduate education.

The paper has been prepared by a Working Group convened by Professor Michael Harloe, University of Essex. The other members of the Working Group were Professor Alan Evans, University of Reading, Professor Ken Goulding, Middlesex University, Dr Chris Haslam, Higher Education Quality Council and Mr Keith Hodgson, University of Reading. The UK Council is very grateful to all members of the Working Group for their time and effort in preparing this paper which will assist institutions to debate these issues that are central to the development of postgraduate education and training.

The views expressed in this paper are those of the authors and are not necessarily those of the UK Council for Graduate Education. Indeed, the terms 'quality' and 'standards' are slippery concepts that need careful specification in relation to postgraduate work. However, it is essential that quality issues and mechanisms continue to be discussed and developed in higher education to maintain the high standing of postgraduate work in the UK.

Further information about the UK Council may be obtained from:

Administrator
UKCGE
Lichfield Campus
The Friary
Lichfield
Staffs
WS13 6QG

Telephone: 01543 308602
Fax: 01543 308604
Email: ukcge@ukcge.ac.uk

SUMMARY

This paper seeks to identify not only the current context within which UK research level education is being developed but also a number of thematic matters which we believe require further consideration by the sector. These include, for example, the purposes of a doctoral education, the development of so-called 'non-traditional' doctorates, examination mechanisms and international aspects. The paper is strictly intended as a discussion paper which, it is hoped, will promote further debate across the sector regarding research degree education.

1. INTRODUCTION

Graduate level education in the UK is big business and, over some considerable time, has developed an enviable reputation for providing a high quality and stimulating learning experience. There are currently some 315,400 postgraduate students in British higher education, approximately one in five of all students. Between 1979 and 1994, the number of postgraduate students in Great Britain increased by over 310 *per cent* (HEFCE, 1996). In spite of central Government pressure to constrain undergraduate student numbers, recent figures indicate that the trends established with respect to postgraduate students have continued into the 1990s. Since 1988-89 alone there has been a 76 *per cent* increase in the number of 'home' postgraduates and recent figures produced by the Higher Education Statistics Agency (HESA) have shown that between 1993-94 and 1994-95 the number of home full-time postgraduate student enrolments increased by 7 *per cent* and the number of part-time enrolments grew by 1 *per cent*. Of the 216,600 students studying for higher degrees, 89,000 are postgraduate research students, of which about 58,000 are aiming at doctorates. About 32 *per cent* of full-time postgraduate students are from overseas.

The postgraduate research student population, with which this paper is solely concerned, clearly needs to be carefully planned for and managed, since their arrival at an institution is not directly comparable with an additional influx of undergraduates. If research postgraduates comprise a larger proportion of the overall student population in any given institution, there are resultant implications for library facilities, for the deployment of research-active staff, and for graduate level facilities. Furthermore, a significant proportion of the postgraduate students who have joined the UK higher education system have been attracted from abroad, so that there is often a requirement to create specialised facilities or improve existing ones, and there is a need to ensure that the education and training provided is of an international standard for this and other reasons.

There is, nevertheless, an important difference between postgraduate students taking taught courses (even though these may involve a short research project) and postgraduate students pursuing research and scholarship to obtain a research degree, often called as a group 'doctoral students' though they may be seeking either a PhD or MPhil. In principle, an approach to maintaining and enhancing quality with respect to postgraduate taught courses would seem to be similar to that with respect to undergraduate taught courses. However, the nature of education and training of research students, based on supervised research for a thesis, is radically different. So far, the processes of teaching quality assessment, carried out by the funding councils, have been primarily concerned with undergraduate and taught postgraduate

programmes, especially masters degrees. Reviewing the quality of the education provided to postgraduate research students has, to date, been given comparatively little attention. However, the situation may not continue for much longer. We note, for example, that the Higher Education Quality Council (HEQC) is now paying more detailed attention to postgraduate education in its work. In an important speech to the 1994 UK Council for Graduate Education (UKCGE) Annual Conference, HEQC's Chief Executive suggested that there was probably now a need for a 'coherent, national

framework for addressing quality issues in graduate education' (Brown, 1994). Hence, there is an urgent need for higher education to discuss and clarify many issues concerning the quality of postgraduate research, including how it might be defined, monitored and enhanced.

This paper explores such issues relating to the quality of postgraduate research education in the UK higher educational system and suggests a possible approach to how quality might be monitored and assessed in an appropriate manner by higher education institutions and external bodies. It is intended to contribute to the development of policies for UK postgraduate education, which would, among other consequences, help to promote greater national and international comparability of standards. The establishment in 1995 of a joint Higher Education Funding Council for England (HEFCE), Committee of Vice-Chancellors and Principals (CVCP) and Standing Conference of Principals (SCOP) group to review postgraduate education in the UK reflects the growing interest in postgraduate matters. It is hoped that this discussion paper will act as a thought provoking contribution to this important debate.

2. SOME CONTEXTUAL FACTORS

Rising demand

The dramatic expansion of postgraduate student numbers has been driven by several complex, inter-related factors. These have included, for example, prolonged economic recession giving rise to restricted employment opportunities of variable duration, a growing perception that the acquisition of a postgraduate qualification is an increasingly cost effective means of adding value and distinctiveness in an already crowded employment marketplace, swollen in recent years by the growing influx of graduates; and by the attractiveness of postgraduates to higher education institutions themselves. Demand has also grown because of the desire of individuals (many more of whom now have first degrees) to pursue a research degree for reasons of personal development and intellectual fulfilment. Accompanying this expansion, is a recognition by Government that postgraduate education is a valuable contributor to the balance of payments and, more generally, to the UK's international standing. For these reasons, and others, Government has stressed the need to provide an appropriate quality of service so as to ensure that value for money is achieved and that the UK's enviable reputation in this area is not damaged.

The growth of concern for quality

Much debate has taken place recently regarding the precise nature and purpose of postgraduate studies, focusing in particular upon the doctorate. In the so called 'old' universities, doctoral education was frequently regarded as a 'cottage industry', a prestigious yet somehow fringe activity in higher education. Apart from some formal

rules and regulations, and perhaps some informal and schematic institutional guidance, there was often little in the way of coherent and effective institutional and departmental policies and procedures. Doctoral studies (including, of course, work for an MPhil) were centred on an often intensely private relationship between a supervisor and his or her research student, with little or no expectation that colleagues or external agencies would, or indeed legitimately should, seek information on performance. Research supervision was often regarded as an optional extra in terms of teaching duties and was usually not taken into account when determining teaching loads. Similarly, the pursuit of research studentships was largely a matter for individual initiative. One consequence of this situation was poor completion times, particularly in the arts, humanities and social sciences. Also, in some quarters at least, there was a growing concern about standards and the quality of provision, as the number of doctoral students continued to expand. These matters have received considerable attention in recent years and improvements effected.

These concerns about the quality of doctoral education began to emerge more persistently from the mid-1980s. A key event was the publication of the Reynolds report on academic standards in institutions by the CVCP in 1986, with its recommended code of practice on postgraduate training and research. Another important event, which had a wide influence, was the publication of the Winfield enquiry into social sciences doctoral submission rates in 1987, and the implementation of the Economic and Social Research Council (ESRC) sanctions policy (ESRC, 1987) and the development of ESRC training guidelines. Similar interests have been articulated by other research councils and the British Academy, although investigations have largely, though not exclusively, addressed full-time students. Relatively little attention has been given to the growing number of part-time and self-financing research students since they are typically not funded by the research councils or other grant-awarding bodies.

Paralleling these developments, there has been a growing recognition that the scope and reputation of an institution's postgraduate programmes plays an increasingly important part in helping to secure the institution's overall standing in the academic community. Allied to this, there are financial pressures encouraging institutions to secure a strong postgraduate education and research profile. Increasingly, postgraduate numbers are seen as making a vital contribution to university finances both via the 'Research' and 'Teaching' elements of the funding council block grant and via the fees paid by non-European Union and self-financed students. This has been further stimulated by Government policies which place an increasing emphasis upon students bearing a growing proportion of the cost of higher education study programmes.

All these developments have accelerated the development of a market led higher education sector where students and other stakeholders are demanding evidence that the education provided is of a high quality. Fuelling this debate, in May 1993 the Government produced a White Paper entitled '*Realising our potential. A strategy for science, engineering and technology*' (Command 2250). The White Paper contained a number of recommendations which touched upon the format of the existing doctoral qualification offered by British institutions. In particular, it encouraged institutions to develop an award which would be responsive to the needs of industry and commerce with more structured training in research methodologies and transferable skills during

the early stages of research projects. The White Paper was followed by a consultative document published by the Office of Science and Technology in February 1994 entitled 'A new structure for postgraduate research training supported by the research councils'. The document proposed a generic masters in research (MRes) course. The MRes consists of a research component plus training in research methods and transferable skills. Although the MRes was originally regarded as a universal requirement for doctoral research students, it is increasingly being regarded as a stand alone masters qualification which may, or may not, form part of a study programme for a research degree qualification. From October 1995, four science research councils were supporting such schemes in 25 universities with some 275 students enrolled. This pilot programme is being monitored by the Office of Science and Technology. Responses from industry and individual academic disciplines to the MRes format, as reported for example in the academic press, have been mixed, although it has been reported that many of the programmes have additional support from industry (CVCP, 1996). Recent years have also seen the promotion by the Engineering and Physical Sciences Research Council (EPSRC) of an EngD, a research study programme involving research in an industrial environment. More generally, the research councils (and the British Academy with its '1 + 3' awards schemes) have placed increasing emphasis on the training and skills elements in doctoral studies.

Labour market factors

It seems that not only will the increased supply of postgraduates be entering the industrial and commercial sectors at both home and overseas, but that a growing proportion are also likely to contribute to the United Kingdom's own academic labour market where the demand for highly qualified 'new blood' will increase towards the end of the millennium. By way of example, the Institute of Manpower Studies calculated in 1991 that some 1,000 new academic social scientists would be needed annually by the year 2000 in order to replace those retiring (and this does not take account of any possible future decisions to further expand the British higher education system). More recently, the Institute has analysed the demand for students with a doctoral qualification in science and found that, if staff:student ratios in universities and colleges remain broadly the same as at present, the demand for new academic staff (in the natural sciences) will increase by about 30 *per cent* by the year 2000 (cited in Brown, 1994). Although obtaining a doctoral qualification has increasingly become the accepted currency in most disciplines in order to undertake lecturing activities, it is unclear to what extent this is a by-product of the alleged decline in the standard of first and taught second degrees or the logical extension of increasing competition for institutional academic positions. In the present policy environment, and in particular the perceived demands of the funding councils' research assessment exercises, successful candidates for lecturing posts have tended to be those with doctoral qualifications. In some of the more vocational disciplines, however, this emphasis on the importance of a doctorate may be questionable. More generally, it raises questions concerning whether, in the light of recent changes to and expansion of the UK higher education system, the conventional doctorate based around the concept of undertaking an original piece of work which will make a genuine contribution to knowledge, should be regarded as a *sine qua non* for a career as a higher education teacher. Beyond the purely academic context, there is also the issue of the extent to which doctoral education should take increased account of the range of likely future careers of students and incorporate an enhanced element of

transferable skills training.

Enhancing quality

Comparative data on the relative performances of doctoral students is currently patchy. Whilst all the research councils and the British Academy generate relatively crude submission statistics, resource constraints have restricted their ability to develop more sophisticated performance measures and related analyses, both across disciplines and between institutions. Recently, HESA has begun to explore the feasibility of generating comparable nationwide data but such a system is at an early stage of evolution. The higher education sector has accordingly had to base its assessment of the quality of current postgraduate learning experiences on the findings of external audit investigations undertaken by HEQC and, to a lesser degree, assessment activities undertaken by the respective funding councils. These external investigations have suggested that, although progress is being made to improve the quality of postgraduate learning experiences, further work is required if the concerns raised by national and international funding agencies are to be dealt with. HEQC (1994 and 1996) audit investigations have revealed a number of positive developments including, for example:

- the increased use being made of supervisory teams;
- the development of institutional induction programmes for research students;
- the development of more formalised frameworks for the management of graduate level activities;
- improved monitoring of research student performance;
- improvements in research student representation; and
- the development of operational codes of practice.

HEQC has also been able to highlight a number of possible problems including, for example:

- variable supervision arrangements, often lacking any provision of research supervisory training for academic staff,
- increased use being made of postgraduate students to undertake undergraduate teaching and demonstrating duties without adequate training and monitoring of performance;
- weaknesses in some institutions in the methods used to select and brief external examiners for doctoral awards;
- variable completion rates for postgraduate doctoral students;
- inadequate training provided to some research students in research techniques and quantitative methods;
- absence of effective rules and procedures regarding appeals and dealing with lack of progress and other similar problems; and
- variations in the mechanisms for transfer of registration from MPhil to PhD.

The increase in postgraduate numbers and the growing importance of postgraduate studies for higher education generally provide a clear stimulus for the sector to develop a collective approach to the quality assurance of postgraduate education, over and above those which are secured locally in each institution or subject department responsible for the postgraduates working within it. In the current policy environment it is possible that if the sector itself is unable, or indeed unwilling, to take its own measures to seek to define and then carefully monitor quality in doctoral education, external, inappropriate and poorly thought-out mechanisms may be imposed which pay inadequate regard to the diversity and complexity of doctoral education. Institutions, recognising these pressures, are increasingly reviewing their practices in relation to postgraduate research education. The following sections of this paper seek to analyse the problem of measuring and assuring quality in postgraduate research education and the feasibility of achieving international comparability in standards. Finally, we make some suggestions for the form that a national framework for UK quality assurance in doctoral education might take.

3. WHAT IS 'QUALITY' IN POSTGRADUATE RESEARCH EDUCATION?

Definitions of quality

Various definitions of quality have been suggested. The first may be regarded as the traditional definition, that quality means of the highest possible standard. However, what we are concerned with here is not the achievement of the highest possible standard, desirable though this might be, but ensuring that acceptable levels of quality, or 'threshold standards', are maintained and enhanced. In this context, therefore, this is not a useful definition. However, any system should seek to progressively raise such 'threshold standards'.

The second views quality as fitness for purpose. This is the most commonly accepted definition in higher education now, and elsewhere, and is that adopted with respect to the quality assurance and quality assessment mechanisms, by HEQC and HEFCE respectively.

The third definition, which does not necessarily conflict with the second one, relates quality to effectiveness in achieving institutional goals. This also lies at the heart of the academic audit procedures, from which HEQC evolved, and is central to the HEFCE teaching quality assessment methodology. But it seems unlikely that quality in graduate research education can be wholly assessed on this basis. There seems no reason to suppose that institutions in the business of doctoral education should have distinctively different missions, implying distinctively different outputs in line with those missions. This might possibly make sense at the taught postgraduate level but it is difficult to see how it might apply at the doctoral level (unless some institutions were to provide solely for a training based system of doctoral education, for example - and see the discussion of such non-research based awards below). However, there are clear differences across disciplines in the balance between research training and original research that is seen as appropriate to the doctorate, as the work of Becher *et al* (1994) and others has shown.

The fourth definition implies conformity to a specification or standard. Once again

this does not necessarily conflict with the second definition above. The problem, however, is that once a standard or specification is laid down it may become difficult to change. There is a further problem if the specification is laid down in numerical form, in that there is then a temptation to assume that quality can be measured adequately by a simplistic set of performance indicators.

The fifth definition relates quality to meeting the stated or implied needs of customers. The problem here is that although the student appears to be the customer, there are others who are certainly stakeholders and have a claim to be considered as customers. The position is only clear if a self-financed student is paying full fees to the institution. Otherwise, in the case of a home student, the government is providing part of the cost, and, at least in part, it is providing this funding on behalf of future employers of the student, and so the employers could claim to be stakeholders. Employers also contribute directly to the costs of some students. Some research students may be supported by charities, particularly the medical charities, or the research councils, and these too have an interest. Finally, overseas students may be supported by aid agencies of various kinds and their national governments who also have an interest. The needs of these stakeholders may differ, and may sometimes be in conflict.

If we agree, therefore, that quality is best equated with fitness for purpose (and agree that 'purpose' in doctoral education is not something which should be entirely determined at an institutional level), then some further issues need to be considered.

Purposes of the doctoral qualification

A crucial question is that of the purposes of the doctoral qualification. What is the product of which the award of a doctorate is evidence? The problem is that the various 'stakeholders' have different ends in view. One product is in fact the process itself - in the course of acquiring the doctorate the student will acquire a training in carrying out research. In one sense a doctorate could be seen in the past as a kind of academic apprenticeship, by 'sitting next to Nellie' the student learned from the experience. In the MRes or doctoral training programmes training in the carrying out of research is formalised, is less based upon practical experience, and is taught formally prior to students' carrying out their own research. Then, after this stage, the student carries out his or her own research and learns from the experience. One positive result of this split, it is argued, is that students become familiar with a wider range of research methods than merely those they will use in the course of their own research and this may be of value to them in their future careers. The demerit is that students may simply ignore training that is of no immediate utility to them, and time may be wasted. Also, it might be argued that if the student has been taught research methods in one year, why should they spend the following two years applying them as part of the doctorate, why cannot they simply go on to be paid properly to do research? The answer is that learning through instruction how to undertake research is not the same as the learning experiences which arise from actually undertaking research, and the work required for the thesis indicates that the student can carry out original research. This is why the research element of the doctorate remains the distinctive characteristic and essential cornerstone.

For some students, such as mature students studying on a part-time basis, the process is also the product but it is the process of studying and engaging with a subject of

interest to the student rather than the research training. In theory, the student could do this on their own, registration for the doctorate, however, ensures guidance and support, on the one hand, and involves commitment, on the other. In these cases, the student may have no real intention of carrying out further research or using the doctorate for career advancement. For those research students studying on a part-time basis, a number of matters need to be taken into account by the institution including, for example, the potential difficulties brought about by constrained access to learning resource facilities and any family and work commitments.

In general, as we have already noted, there is a distinct cross-disciplinary variation in what is seen as the appropriate balance in the doctorate between formal training and research and, as responses to the MRes proposals have indicated, this is not wholly a matter of an arts/science divide, although it is the case that many of the science disciplines see post-doctoral work as an essential further step in the evolution of the fully independent researcher.

Finally, the product for some stakeholders may be the finished thesis. This is most likely to be true of institutions as employers of academic staff, who will be expected to carry out research as part of their employment contracts. The production of the thesis, and, importantly, the likelihood that some part of the thesis will be published, provides evidence that the student can produce publishable research, and so there is less risk involved in offering an appointment. It is noteworthy that this may be indicating something about the suitability of the student as a prospective employee which is different to what may be learned from previous academic work. The class of undergraduate degree (and performance in a masters degree) of the student indicate one measure of capability, but someone may gain a prize-winning first yet have little urge to creativity, only a very good memory and analytical ability. A training in research methods is important but it does not teach students to identify a research topic or how to be creative in exploring it. The evidence indicates that success in doctoral work is not strongly correlated with performance at the undergraduate level (Wright, 1992; Dunkerley and Weeks, 1994; ESRC, 1987; Booth and Satchell, 1995). Previous academic attainments appear to be relatively unimportant, although, of course, they will have helped to get students accepted as doctoral candidates. The other qualities which help to ensure a successful outcome are self confidence, self discipline, independence as a learner, and organisational skills. Award of a doctorate should, therefore, attest that the student has acquired these and other personal transferable skills at an appropriate level.

Non-traditional doctorates

Before we continue there are three more detailed matters to consider, all of which concern forms of doctoral awards other than the traditional thesis-based concept. The first is the question of the extent to which applicants should be allowed to submit published work for the award of a doctorate instead of working for the production of a thesis. There is a perception that the number of such awards has increased significantly in recent years; a current survey by the UKCGIE will provide more definitive information. Given the foregoing analysis, it could perhaps be argued that provided the published works are judged to be equivalent to a thesis, there is no reason why a doctorate should not to be awarded on this basis. While it is possibly true that an individual's published work does not provide direct evidence of a wider training in research methods, the process of publication itself provides evidence of the

ability to carry out research through to completion. In this context, evidence of research training would perhaps seem to be unnecessary. Moreover, we note that the DSc is normally awarded on the basis of published work. This seems to constitute a respectable precedent.

Particular care needs to be taken to ensure that doctorates awarded by this route are fully comparable to those obtained in a more conventional manner. Firstly, if jointly authored work is submitted, the co-authors should be asked to outline their contribution to the publication. Secondly, the submitted work should have coherence overall, as outlined in a covering document written by the candidate. Thirdly, other aspects of the examination should be maintained, especially the requirement for a viva. Finally, in the case of staff candidates, there should be two external examiners, and no internal examiner, and the candidate should not be involved, even informally, in their selection.

A second area for debate which is currently being considered by the relevant professional bodies and other interested parties concerns the extension of the research degree to the creative arts. One view could be that this form of award does not fit neatly within the framework set out above, namely a training in carrying out research, and carrying out research leading to the production of a piece of original research. It may be possible to test a students' progress from BA to MFA through the exhibits of works by a student, since progress can be indicated. But there is necessarily no viva voce examination since there is no thesis to be examined, and in its absence there appears to be no basis in which to award a research degree, or to base any system of quality assurance. Recognising the need for further debate in this area, the UKCGE has recently established a working group to examine practice based research degrees.

A third area for debate is the notion of a (wholly or largely) taught doctorate. The extension of taught doctorates to a wider range of professions has been especially notable in the United States and is now slowly developing in the UK, for example in education, clinical psychology and engineering. If such qualifications develop further, we believe that steps should be taken, for example by giving them a title other than PhD), to indicate that they are forms of professional advanced training rather than research based qualifications.

The doctoral programme

Despite the disparate views concerning the doctorate which are held by the various stakeholders, a common core is that a good doctoral programme should result in students being instructed in the range of research methods available, at least in so far as it is necessary for them to select and employ appropriate methods for their future research, and should be enabled to carry out the research and see it through to production of the thesis. In addition, it is widely recognised that in the course of their education, students should also have the opportunity to develop a range of transferable skills. The balance between the research methods and transferable skills elements cannot, however, be determined without taking account of matters such as disciplinary variation, study mode and individual student needs.

How this is best done will vary. However, the implication is that there should be some form of doctoral training programme, but tailored as far as possible to the needs of the students. Evidently supervisors should also receive training in how best to

carry out their responsibilities. But there are many other aspects to creating the best environment to enable students to produce the thesis. What is the best environment? Certainly it is one where students are not isolated, but does this mean, for example, that they would do better in a large or a small department? These questions about the best environment for doctoral studies are difficult to answer with any degree of certainty. It may be that the best conditions vary between disciplines, and possibly between different types of institution. American research suggests that some students (in some disciplines) may gain from working in a large department with many others, whilst others (in other academic areas) may gain if they work in a smaller department, but are integrated into it (Bowen and Rudenstein, 1992). The existence of such variations is another sign that a centrally defined or rigid approach which is overly prescriptive concerning the conditions for creating a high quality environment for doctoral studies should be avoided.

Examining the doctorate

A further set of important issues concerns the examination of doctoral candidates. It is evident that one purpose of the *viva voce* is to ensure that the person who claims to have written the thesis has actually done so. However, some institutions do allow the examiners to dispense with the *viva voce* if, for example, the thesis (or published work submitted for a doctorate) is of such quality as to clearly merit the award without an oral examination. The *viva voce* examination retains some aspects of its origin as an academic disputation at which the candidate was expected to be able to defend their research work in a somewhat ritualistic debate with internal and external examiners. In some European countries this element of ritual is relevant since the examination is held in public and anyone can come to put questions to the candidate. It can be argued, however, that there is little purpose in requiring the holding of a *viva voce* examination if it is clear to the examiners that the candidate will pass. Requiring the holding of an examination when it is abundantly clear that the thesis is acceptable means that the so-called examination may sometimes merely comprise of a discussion between the examiners and the candidate as to how and where the thesis is to be published.

In other cases, the examiners may agree beforehand that a thesis is acceptable and inform a candidate that this is the case at the beginning of the examination, proceeding onto a discussion of various points in the thesis. In these cases, an institution imposes an unnecessary cost on itself if it insists on an examination being held for essentially ritualistic reasons. It could be argued that the role of the external examiners in the assessment of both the thesis and the student is fundamental to the control of quality. Nevertheless, unless this is regarded as a fundamental objection, it might perhaps also be argued that a doctorate could be awarded without an oral examination if the thesis is deemed satisfactory by the examiners and can be attested to as being the student's own work by the institution. It would certainly be more efficient. It would reduce the cost of examining the candidate and also might reduce the costs for some international candidates, who frequently have to return to the UK for the sole purpose of a *viva*. Clearly, these are matters for further detailed debate and consideration.

If there was a possibility that travel expenses and accommodation costs would not have to be paid, it would also be possible to seek the views of examiners resident abroad since this would not be ruled out by financial considerations. This would have

the added benefit of ensuring some sort of international equivalence in the standard required for the award of a research degree, a point which we return to below.

More generally, codes of practice for the conduct of *viva voce* examinations should be actively encouraged. The traumatic experiences of some students at *vivas* mentioned, for example, by Phillips (1994) provides a justification for this view. It is not appropriate to be unduly prescriptive regarding the length of such oral examinations or other procedural matters. Nevertheless, clear and readily understandable appeals procedures in relation to the thesis examination should be in place for research degree students and, where appropriate, such procedures should provide the opportunity for the research student to be given access to the external examiner(s) report(s). In the course of such appeals, details of the examining process, including compliance with a code of practice, would normally be investigated.

An important requirement is to have clear procedures for the appointment of external examiners which would allay possible concerns about the existence of 'closed shop' operations in which there is collusion to pass poor quality work. Given that the topic of a thesis is necessarily specialised it is, of course, difficult to completely eliminate the possibility of mutuality in the appointment of examiners (namely, where A examines B's research student while B examines A's research student) but a common code of practice might provide, for example, for sonic restraints on this practice.

Traditionally, and still in most cases today, the principal role of the external examiner has been to come to a judgement about a single candidate, normally in conjunction with the internal examiner. However, the recent and continuing reappraisal of the role of the external examiner in relation to undergraduate and postgraduate taught degrees, and whether the remit of such examiners should be extended to wider quality matters, might suggest that the role of the doctoral external examiner be given a broader definition. Certainly, external examiners should be able to comment on any specific matters concerning the education which the candidate they are examining has received. It would seem that there can be little justification for excluding such matters from, for example, appeals against the decisions of examiners. It would, however, be an entirely different matter to ask externals to routinely comment more generally on the quality of doctoral education. Such comments would be based, unlike those of undergraduate externals, on the experience of a single student. Regular reviews of doctoral education at departmental and/or institutional levels should be incorporated in more general reviews of degree schemes and departments, using external peers.

4. THE ASSESSMENT OF QUALITY

The dimensions of quality

The above discussion of the nature of quality indicates that the assessment of quality in the education of graduate research students is a complex matter, and, as Green (1993) has pointed out, it has several dimensions. One can set out to assess inputs (for example, human and physical resources), process factors (including the characteristics of supervision) or outputs (for example, the thesis and the student learning outcomes). In practice, effective approaches to quality assessment in other spheres of activity, including in higher education, consider inputs, processes and outputs. The implication is that all three aspects of doctoral education need to be considered in any, attempt at judging quality.

The assessment of quality in such breadth would not be easy, and its attempted measurement by means of performance indicators would pose additional difficulties. At present, the most extensive exercise in research quality assessment in UK higher education is the Research Assessment Exercise carried out by the funding councils which is intended to measure the quality of research output only and, even now in its fourth cycle, remains controversial. For example, in areas such as Art, Design and tile Performing Arts, the very definition of what counts as research, and therefore the question of the assessment of quality, is fiercely contested. Yet assessing the quality of output is, arguably, more straightforward than assessing the quality of either inputs or process.

In these circumstances, it is not surprising that most attention has been paid to outputs. For example, Phillips (1994) has proposed that there are five stages at which the quality of a doctorate can be assessed. These are at: selection; the point of transfer from MPhil to PhD registration (or similar upgrading stage); monitoring stages (for example, annual monitoring); the pre-examination stage; and the *viva voce* examination. Phillips's approach, however, focuses largely on the quality of what the student has achieved. Consequently, it underestimates the input and process factors. The research councils' focus on submission times is similarly output oriented. However, assessing output factors alone will not result in genuine assessment of the quality of the student's learning experience which has been the primary focus for the assessment of the quality of taught programmes in higher education.

Our conclusion is that the quality assessment of doctoral education requires a broader approach if it is to be soundly based and widely accepted. We set out below the possible input, process and output factors which might be taken into account in such a quality assessment of doctoral education. Of course, some of these factors are more visible, or more readily assessable than others. All the elements do, however, help determine the quality of doctoral education and are, therefore, relevant to any assessment of such quality and to institutional policies regarding quality.

Input factors

The student

Selection of students deemed suitable for completing a doctorate is a key issue yet it has, perhaps, been an area given less attention than other aspects of doctoral education. Factors which might be considered include:

- the first degree qualification, e.g. the class of degree;
- appropriateness of the first degree to the proposed research project - at least in terms of determining the most appropriate taught elements of the research programme;
- English language abilities (literacy and numeracy);
- the match between a student's project and the expertise of their supervisor(s);
- the time commitments for part-time students; and
- suitability of the candidate for a research programme – should selection criteria and person specifications be used as is (increasingly) the case when selecting employees and what, if any, selection methods might establish whether or not a candidate meets the necessary criteria.

Regarding the first of these criteria, as we have noted above, research indicates that there is no strong correlation between the class of the students' undergraduate degree and the successful achievement of a doctorate, despite the tendency of the research councils to use the degree class as an important determinant of awards for postgraduate research work and the weight which is placed on this factor by university admissions rules. Other factors such as self motivation are of greater importance.

The supervisor(s)

The quality of the supervision is a key factor in the achievements of most research students. Factors which might be considered in relation to the selection of supervisors include:

- the experience of the total supervisory team;
- the supervisory load of the supervisor(s);
- the track record of the supervisor(s); and
- the scope and content of training programmes for supervisors.

Physical resources

The appropriateness of the physical resources in support of the doctoral student are important. Quality factors might include:

- appropriateness and availability of support facilities, particularly specialist facilities (for example, equipment; laboratories; workshops, IT support and other specialist facilities for part-time students who may not have easy access to institutional facilities);
- financial resources including facilities for travel and conference attendance;
- library facilities;
- welfare facilities; and
- provision of office facilities including word processor facilities.

Other aspects

A number of other input factors are likely to influence the quality of a doctoral student's experience. These might include:

- research culture of the department(s) in which the student is based;
- peer involvement (namely, pressure of and interaction with other research students; other staff, external peer input); and
- arrangements for the representation of doctoral students views and incorporation of their interests in policy-making.

Process factors

Taught elements

There is now an expectation that a doctoral programme should include some taught elements. These will vary according to discipline. Quality factors might include:

- evidence of departmental (and institutional) commitment and contribution to the taught element;
- the characteristics of the taught element (namely, the syllabus);

- availability to part-time students; and
- monitoring of student progress with the taught element, in particular, evidence that the key objectives of the taught element are being achieved.

Quality of supervision and training

This is a key element in the quality of research training provided. Quality factors might include:

- initial induction of the research students, including quality of handbooks; guidelines; etc., provided for the student;
- evidence that the roles and responsibilities of the supervisor(s), the student and Head of Department, are clear;
- existence and functions of supervisory committees, indicating the involvement of other staff,
- arrangements for assessing and approving the student's research plan;
- regularity of supervisor/student meetings;
- goal setting and monitoring;
- arrangements for alternative supervision during periods of absence; and
- evidence of awareness of issues related to the changing relationship between the student and the supervisor(s) as the research programme progresses.

Some institutions have explored the creation of 'graduate schools' as a means of coordinating postgraduate level activities. The UKCGIE has produced a report examining the effectiveness of graduate schools structures.

Recording, reporting and presenting the research

Development of high level communication skills should be a crucial component of any doctoral research programme. Relevant factors might include:

- student attendance at and contributions to research seminars;
- evidence that the student is encouraged to present his/her research in internal and external seminars, at conferences and that he or she has actually done so;
- evidence of feedback from the supervisor(s) arising from the above activities; and
- provision and take up of additional training opportunities where appropriate.

Monitoring

Most departments undertake annual or more frequent monitoring of the progress of research students. Relevant factors might include:

- the suitability and awareness of the agreed and published monitoring procedures; and
- evidence, through audit, of the implementation and effectiveness of the monitoring procedures.

Other factors

A range of other factors also influence the quality of a research student's experience. Other quality factors might include:

- effective and fair examining procedures and arrangements for the selection of examiners;

- existence and effectiveness of grievance and appeals procedures;
- evidence that research students who undertake teaching are appropriately inducted, trained and that the amount of teaching is controlled so that it does not interfere with the research programme;
- any special arrangements for part-time students; and
- rigour of the MPhil/PhD transfer (or similar upgrading) process.

Output factors

The student

The student, or, rather, what the student has gained from the process, and the research thesis are the two main output elements. Quality assessment factors as far as the student is concerned might include:

- value added as a result of the research training as judged against a range of training objectives;
- the ability of the student to communicate his/her research orally and in the written form (and through, in some instances, artefacts) and these are what the *viva voce* examination and the research thesis itself are intended to measure; and
- career progression as measured, for example, by information 5 years post-PhD.

The research

As previously noted, assessing the quality of research is controversial but is currently practised by the HEFCE in the periodic Research Assessment Exercises. Quality factors might include:

- perceived quality of the research reported in the thesis in terms of originality and its contribution to the advancement of knowledge and/or its applications - in practice this is what the external examiners report on;
- public outputs (other than the thesis) arising from the research including conference presentations, seminars, books or book chapters, refereed articles, etc., and the perceived standing of the journals/publications in which they have appeared and citations; and
- external examiner reports which might include comments on the perceived quality of supervision experienced by the research student.

Submission times

Although this would not seem to be of great importance to some categories of student (notably those who are pursuing their studies with their own finance, on a part-time basis and possibly for non-vocational reasons), it is accorded considerable weight by the research councils and by Government who increasingly regard the ability to complete a doctoral thesis within three to four years as an indicator of research competence. Its advantage is that it is measurable and that the figures are easily obtainable. The research councils also collect data on completion times, not just on times to submission. This data may be more relevant from a quality perspective. Insofar as lengthy times to completion, or non-completion, are the consequence of poor quality provision, the monitoring of completion times and of the reasons for poor completion times are key aspects of quality audit and assurance. However, it is important to note that recent discussion of completion times has assumed that quality can be maintained, or even enhanced, if these are reduced significantly, to four or

even three years. Yet, acceptance of these time limits as being appropriate, is far from universal. For example, some staff (and doctoral examiners) in the humanities continue to argue for a slightly longer timescale. In some cases, the nature of the student's research may require a longer period, for instance to learn a foreign language or to carry out seasonally limited fieldwork. Allowances for such purposes are normally made by the relevant funding body and should also be made by the parent institution.

5. INTERNATIONAL DIMENSIONS

We have already referred to one reason why the Government and others are concerned about the standards of the UK doctorate in the international context. A high proportion of the United Kingdom's postgraduate students are from overseas, a much higher proportion than of undergraduate students. The quality issue is therefore important not only because one would wish that overseas students view favourably their period of study in the UK but also because non-European Union students (or their sponsors) are paying substantial amounts to attend UK higher education institutions. In this field the UK is competing for a substantial export market, and this should be recognised so that reviewing quality assists the marketing process, rather than hinders it. Nor is this point solely a matter of marketing, as the provision of poor quality education to overseas students, many of whom are sponsored by their governments, may adversely affect more general relations between the UK and these countries.

Currently, this seems to be the main preoccupation which drives Government comments on the need to maintain the UK's international reputation for high quality postgraduate education. However, there are at least two other reasons why this matter is important. The first concerns the adverse effects which poor quality doctoral education may have on the nation's economic performance, insofar as this is dependent on a continuing supply of highly skilled and qualified employees, with advanced research skills. Of course, one aspect of this is the effects of poor quality doctoral education on the quality of higher education itself. The second factor links to this first one and concerns the career prospects of the doctoral students themselves, especially where they are working in labour markets where they compete for jobs with postgraduates who have been educated in other highly developed systems of higher education.

However, while there are clear reasons to be concerned about the international comparability of UK doctoral education, it is less easy to make such comparisons directly. As Noble (1994) has shown, while there are certain broad elements which are common to most doctoral degrees cross-nationally, there are also many significant variations in national regulations and requirements. This would make direct and detailed comparisons of quality and achievement extremely difficult and costly. One radical possibility would, of course, be to develop some internationally common definition of the content and nature of doctoral education, accompanied by a cross-national system of quality review. In the UK context, this might be most likely to occur through the agency of the European Union. However, there seems little likelihood of such an occurrence in the near future. It is notable, for example, that a recent response by the UK Government, based significantly on comments from higher education and professional institutions, to an European Union proposal on the

recognition of qualifications for academic and professional purposes, rejected any European harmonisation of curricula or Europe-wide organisation of quality assessment (CVCP, 1995). Nor was this just the UK response, as the Liaison Committee of Rectors Conferences (which links the CVCP with its counterparts in seventeen other western European countries) came to a similar conclusion.

There are, however, some less direct means of monitoring the standards of UK doctoral education in an international context. First, at the level of the individual thesis, as we have already suggested, there could be much more frequent recourse to the use of overseas-based examiners (who would normally, not attend any oral examination). The use of UK-based academics in the examination of doctorates in countries whose HE systems are at an early stage of development has been common practice and appears to have worked satisfactorily to maintain and enhance standards. There seems no good reason why a significant sample of UK doctorates should not also be externally assessed in this way. Of course, particular care would need to be taken in the selection and briefing of such examiners. External examiners would not necessarily be required to visit the UK in order to undertake this activity. In the first instance at least, policy towards the use of international examiners should be a matter for individual institutional decision and might be developed on an experimental basis. It would be useful for several institutions to cooperate, for example in drawing up lists of suitable examiners and in devising procedures, as well as in the evaluation of the outcomes.

Other quality checks would be possible as well, though not at this individual level. For example, studies of the future careers of those with UK doctoral qualifications, in comparison with their counterparts educated elsewhere, could be carried out by a future body which has responsibility for the quality assessment of this form of postgraduate education. Systematic surveys of employers who recruit such skilled employees in an international labour market would also provide a basis for quality checks. Finally, the information which is regularly obtained, notably by the overseas offices of the British Council, about the perceived standards, strengths and weaknesses of UK doctoral education could be more systematically collected and made available to higher education institutions and any quality assessment body. Taken together, and presented in a systematic manner, such indicators could provide a far more secure basis for claims regarding the quality and international standing of UK doctoral education, and for action to maintain and enhance this standing.

6. CONCLUSIONS

In this discussion paper we have sought to identify not only the current context within which UK research level education is being developed but also a number of thematic matters which we believe require further consideration by the sector. These include, for example, the purposes of a doctoral education, the development of so-called 'non-traditional' doctorates, examination mechanisms and international aspects.

Recent years have seen an increased emphasis being placed upon institutional quality assurance activities. Such activities have largely focused upon elaborating those structures and procedures which support undergraduate provision. Despite the marked expansion in the number of postgraduate research students in British higher education noted earlier in this paper, in comparison to undergraduate provision, the quality

assurance of postgraduate education, and in particular the education of research postgraduates, has received relatively little attention nationally. In view of the expansion and diversification that has occurred in relation to postgraduate research education, the UKCGE believes that the sector should now review the quality of such provision.

Whilst recognising the inherent difficulties of seeking to develop, maintain and then enhance certain quality thresholds both across disciplines and within and between institutions, there are strong arguments for such an approach from both a national and international perspective. Given the diversity and individuality of doctoral education and provision, the cross-disciplinary variation, and the differing purposes for which it is provided by institutions and paid for by agencies and, increasingly, self-supported individuals, it will necessary take time to establish certain quality thresholds.

In view of the distinctive nature of postgraduate research education, it is believed that the development of policies and arrangements to assess and improve its quality will be most effectively advanced by an approach which recognises the distinctiveness of individual institutions and embraces the immediate providers of postgraduate research education. To provide the necessary assurance to those external stakeholders, including, of course, the students themselves, there appears to be a compelling need for the sector to act collectively to develop effective quality assurance policies and procedures, monitoring and enhancement mechanisms. One possibility is that the Committee of Vice-Chancellors and Principals, through its quality assurance agency the Higher Education Quality Council or a single integrated quality assurance agency, should coordinate activities more formally in this area. Over recent years the HEQC has established a recognised role in relation to institutional quality assurance and enhancement and has developed procedures which seek to recognise and accommodate the diversity of institutional missions. Given its various interests and membership, the UKCGE is also likely, to make an active contribution to this area. A possible starting point for quality enhancement could be the development of a national threshold code of practice, with institutions being directly involved with the identification and progressive refinement of a range of performance indicators, not just completion times, which could then be used to monitor threshold compliance. In this regard, the HEQC is seeking to produce generic sector-wide guidelines for research students and supervisors which, it hopes will be endorsed not only by its various sponsoring bodies (CVCP, SCOP and the Conference of Scottish Centrally Funded Colleges) but also by the major players in the postgraduate research degrees arena including the research councils, the UKCGE and the National Postgraduate Committee. The generic guidelines will seek to address matters relating to the research environment; the regulatory framework; admissions procedures; responsibilities of the institution; roles and responsibilities of research students and supervisors; supervising and monitoring the progress of research students; skills training for research students and supervisors; skills training for research students and supervisors; research outputs; and appeals. The HEQC hope to present these generic guidelines to the sector during summer 1996.

In developing quality assurance and enhancement policies and procedures, the CVCP will need to involve other stakeholders such as the funding and research councils, bodies such as the British Council, major employers of postgraduates and, of course, students themselves through bodies such as the National Postgraduate Committee.

Given its wide operational base, the UKCGE will have an important role to play in sharing and promoting best practice.

The continued development of high quality postgraduate research education in the UK is, for a variety of reasons explained earlier in this paper, a matter of some import for higher education institutions. Only with continued attention and development of the mechanisms used to assure and enhance the quality of such education can the UK's enviable reputation in this area be sustained.

7. REFERENCES

- Becher, Tony, M. Henkel and M. Kogan (1994) *Graduate Education in Britain* (London: Jessica Kingsley)
- Booth, A. L., and S. E. Satchell (1995) The Hazards of Doing a PhD: An Analysis of Completion and Withdrawal Rates of British PhD Students in the 1980s, *Journal of the Royal Statistical Society A*, Vol. 158, Part 2, 297-318.
- Bowen, W.G. and N.L. Rudenstein (1992) *In Pursuit of the PhD* (Princeton: Princeton U.P.)
- Brown, R. (1994) Current Issues of Quality in Graduate Education. Keynote Address to the UK Council for Graduate Education Annual Conference, University of Nottingham, 27th July.
- CVCP. (1995) Circular N/95/161 on EU Commission Communication on Recognition of Qualifications for Academic and Professional Purposes: Responses. (London: CVCP)
- CVCP (1996) Parliamentary proceedings, No.6, Session 1995-96, 915 January 1996 (Parliamentary question answered by the Minister of Science and Technology)
- Dunkerley, D. and J. Weeks (1994) Social Science Research Degrees: Completion Rates and Times in *Postgraduate Education and Training in the Social Sciences. Processes and Products*, ed. Robert G. Burgess (London: Jessica Kingsley), 149-66.
- ESRC (1987). *The Social Science PhD. The ESRC Inquiry on Submission Rates (Winfield Report)* (London: ESRC)
- Green, D. (1993) *What is Quality in Higher Education?* (Buckingham: , SRHE and OU Press).
- HEFCE. (1996) *HEFCE, C VCP, SCOP Review of Postgraduate Education* (HEFCE: Bristol) (in press)
- HEQC. (1994) *Learning-from Audit - Volume 1* (London: HEQC)
- HEQC.(1 996) *Learningfrom Audit - Volume 2* (London: HEQC)
- Noble, K.A. (1994) *Changing Doctoral Degrees. An International Perspective* (Buckingham: SRHE and OU Press)
- Pearson, R., I. Seccombe, G. Pike, S. Holly. and H. C Doctoral social scientists and the labour market. It No.217, Brighton: Institute of Manpower Studies.
- Phillips, E.D. (1994) Quality in the PhD: Points at Which Quality may be Assessed. Chapter 7 in *Postgraduate Education the Social Sciences: Processes and Products*, ed. Burgess (London: Jessica Kingsley Publishers).

Wright, J. (1992) Selection, Supervision and the Academic Management of Research Leading to the PhD. PhD University of Nottingham.