

Conceptualising and Rewarding Excellence in UK Academia: The role of
research assessment.

By
Andrew Sockanathan

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Conceptualising and Rewarding Excellence in UK Academia: The role of research assessment.

This paper outlines the ways in which the UK academic community defines the concept of excellence and how this conception provides a basis for the rewarding of academic institutions, departments and individuals. Particular attention is given to the crucial role that the UK Government's assessment of 'research quality' has in this process. What is put forward here will be of specific interest to academics that are interested in pursuing a career in the UK, insofar as it will contribute towards an understanding of the criteria upon which the excellence of individual academics is judged, and an explanation of why certain academic institutions and departments are considered to be of a higher standard of excellence than others.

Introduction

In view of the fact that other world leaders in scientific excellence and research, including the USA and Germany, and also emergent research competitors, such as China and India, are pursuing a policy of concentrating their research efforts in a small number of world-class institutions (Maiworm and Teichler, 2003), the British Governments' decision to follow a similar policy of reform in higher education can be seen as an attempt to both consolidate Britain's position as second only to the USA in terms of volume of research output and citations (DTI, 2000, p.6) and also to set Britain at an advantage through improving the competitiveness, sustainability and dynamism of University research, with the overarching aim being "...to make better progress in harnessing knowledge to wealth creation" (DfES, 2003, p. 2). The emphasis is placed squarely upon shaping the UK research infrastructure into a formation that attracts and retains world-class researchers, produces a fast turnover of cutting edge, International-standard research outputs, and thus enables the UK to maintain and develop its International standing as one of the leading countries in research excellence.

In the UK Government White Paper *The Future of Higher Education (DfES, 2003)*, the Government is unequivocal in its conviction that the most effective way of fostering this situation is to move towards funding research in large, concentrated units that are able to offer the highest standards in facilities, salaries and support. As Charles Clarke, Secretary of State for education put it: "...We are explicitly investing more in the very best...to identify the strongest from the strong..." (Clarke, 2003, p. 21). The foundation upon which the ongoing effort to concentrate research activity and at the same time increase research quality is built is the policy to distribute research infrastructure funds selectively on the basis of research quality. Since the mid 1980's, the **Research Assessment Exercise** (RAE) has been responsible for providing the process for both establishing a criterion for 'measuring' research excellence, and also assessing the level of research excellence in the academic departments of Higher Education Institutions (HEI's). Research infrastructure funding is distributed on the basis of the RAE's assessment of research quality. As a mechanism for allocating funds and quality assessment, the RAE has become influential in the distribution of external funding (other-Government and non-Governmental) and has shaped both the form and content of research outputs and activities. As Campbell et al (1999) put it, the RAE "...now largely determines the allocation of research funding in the United Kingdom's higher education institutions, has formalized such quality evaluations, and in the process influenced and sometimes altered institutional of what constitutes 'good' research..." (p. 470).

Proposed changes to the way the research infrastructure is funded have been outlined in the White Paper, many of which have been implemented for the academic year 2003-2004, and in the announced changes to the next RAE, which will take place in 2008 (HEFCE, 2004). These included more funding for research intensive universities, the probable phasing out of funding for

high quality but not research intensive research departments, and directing non-research intensive universities towards a focus on teaching rather than research (DfES, *Ibid.*, p. 26; HEFCE, 2003a). In view of this, the first part of this paper attempts to provide an account of how excellence is measured and rewarded in the UK through analysing how research is funded. The constituent parts and working methods of the last RAE, which took place in 2001, are then considered and explained, as are the recent and proposed changes to the funding system; and a conception of what these processes might entail for the individual academic is arrived at.

1. How Research is Funded in the UK

(a) The Dual Support System

The way research is funded, as well as the measuring and rewarding of excellence in the UK, is underpinned by the Governments' commitment to what is known as the Dual Support System, which is responsible for the dissemination of the majority of public research funds. The two streams of funding operate differently but are interrelated.

1. The first stream is provided by the **Funding Councils** of England, Scotland, Wales and Northern Ireland and is intended to support the *research infrastructure*. These funds contribute to the cost of salaries for permanent academic staff, premises, libraries and central computing costs. The allocation of these funds is made on a highly selective basis, involving a detailed assessment of the quality and volume of research output, and is therefore known as Quality Related or QR funding. The budgets for QR funding in each of the research councils is shown in **Fig. 1.1**:

Fig. 1.1 – Funding Council research infrastructure Budgets 2003-2004

Funding Council	Total budget for research infrastructure funding 2003-2004 (£m)
Higher Education Funding Council for England (HEFCE)	1,042
Scottish Higher Education Funding Council (SHEFC)	179
Higher Education Funding Council for Wales (HEFCW)	67
Department for Employment and Learning, Northern Ireland (DELNI)	42
Total	1,330

Adapted from: DTI (2002) and HEFCE (2003a, p.13-14).

2. The second stream is delivered by the Research Councils of England funded by the Office of Science and Technology. They provide for *direct research project costs* and contribute to indirect project costs. Each Research Council has its own Royal Charter of

objectives, set by the Government, with the main unifying objective across all research councils being to promote and support high quality basic, strategic and applied research through the *invitation and assessment of specific applications for research funding and postgraduate training* (DTI, 2002, p. 30). **Fig. 1.2** lists the Research Councils and their budgets for 2003-2004.

Fig. 1.2 – Research Council Budgets 2003-2004

Research Council	Budget (£m) total
Medical research Council (MRC)	387
Biotechnology and Biological Sciences Research Council (BBSRC)	250
Natural Environment Research Council (NERC)	217
Engineering and Physical Sciences Research Council (EPSRC)	490
Particle Physics and Astronomy Research Council (PPARC)	232
Economic and Social Research Council (ESRC)	92
Council for the Central Laboratory of the Research Councils (CCLRC)	10
Total	1,678

Adapted from: DTI (2002, p. 6).

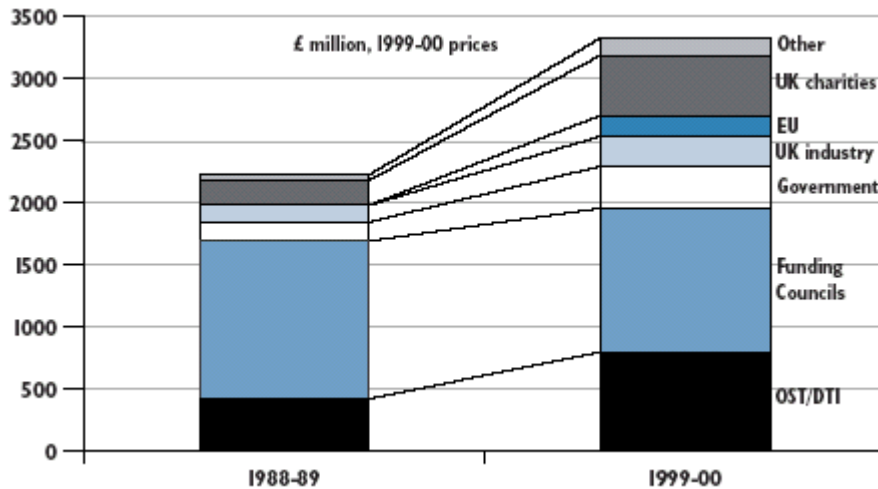
The Research Councils are not obliged to fund research and training in any particular type of institution, but are free to decide upon the best means of delivering their Royal Charter objectives. In 2003, about 57 per cent of projects funded by the Research Councils took place in Universities; 32 per cent in Research Institutes set up by the Councils, such as the Centre for Economic Performance (CEP) and the National Institute for Medical Research (NIMR); and the rest in international collaboration with organisations such as European Centre for Particle Physics Research (CERN) and the European Space Agency (ESA) (DTI, 2003).

(b) Other Sources of Funding

The increase in ‘third-party’ funding in University research highlights both an increasing diversity of opportunity in potential sources for research grants and also a significant increase in total research income. **Chart 1.3** shows that in just over a decade, the research income of UK Universities has risen by around 50 per cent. It also shows that third parties account for over 40 per cent of University funding in 1999-00, compared to less than 25 per cent in 1988-89.

Chart 1.3 – Sources of University Research Funding

Source: DTI (2002, p. 7)



The most significant increase in funding has come from the research charities, with a contribution of over £2.7 billion to the science base coming from medical research charities such as the Wellcome Trust, Cancer Research UK and the British Heart Foundation between 1996 and 2001. Commensurately, industrial collaboration with, and use of University research has grown in real terms between 1988-89 and 1999-00. Also Government departments that are distinct from the Funding and Research Councils are major users of University research. In particular, the National Health Service (NHS) spends more than £500 million per year on clinical and other health research in the NHS trusts, Research Institutes and Universities.

(c) The Pivotal Role of the Funding Councils

In spite of the fact that the combined input of the Research Councils and third party funding now dwarves that of the Funding Councils, it is the Funding Councils' process for measuring and rewarding excellence that is intended to provide a 'baseline template' for the research capabilities of Higher Education Institutions, and also a 'benchmark' by which the other key research stakeholders can measure the quality of a research department against. Support from the Funding Councils is intended to provide research departments with:

- the base from which permanent academic staff can make credible proposals for research project funding from the Research Council and other project funders;
- the costs of training new researchers;
- the resources to build research capabilities; and
- the freedom to pursue a certain amount of their own blue-skies research.

(DTI, 2002, p. 29)

If we bear in mind that the Funding Councils disseminate their money selectively on the basis of research quality and volume of research it is clear that this four-point strategy serves to set the tone for the extent to which a research department is considered 'excellent' and rewarded as such. If a department is rated as being of the highest quality, this means that not only will it receive a very large share of the Funding Council grant relative to most other departments, and therefore a significant amount of money to invest in research infrastructure and an increased amount of independence and autonomy through the freeing up of time to research, but it can also expect to be at a distinct competitive advantage when it comes to looking for funding from elsewhere. Moreover, QR funding *enables* the highest quality research departments to substantially increase

their capability to conduct research, and at the same time *influences* the other research stakeholders in directing the majority of funds towards them, due to the fact that they are able to sustain high-cost research projects, they have a reputation for research intensiveness and have a large number of world-class researchers. To put it another way, there is an inherent *multiplier effect* in the UK system – the stronger a department becomes the easier it is for it to enhance and develop its strengths.

It is not surprising then, that the Higher Education Institutions with the most prestigious reputations, that is those with the most distinguished histories of research excellence and highest levels of international standing have an automatic head start on the rest of the field. What is surprising is the degree of dominance that these institutions have over the rest of the Universities, in terms of the proportion of the total funds allocated to UK research per year. What is known in the UK as the “Russell Group” – an 18-strong self-selected group of the largest research-led British Universities – received 70.5 per cent (£626,329,000) of the total amount of yearly QR funding available for 2001-2002; that left just 29.5 per cent (£261,671,000) to be divided amongst the 114 other Higher Education Institutions (THES, 2004). An even greater level of concentration is revealed through an analysis of the total funding income of the 4 most research-intensive Russell Group institutions – Oxford, Cambridge, University College London, and Imperial College London. They are often referred to collectively as the ‘golden triangle’ Universities because of the amount of money they generate and their close geographical proximity – all are based within a small triangle-shaped space in the southeast of England. **Fig. 1.4** shows the extent of golden triangle dominance and also the impact that QR funding has upon the decision-making processes of the external funders. They received £249,837,000 from the Funding Councils in 2001-2002 – that equates to 28.1 per cent of the total Funding Council budget for QR funding and 39.9 per cent of the total amount received by the Russell Group institutions in that year. As the table shows, the amount received by Universities from other sources was around two and a half times greater than the amount distributed by the Funding Councils. The golden triangle received 27.9 per cent of the total amount of other research income (which includes the Research Councils, other Government funding, Charities, Industry, the EU and others). The fact that the golden triangle institutions derive almost exactly the same percentage from both the Funding Council research budget and also all other sources of research funding (28.1 per cent and 27.9 per cent respectively) is immediately apparent and highlights the influence the Funding Councils have over the selective apportionment of all sources of research funds in the UK.

Fig. 1.4 – Total Research Income of the ‘Golden Triangle’ Universities – 2001-2002

Institution	Funding Council research grant (£m) 2001-2002	Other research income (£m) 2001-2002	Total (£m)
University of Cambridge	64.274	162.2	220.474
University of Oxford	64.960	163	227.96
University College London	64.299	148.034	212.333
Imperial College London	56.304	153	209.304
“Golden Triangle” total	249.837	626.234	870.071
Total amount of funding allocated 2001-2002	888	2242	3131
Golden Triangle Percentage Share of Total Amount	28.1	27.9	27.8

Sources: HEFCE (2003b) THES (2004).

The Funding Councils’ method for determining the criteria for research excellence, and also the basis upon which they selectively distribute their yearly QR budget is determined by a quality assessment process called the *Research Assessment Exercise (RAE)*. The exercise has usually taken place every four or five years; the last three have been in 1992, 1996 and 2001. We have already established that there is a clear Government policy to concentrate research in centres of excellence, that these institutions are rewarded accordingly as a consequence of the RAE, and that the other research funding stakeholders seem to replicate the decisions made by the Funding Councils when it comes to which institutions are funded. For these reasons, it is important to understand that the Funding Councils’ definition of excellence, derived through the RAE has wide-ranging and far-reaching consequences for research departments and individual academics within those departments. It is integral in guiding the development of research institutions and also the career progression of the individuals that are subject to it. Therefore, it is an analysis of the 2001 RAE to which we now turn.

2. Measuring Excellence - The Research Assessment Exercise 2001

(a) Overview

The task of the Research Assessment Exercise (RAE) is to evaluate the quality and capture the volume of UK research in order to inform the Funding Councils' policy of selective distribution of the research infrastructure budget on the basis of research quality. The process operates through a system of *expert peer review* covering all disciplines. Thus, when judgements on quality are made in the exercise, the emphasis is on a degree of subjectivity and flexibility that attempts to allow for differences in accepted practice between disciplines, rather than a stringent objective process that would provide a standard measure across all disciplines. Faith is put in "...the professional skills, expertise and experience of the experts" in each discipline, rather than a mechanistic process of metric analysis or other quantitative methods (Roberts, 2003, p. 67).

All the research that is assessed is allocated to a 'Unit of Assessment' (UoA), which is discipline-based. There were 69 UoA's in the 2001 RAE. Each UoA covers a broad subject area; some are broader than others. For example, 'Mechanical, Aeronautical and Manufacturing Engineering' was included within one UoA, the UoA 'Clinical Laboratory Sciences' encompassed the clinical aspects of biology, biochemistry and physics, whilst there were also more straightforward single-discipline UoA's such as Law, Physics, Sociology and English Literature.

For each UoA there is a panel of between nine and eighteen experts who are responsible for conducting the peer review process. The Panel Chairs were appointed by members of the previous RAE (1996) panels and appointed jointly by the four Funding Councils. The selection of panel members took place through a process of consultation with higher education and its stakeholders, such as research charities, business and industry and other users of research. However, the selection of panel members is made by the Funding Councils, on the recommendation of the Panel Chairs, based upon the prospective members' research experience and standing in the research community (*Ibid*). In the 2001 exercise, the majority of panel members were academics, but three quarters of panels included non-academic users of research, serving as panel members or observers (Bessant et al, 2003, p. 52). During the RAE the chairs of assessment panels in cognate areas met in umbrella groups. The umbrella groups were:

Fig. 1.5 – RAE 2001 Umbrella Groups

I	Medical and Biological Sciences	UoAs 1 to 17
II	Physical Sciences and Engineering	UoAs 18 to 32
III	Social Sciences	UoAs 33 to 44, 68, 69
IV	Area Studies and Languages	UoAs 45 to 56
V	Arts and Humanities	UoAs 57 to 67

Source: RAE (2001)

The role of the umbrella groups was to facilitate cross-panel consistency in the assessment process and application of standards.

(b) Submissions to the RAE 2001

All the publicly funded Universities and Higher Education Colleges in the UK were invited to submit information regarding their research activities for assessment. Each institution was under no obligation to submit all its departments in the exercise – submissions were made on a voluntary basis. If a department was submitted for assessment, the institution could decide which members of staff to include from that department. It is at this stage that the *competitive element of the exercise* first comes into play for the research departments, the potential repercussions of which are particularly acute for departments who are the least research intensive and can therefore expect only a small proportion of the QR funding. The conditions of competition were at work on two levels in the 2001 exercise.

Firstly, some departments, particularly those that are not research-focused, were under pressure to improve their standards of research quality simply in order to be entered into the assessment. The administrative cost of submission is high in terms of both time and resources, so universities have the option of making an economic decision to not enter a department, if the burden of assessment is likely to outweigh the probable return. Of course, all departments have a target of how much funding they need to secure in order to keep their research activities going and to invest in future projects. This has led to many Universities and departments adopting aggressive policies in an attempt to improve their chances of a high rating, such as massive investment in facilities and high-risk recruitment drives for world-class research staff (Leon, 2003). Attempts to raise the international profile of Universities through such policies have been particularly prevalent since 2001, as we shall see below in section 2.

Secondly, members of staff could be selectively chosen for submission, so it is possible for institutions to make a judgement about which individuals are ‘suitable’ or ‘good enough’ for assessment. This is a particular problem for departments who have a low level of research active staff or who have only a small amount of research active staff that are of sufficient quality to ensure the desired level of QR funding. This could contribute to a situation where there is competition between the research active staff in a department because those individuals who are submitted then become responsible for the securing of that departments’ QR funding and can be seen to be ‘more important’ than other members of the department in upholding its reputation and obtaining essential financial resources. This could impact negatively upon staff morale and detract from the collaborative, collegiate environment of a department, which could in turn impact upon the quality of the research and teaching (Chandler, Barry and Clark, 2002). Furthermore, this could engender a situation where whole departments are reliant upon relatively few individuals, who the institution have decided ‘make the grade’, for the financial security that would enable research to continue in that department. Moreover, the worst-case scenario for some of the least research-intensive departments is that research could be discontinued altogether. This is less of a problem for the research-intensive institutions because they tended to submit the vast majority of their academic staff (the average submission for Russell Group Universities was 84.7% of academic staff) due to the fact that most were research active and producing work of a very high standard, and could therefore be relied upon to meet the required standards.

Each member of research staff submitted must provide a list of up to four research outputs. In previous RAE’s articles in peer reviewed journals had been treated as a better indicator of excellence than all other research outputs. In 2001, panels were given guidelines to treat all forms of research output equally – books, chapters in books, journal articles, conference papers, recordings, products, and any other form of output as long as it was made publicly available and as long as it could be “...understood as original investigation undertaken in order to gain knowledge and understanding.” (RAE, 2001, paragraph 1.12). The concern was only with the quality of the output itself, rather than the form of its presentation. Additionally, institutions must provide

information about the departments it submits in a number of different categories, as shown in **Fig. 1.6** below.

Fig. 1.6 – Information required for RAE 2001 Submission

Category	Description
Staff information	<ul style="list-style-type: none"> • summaries of all academic staff • details of research-active staff • research support staff and research assistants
Research output	<ul style="list-style-type: none"> • up to four items of research output for each researcher
Textual description	<ul style="list-style-type: none"> • information about the research environment, structure and policies • strategies for research development • qualitative information on research performance and measures of esteem
Related data	<ul style="list-style-type: none"> • amounts and sources of research funding • numbers of research students • number and sources of research studentships • numbers of research degrees awarded • indicators of peer esteem

Source: Roberts (2003)

(c) Panel Criteria and Judgements

Each panel agreed to its working methods and criteria within a framework laid down by the funding councils. This framework was published to ensure accountability and transparency, a summary of it can be seen in **Fig. 1.7**. This framework compartmentalised the information required in **Fig. 1.6** in order to make visible seven sets of data that were to be considered for assessment by each of the 69 panels. Each panel had scope to decide for themselves the amount of importance and the ways in which it would approach each data set – decisions regarding the weight given to, for example, research outputs or to indicators of peer esteem were at the panels' discretion.

Fig. 1.7 – Framework of the 2001 RAE

Source: Bessant et al (2003).

<p>This Framework followed the format of previous RAEs, and comprised seven sets of data.</p> <p>RA0: Overall staff summary</p> <p>RA1: Research-active staff (RAS) details. Here, it was open to institutions to choose how many of their academic staff they would include in the submission.</p> <p>RA2: Research output. For each RAS member, up to four items of research output produced during the period 1st January 1996 to December 2000.</p> <p>RA3: Numbers of research students, their sources of funding and number of degrees awarded.</p> <p>RA4: Details of external research income.</p> <p>RA5: Research structure and environment - An explanation of the research environment, including information about the structure, policies and strategies within which the research was undertaken.</p> <p>RA6: Evidence of peer esteem - General observations and additional information: institutions were invited to expand on the impact of their research in both the academic and practitioner communities.</p> <p>The submissions for RA0-RA4 were in a standard format, and the length of ‘textual commentary’ documents, that is, the RA5s and RA6s, was strictly limited.</p>

Consequently, each panel produced a statement describing the methods and criteria, containing, amongst other things, commentary on which aspects of the submission the panel regarded as most important. These statements were also published. HEFCE have quite rightly pointed out that: “...Judgements have been made in different subjects by different panels against different criteria, and it would therefore be unsafe to assume that what a particular rating indicates about a submission is the same across all subjects...” (RAE, 2001, paragraph 3.19). However, it is possible to identify a discernable and coherent pattern when close attention is paid to the sets of data each panel considered important in a submission.

All panels made the judgement, in keeping with the framework recommendations, that indicators of research *quantity* were not indicators of excellence. In fact, the number of publications submitted was not known to the RAE panels. This measure was introduced in 1992 to counter the claims that the RAE gives rise to a ‘publish or perish’ culture (Bekhradnia, 1999, p. 116). Thus, other indicators of quantity such as the number of research active staff (RA1) were not used in the any of the panels’ consideration of research quality in any significant sense¹. Panels assessed submissions by using four discernable indicators of excellence; they are listed below in broad order of importance:

- Quality of research outputs (RA2)
- Vitality of research culture in the department (RA5 +RA6)
- Evidence of external funding (RA4)

¹ Some panels used the number of research assistants, provided in RA1, along with the information provided in RA3 in order to assess the extent of research activity in a department.

- Number of research students, sources of funding and number of degrees awarded (RA3)².

There were only two panels ('Other Studies and Professions Allied to Medicine' and 'Physics') that stated they would give equal weighting to all four indicators (RAE, 1999). Otherwise, the judgements that were made fell into two types of approach, the first approach being the typical method that quality was assessed on:

- 1) Greatest importance given to the *informed professional judgement on the quality of cited research outputs*. The other indicators were seen to 'inform' the research quality of the cited outputs and were listed in no particular order.
- 2) Greatest importance given to the *informed professional judgement on the quality of cited research outputs. Vitality of research culture seen as 'particularly significant' but secondary to the quality of cited research outputs*. Remaining indicators were seen as important but of tertiary significance. Sixteen of the 69 panels conformed to this type of judgement. All the panels from the 'Area Studies and Languages' umbrella group fitted in to this category, as well as the individual panels of Sociology; Geography; Computer Studies; Classics, Ancient History, Byzantine and Modern Greek Studies; and Communications, Cultural and Media Studies. The 'vitality of research culture' was most commonly judged from the evidence supplied in the 'textual commentary' sections (RA5 +RA6). RA5 (research structure and environment) generally refers to the administrative efficiency of research in a department – the coherency of the research strategy in the past and in the future, it's links with external funders and staff support. RA6 (evidence of peer esteem) refers to additional information regarding the international standing of individual researchers. Typical indicators of this would be the editorship of major national or international journals; invitation to speak at major national or international conferences; and industrial appointments or advisory positions for Government. However, in some cases the textual commentary was considered alongside 'evidence of external funding' and 'number of research students, sources of funding and number of degrees awarded' in order to give a fuller picture of the vitality of the research culture.

The RAE is then, at its core, a *qualitative peer review process* in which discipline-based panels of experts assess the quality of their own discipline *principally through making expert judgements on a selection of research outputs*. There is little or no reliance on quantitative measures, where they are used (e.g. *number* of postgraduate research students, *amount* of external research income) they are considered at best a secondary measurement and serve only to contextualise the primary measurement of the perceived quality of research outputs. Indeed, the indicator 'vitality of research culture', which was considered more important than RA3+4 by a significant number of departments, is largely ascertained through a subjective process of analysing textual commentary.

Qualitative methods that can allow for the open-ended scrutiny of research output quality and other subjective issues such as the 'culture' or 'climate' of research departments by professionally informed experts are at the heart of the process of measuring excellence in the UK. The fact that peer review methods are open to interpretation and essentially rely upon trust in one's colleagues has been heavily criticised for sacrificing transparency and objectivity (Horrobin, 1996; 2001). However, the subject-specific flexibility that peer review allows and the fact that most researchers are willing to put faith in the integrity of their fellow academics, as a way of preserving the

² This analysis of trends in the panel criteria is based on my own analysis of each panels' criteria for assessment, contained in RAE (1999). This is intended to give an overview of broad trends in the overall criteria for assessment in the RAE 2001. It is acknowledged that this list is not a quantitative expression of the exact importance of each indicator.

autonomy of their discipline, means that peer review methods are staunchly defended by the majority of academics across the world (Biagoli, 2002). Moreover, in 2000 HEFCE asked all UK research stakeholders (other funders) to take part in a consultation on its research policy. When faced with the proposition that there ought to be a research assessment process based upon the principles of the RAE, 98 per cent of respondents agreed (Roberts, 2003, p. 2).

(d) Ratings

Although the process for coming to a decision on the quality of outputs was by-and-large a subjective one, the subject panels had to use a standardised scale to award a rating for each submission. Ratings range from 1 to 5* (five star) according to how much of the work is judged to meet national or international standards of excellence. The table below (**Fig. 1.8**) shows the definition of each rating.

Fig. 1.8 – The RAE 2001 Rating Scale

Rating	Description
5* (5 star)	Quality that equates to attainable levels of international excellence in more than half of the research activity submitted and attainable levels of national excellence in the remainder.
5	Quality that equates to attainable levels of international excellence in up to half of the research activity submitted and to attainable levels of national excellence in virtually all of the remainder.
4	Quality that equates to attainable levels of national excellence in virtually all of the research activity submitted, showing some evidence of international excellence.
3a	Quality that equates to attainable levels of national excellence in over two thirds of the research activity submitted, possibly showing evidence of international excellence.
3b	Quality that equates to attainable levels of national excellence in more than half of the research activity submitted.
2	Quality that equates to attainable levels of national excellence in up to half of the research activity submitted.
1	Quality that equates to attainable levels of national excellence in none, or virtually none, of the research activity submitted.

Source: DfES (2003)

Panels used their judgement in applying the descriptions attached to points on the rating scale. They formed a view on the quality of all the research activity presented in each submission in the round. Panels were permitted to form a view that the balance of quality justified the award of a particular grade even where the precise terms of the descriptions were not met. For example, a submission, which considerably exceeded the required proportion of international excellence, but

did not meet the requirement for national excellence in the remainder, has received the grade that the panel felt was justified on balance. Also, ‘virtually all’ and ‘virtually none’ was understood as being within the top and bottom 10 per cent respectively. ‘Some’ was understood as around 10 per cent (RAE 2001). It was this 7-point rating that was used to decide the distribution of the yearly QR funding budget from 2001-2008.

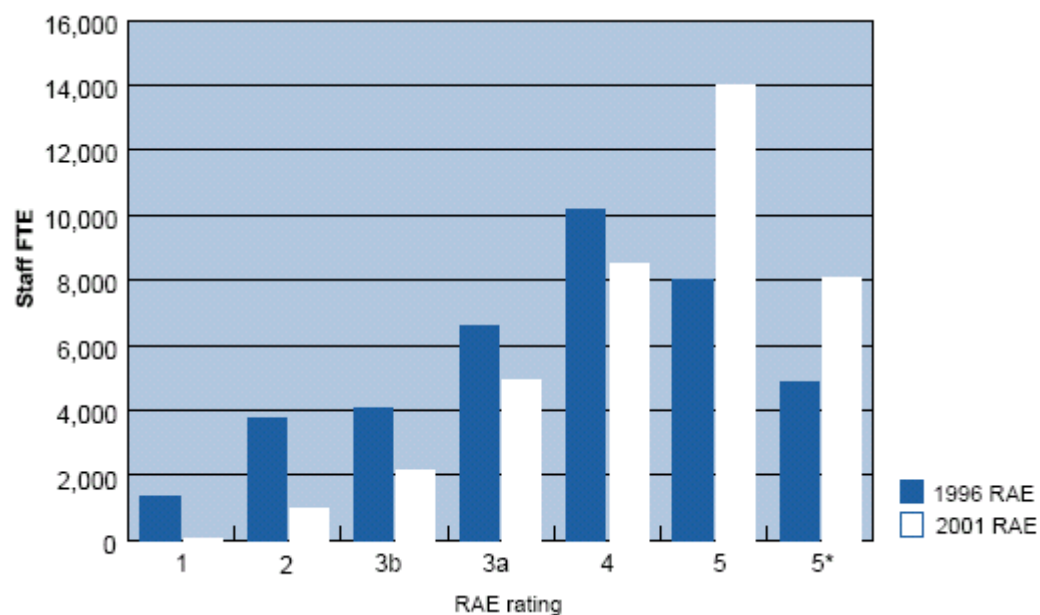
(e) Results

Fig. 1.9 shows that the governments policy of concentrating research activity in centres of excellence worked as it was intended to do, with 55 per cent of research-active staff now work in the top-rated 5 or 5* departments compared with 31 per cent in 1996, when the last RAE was carried out. Furthermore, research at the lower end of the scale (rated 1 or 2), which in 1996 accounted for nearly a quarter of the submissions, now accounts for only 6 per cent of submissions. **Fig. 1.10** allows us to see that the biggest increase has been in the proportion of researchers in 5-rated departments, with the amount of staff in all of the lesser ratings falling from the number in 1996.

Fig. 1.9 - Staff submitted to the RAE by Grade in the 1996 and 2001 RAEs

Grade	RAE 1996		RAE 2001	
	Number	%	Number	%
1	1,620	3%	94	<1%
2	4,314	9%	1,144	2%
3b	5,234	11%	2,635	5%
3a	8,863	18%	5,981	12%
4	13,257	28%	11,932	25%
5	9,611	20%	17,260	36%
5*	5,175	11%	8,975	19%
Total	48,072	100%	48,022	100%

Fig. 1.10 – Bar Chart of Staff submitted to the RAE by Grade in the 1996 and 2001



RAEs

The results reveal high quality research in a very large number of institutions: 61 institutions have one or more 5* rated departments, and 96 have a department rated 5. A total of 173 institutions took part in the 2001 RAE. There has been a considerable increase in the volume of research that equates to national or international levels of excellence. 64 per cent of the submissions in 2001 fell into these categories and were awarded grades of 4, 5 or 5*, compared with 43 per cent in 1996(RAE, 2001, paragraph 1.3-1.4).

3. Rewarding Excellence: HEFCE funding allocation process

After the panels had finished rating individual departments, each *institution* was given a rating on the 7-point scale, for the quality of its research in each Unit of Assessment in which it was active. Institutions then receive a *block grant* from the Funding Councils. This is distributed to institutions in proportion to the *volume of research multiplied by the quality of research in the subject for each institution*. The volume of research is measured in each unit of assessment using five separate components. These volume components apply for departments rated 4 or above in the RAE and are weighted as follows:

- Research active academic staff – 1 x number of Full Tim Equivalent FTE research active academic staff funded from general funds and selected for assessment in the RAE.
- Research assistants – 0.1 x number of FTE research assistants.
- Research fellows – 0.1 x number of FTE research fellows.
- Postgraduate research students – 0.15 x 1.75 x FTE number of postgraduate research students in their second and third years of full-time study, or third to sixth years of part-time study. The multiplier of 1.75 is used to scale up the 2 years counted for funding purposes to a total of 3.5 years, which represents an average period of study for a full-time research degree.
- Research income from charities – 0.191/25,000 x average of last two years' income from charities. Income from charities is divided by £25,000 (a researcher's average salary) to obtain a person equivalent.

The number of research active academic staff is the most important measure of volume: it accounts for about two-thirds of the total. Research active staff numbers are fixed between RAEs; the other volume measures are updated annually.

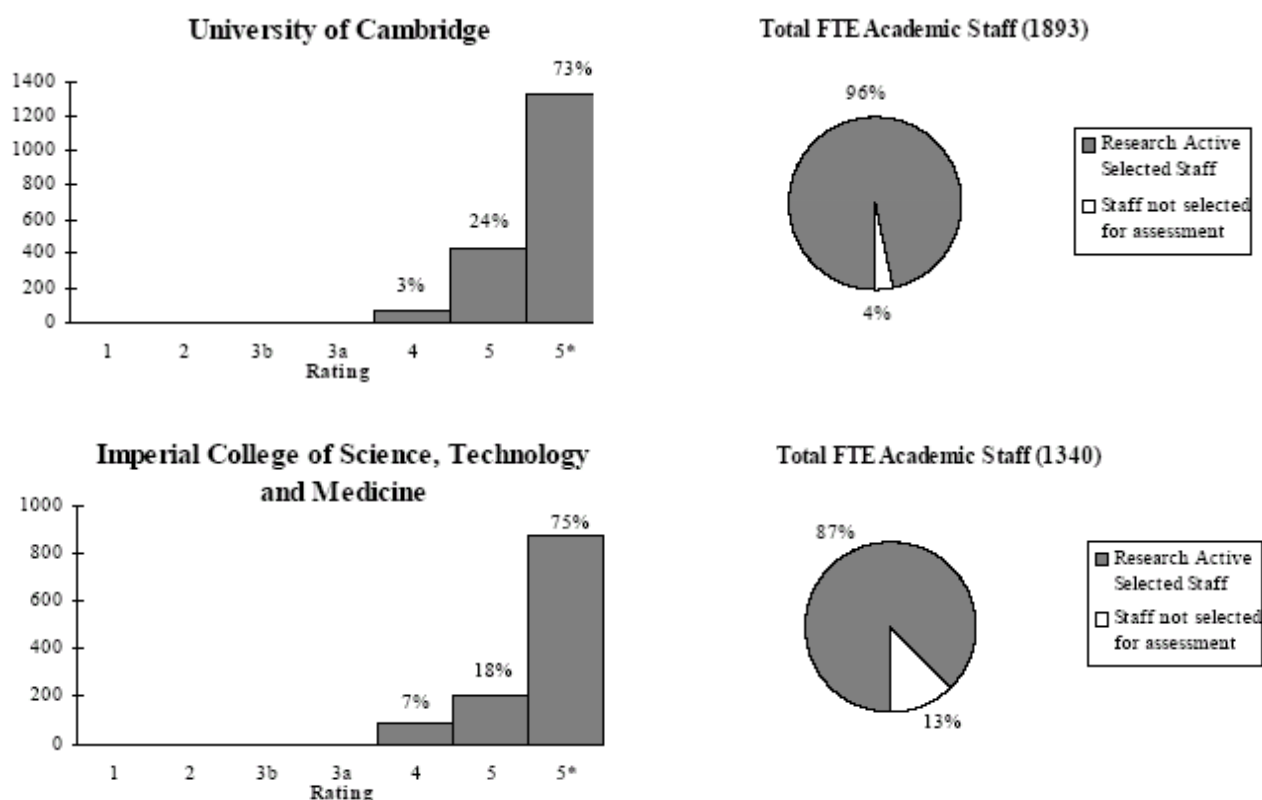
Research quality is measured by using the RAE ratings. The table (Fig. 1.11) below shows how the 7-point RAE ratings relate to funding multipliers, and how the funding allocation policy changed between RAEs 1996 and 2001. It is clear that an attempt had been made to encourage departments to improve their research quality, with the funding allocation for grades 3a and 3b being taken away in 2001 and the total amount of funding available concentrated only in those departments that display a degree of *international excellence*. Amongst the ratings that do receive funding, a rating of 5* attracts over three times as much funding as a rating of 4 for the same volume of research activity. On the basis of research quality alone the process is explicitly and highly selective.

Fig. 1.11 - RAE ratings converted into funding weights for each unit of assessment – 1996 and 2001 exercises

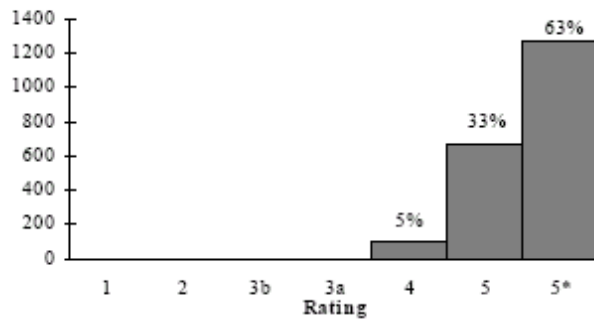
1996 Research Funding	Funding weights in QR model	2001 Research Funding	Funding weights in QR model
1	0	1	0
2	0	2	0
3a	1	3a	0
3b	1.5	3b	0
4	2.25	4	1
5	3.375	5	2.793
5*	4.05	5*	3.357

When the volume of research is added to the equation, the extent to which the process is selective becomes even more severe. If we remember that the number of research-active academic staff counts for around two thirds of the measurement of research volume, it is the research-intensive institutions that have the luxury of submitting a high degree of academic staff that will reap the highest rewards. **1.12** gives an idea of the advantage that is gained from the combination of, on the one hand, research and staff quality, and on the other, volume of work oriented towards research and the size of an institution. All four of the golden triangle institutions have a highly disproportionate degree of 5 and 5* departments, if the total UK percentage of staff working in institutions of those ratings, shown in **1.9**, is considered. They also submit almost all their staff as research active, and considering also that all four are relatively large institutions, this means that the total figure for research volume and the funding weight for research quality will be extremely high, giving these institutions a string score across the board and thus the highest levels of funding.

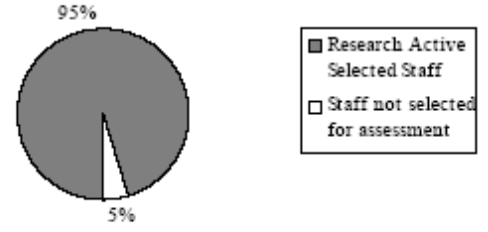
1.12 – Golden Triangle Institutions – Percentage of RAE Ratings and Total FTE Academic Staff.



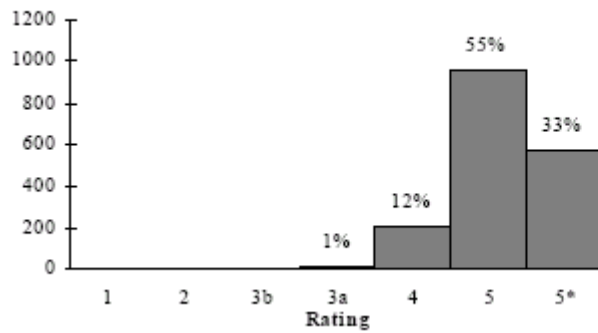
University of Oxford



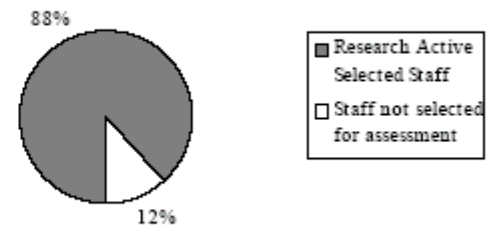
Total FTE Academic Staff (2133)



University College London



Total FTE Academic Staff (1985)



Source: RAE (2001).

A potentially alarming aspect of the funding allocation system is that it distributes funding "...in the form of a 'block grant', which institutions are *free to spend according to their own priorities* within our broad guidelines. [HEFCE] *do not expect institutions to model their internal allocations on our own funding method...*" (HEFCE, 2003a, p. 2. Emphasis added.). Moreover, once a department receives an RAE rating and its funding allocation is decided by the Funding Councils, it does not receive payment of that money directly, it is the institution that is free to spend they money as they wish. This means that a grant intended for one department could effectively be used to cross-subsidise other departments. This is an inherent and intentional feature of Funding Council policy (Talib, 2001). This is a positive measure in one sense, insofar as it protects the autonomy of individual institutions through allowing them to be free to respond to other stimuli, and make their own judgements regarding international, national and regional needs. However, this measure creates an environment where it is easier for the research intensive institutions to maintain their research quality. Institutions such as the four listed in **1.12** have consistent research quality across the board, and can therefore afford to spread their substantial block grants across all departments, ensuring that those most in need of money can receive funds without compromising on the funding for the stronger departments. Conversely, less wealthy institutions that have a small amount of departments with a 5 or 5* rating may find it more difficult to preserve the research excellence they currently hold. For example, the University of Bradford has one 5* rated department and four 5-rated departments compared to the thirty 5* departments and fifteen 5-rated departments of Cambridge (RAE, 2001). There is no way that Bradford can spread its money evenly without sacrificing research excellence. By the same token, it cannot concentrate its research funds without less research active departments falling by the wayside. This is welcome money for a small institution but Bradford is stuck between a rock and a hard place - it must either choose to focus on research in its best departments, which could conceivably lead to the shutting down of some of its lesser-rated departments, or it must make a decision to take its focus off research and resign itself to losing out on Funding Council, and consequently external, funding.

It is therefore questionable whether this line of action taken by the Government will ensure the protection of 'pockets of excellence' that exist within high quality but not research intensive institutions. This Governments' agenda is clear here – the less research intensive institutions must focus on their research strong points at the expense of disciplines that they do not excel in (or are teaching-focused) if they wish to survive as entities that contribute towards the research climate in the UK.

4. Post-2001 Reforms – Intensifying the Competition

The standards of excellence set by the RAE 2001 will continue to shape the UK research climate and will be relied upon for the dispersal of the annual QR funding budget until the next RAE, which will occur in 2008. However, the aforementioned Government White Paper (DfES, 2003) proposed some adjustments to the funding process, which have further committed the Government to its policy of selective funding by slightly changing the way the RAE results are used to apportion the Funding Councils' grant.

(a) Rewarding the Best 5* Departments

In the White Paper it is made clear that the Government are of the opinion that quality distinctions in the RAE did not go far enough, and that 'there is a case for more discrimination between the best'. This being so, HEFCE were asked "...to identify the very best of the 5* departments which have a critical mass of researchers – a '6*' – and [HEFCE] will provide additional resources to give them an uplift in funding over the next three years..." (DfES, 2003, p. 30). For 2003-2004, HEFCE made allocations totaling £20 million. The departments who received funding were those that achieved a 5* rating in both the 1996 and 2001 RAEs, and also those

departments that achieved 5* for the first time in 2001, but did so without a drop in the number of staff submitted between 1996 and 2001.

The inclusion of the second type of department was to reward those that had achieved a ‘real terms’ increase in quality i.e. those that had not made sacrifices on the quantity element of the submission, but who had still managed to achieve a rating improvement. It also allows for further improvements that the strongest departments have made since the RAE to be recognized and increases competition at the highest level by providing an incentive for those that achieved a 5* in 2001 to sustain their level of quality and also for departments currently rated 5 to improve their rating in 2008 without adopting a more selective submissions policy. This is effectively an invitation for 5-rated departments to recruit more high quality research staff in order to raise the quantity of their next RAE submission, and there is evidence that this is happening. Institutions that sit just below the golden triangle in terms of research quality and volume have embarked on quests to raise their international profile in order to try and compete with the ‘big four’. Nottingham, for example, launched a vigorous recruitment campaign for 20 new research chairs in an attempt to attract rising and established academic stars to the university in order to be able to compete across the board for the 6* departmental ratings. Their pro-vice-chancellor stated “...We are a top ten university in the UK, but we want to secure our position as one of the world’s leading universities by 2010...It is important to remain competitive internationally, and it is a good time strategically to keep ahead of the RAE...” (Grierson, quoted in Leon, 2003). Also, some institutions have singled out individual departments as potential 6* units. Lancaster has been actively courting a 6* grade for its History and English departments, increasing the level of staff in both by over a quarter by creating new lectureship and professorship posts. The Head of Lancaster’s English department commented that although their student intake had doubled in the last five years, the new appointments were made largely for research purposes: “...It’s a tricky balance trying to be a major teaching department while at the same time striving to be a top-class research outfit. The real drive is research. The university is keen to make sure this department becomes a 6* in the next RAE...” (Pearce, quoted in Davis, 2003).

Despite this level of academic “transfer activity”, it is the golden triangle institutions that that dominated HEFCE’s 6* allocations for 2004-2005. Out of the 207 departments, spanning 45 institutions, that were awarded, the 4 golden triangle institutions were awarded 39.1% of the share, with a total of 81 departments achieving 6 status (THES, 2004).

(b) Additional Capital Funding for Leading Research Institutions

The White Paper also makes it clear that additional funding will be available for those institutions that can provide, on the one hand:

“...the leadership, governance and management to put in place outstanding research planning, sound policies with respect to intellectual property and a willingness to collaborate with others, and to help exploit the knowledge they generate.”

And on the other:

“...a critical mass of research groups which can compete globally in a wide range of disciplines”

(DfES, 2003, p. 31).

HEFCE have allocated up to £8 million per year for the next two years for this, and the money will go to the four institutions with the highest research income, measured by adding together the yearly QR grant and all non-HEFCE research income. It has already been announced that the four institutions that will receive the funding for 2004-2005 are those that make up the golden triangle

(Goddard, 2003). It is highly likely that no other institution will be able to compete with them for the following year's funding.

Not only will the golden triangle receive a disproportionately high amount of funding for the best 5* departments, but each of the four will also receive up to an extra £2 million a year from additional capital funding. This means that the Golden Triangle institutions are to be further set apart from the field by these two additional streams of funding. It is clearly evident that there has been a conscious Governmental effort to pinpoint these four institutions as the 'flagship' UK research centers. The intentions of this policy objective can be seen to be twofold. Firstly, to provide a 'gold standard' against which all other UK research Institutions can measure and improve their quality by. The main ambition here is that the level of innovation and the orienting of research toward wealth creation will be intensified, as the 'strong' attempt to dislodge the 'strongest', in order to secure the extra funding available.

(c) The Phasing Out of Funding for 4-rated Departments

Until very recently, there was considerable concern that the government was going to pay for the extra 6* and capacity funding by cutting off funding for 4-rated departments with immediate effect³. However, HEFCE have since then advised four rated departments to plan on the basis that the full sum (£118 million per year) will be available until the 2008 RAE. However, it seems that beyond 2008 it will only be the 'upwardly mobile' 4-rated departments that will continue to receive funding. That is, those that HEFCE see as responding best "...to our policy aim for the continuing selective development of promising departments and units..." (HEFCE, 2003c, p. 7). Departments rated at 4 have been encouraged to show evidence of bold and innovative research strategies that will enhance their strengths and/or develop their areas of potential:

"...Institutions for their part are best placed to exercise strategic judgement in deciding how to use the resources available to them... In practice this might mean, in different cases, building up existing departments, identifying units within them to be developed, or new collaborations between departments..."

(Ibid.)

In practice, this has engendered a situation where there has been heavy cutbacks, as well as significant investment. On the investment side, more than 100 new chairs have been created in the last year in a restructuring drive aimed at securing a number of top UK universities top marks in the next RAE. Queen Mary have created 21 new chairs across a number of departments and the Principal of the College, Adrian Smith, has admitted that the initiative was an explicit attempt to boost department assessments to at least a 5-rating in the next RAE: "...anything less than a four will not be funded and will cost the university millions of pounds, as happened in the last RAE..." (Smith, quoted in Johnston and Farrar, 2003). Similar initiatives are being followed by Birmingham, Manchester, Royal Holloway, Sheffield, East Anglia and Aberdeen (Johnston and Farrar, 2003). On the cutbacks side, institutions are making cost calculations as to whether it is worth ploughing money into departments that might not deliver, and disbanding them altogether if the calculation is a negative one. Queen Mary sacrificed its Chemistry department on this basis; Swansea have discontinued philosophy, sociology, anthropology, development studies and chemistry in order to 'redirect resources' to departments that have a chance of scoring highly in the RAE (Tysome, 2004).

³ See <http://www.publications.parliament.uk/pa/cm200203/cmselect/cmmeduski/uc425-i/uc42502.htm> at para. 59 the Minister for Higher Education stated that departments with a rating of 4 "may well not" continue to get their research funding up until 2008.

It appears that the heavy job loss this strategy is incurring does not worry the government – it is the price to pay for excellent, highly concentrated research in their eyes. However, the across-the-board investment is bound to please the government, but it is unclear yet whether this will constitute a real return in the improvement of RAE grades, and thus the ability to conduct high-quality research, in the majority of these institutions. There is a possibility that, because so many universities are making massive investments in order to lift their departments above a 4-rating, many could find that they have aimed too high and they are running the risk of both losing their 4-rated funding and wasting millions in investments that they cannot sustain.

5. Critical Commentary: Excellence and Career Progression

The principle concern of this paper is to expose the ‘procedural’ elements of how research excellence is assessed, how it is rewarded and which types of institutions and research departments the process tends to benefit and which it tends to put at a disadvantage. However, the remainder of this paper constitutes a brief critical appraisal of the fundamental characteristics of the UK system of measuring and rewarding excellence and how they relate to wider theoretical and empirical issues that our research team are currently in the process of exploring, such as gender and the dynamics of career progression (Oliver, 2004). An examination of some of these concerns can illuminate the ways in which the conceptualisation of excellence in the UK could affect the career trajectory of an individual academic. Moreover, it can bring into focus the considerable impact that the RAE has upon the ability of some groups to progress and also the types of activities academics engage in as they attempt to progress through the UK academic system. A major issue that undeniably comes to light is the interrelationship between excellence, career progression, and gender.

Firstly, it is very clear that research is seen to be more important than teaching or any other activity that an individual working in UK academia may partake in when it comes to the measuring of that individual’s ‘excellence’. In the UK, the traditional role of the lecturer is to combine research with teaching and administration⁴, and this is still the reality for most lecturers working today. However, it is research that has always been the centrepiece to an individual’s career progression, bringing with it funding, prestige and promotion opportunities, but demanding self-sacrifice, competitiveness, aggressiveness and long hours. Considering this division of labour, it has been argued that women encounter the most problems in prioritising research amidst this balancing act due to the fact that they often have a more fragmented career path than men due to childbirth, inability to break into male dominated networks, lack of female role-models and low confidence resulting from these issues (Ackers, 2001). Indeed, also building upon Liz Oliver’s work (2004) on the absence of female networks and breaks in career resulting in a dearth of females in the higher academic positions, it is fair to say that a conception of excellence that prioritises research intensiveness as the sole harbinger of quality is unlikely to contribute to the easing of the career path for aspiring female academics.

Davies and Thomas (2002) have shown that a tendency to cast the searchlight upon the conception of a ‘research-focused academic’ as the dynamic and ambitious ‘typical individual’ in the modern university department ignores the prevalence of the ‘student as customer’. That is, the shift towards ‘customer-care’ in academic service, brought about by the increase in self-financing of students, increased class sizes, higher student rights awareness – this requires that individual academics will be available for students at un-timetabled hours. Acker (1994) has shown that women have traditionally carried out a greater proportion of the teaching, and Newman (1994) has argued that women are most likely to be positioned at the interface between a professional service and the needs of the customer. Moreover, it is likely that women will be called upon to apply the necessary skills of patience, understanding and listening in this situation. The qualitative work

⁴ For definitions of UK academic job descriptions, see Oliver (2004).

conducted by Davis and Thomas amongst female academics in the UK shows that many women feel uncomfortable with the performance related, competitive and belligerent environment that is a corollary of aspiring to a high RAE score. Many felt that they would be happier and their skills put to better use in the new 'customer care' environment of teaching, administrative and departmental duties. Largely because there is no immediate or tangible financial or promotional gain in adopting the customer care role, their work went on without a great deal of recognition, they were left to feel undervalued, under-rewarding and unappreciated: "...This "opting out" and resistance to the performance culture was resulting in some women being constituted as secondary 'solid troupers' rather than academics at the cutting edge of knowledge production..." (Davis and Thomas, 2002, p. 186).

It would be erroneous to claim that teaching ought to be considered as an equal weighting to research in a modified conception of excellence. Teaching could never compete with research either as a means of generating income or and a mechanism for knowledge production. Nevertheless, in a situation where academics are managing the experiences of fee-paying students and contributing towards the vitality and culture of a research department through teaching, it is inconceivable that the role of teaching should not play a bigger part in the measuring and rewarding of excellence in the UK. This could have the knock on effect of smoothing the career path for women who find the conditions of research intensiveness off-putting. It is beyond the remit of this paper to attempt a detailed discussion of the structural, cultural, institutional and behavioural factors that could be at work to prevent women from ascending the ladder of research excellence; but what is clear is that a conception of measuring and rewarding excellence that prioritises one of the two main forms of intellectual labour (research) *at the expense* of the other (teaching) is not a conception that takes seriously the behaviours, attitudes and aspirations of all academics. The UK has a method of conceptualising excellence that is geared towards the government policy of directing research towards national wealth gain, more than it is geared towards cultivating a collegiate academic environment where research, teaching, administration and interaction with the local community can flourish.

Secondly, the RAE should be commended for its transparency. The choosing of panel members and Chairs by a process of invitation and consultation, and the publishing of each panel's assessment criteria and working methods ensures that the ways in which the RAE operates are accountable to user groups and the general public, and can be seen to be fair by the research institutions and departments that are subject to it. Nevertheless, the *processes* of peer review are not so transparent. We established earlier that at the hub of the RAE process was the *qualitative* assessment of up to four pieces of work by each individual submitted. It is accepted that a critical part of this process is putting one's faith in the professionally informed views of the panel, this is inherent to the procedure and should be maintained in the absence of a more desirable method. Nonetheless, Campbell et al (1999) have pointed towards a general perception in the academic community that articles in highly regarded peer-reviewed journals are accepted by panels to be of greater quality than all other research outputs, even though the RAE gave specific guidelines outlining that it was the content, not the form of the output that was under consideration. It is the author's conviction that this 'general perception' is held by most academics in the UK and were he to advise a newcomer to the UK on what to submit to the RAE, his advise would be to submit 4 single-authored articles that were published in reputable peer-reviewed journals in the relevant discipline. One way to try to ensure that all outputs are considered equally would be to get the independent observers in each panel to write a detailed report on how research outputs were handled and assessed. However, this would only go part of the way to overcoming the so-called 'imperfections' of peer review. In the last analysis it is a human process and is certainly better than the quantitative alternative.

6. Concluding remarks

The conceptualisation and rewarding of excellence in the UK centres around two vital issues. Firstly, the importance of research over other forms of academic labour, such as teaching and serving the local community. Secondly, the centrality of the peer review process, which is largely responsible for which particular individuals, groups and departments are deemed 'excellent' by the end of the process. The 'juggernaut' of concentrating research in centres of excellence and measuring and rewarding excellence by those standards is now unstoppable. This is good news if you are a member of staff in one of the Russell Group Universities, particularly if it's Cambridge, Oxford, UCL or Imperial. The steady movement towards huge amounts of research conducted in a handful of institutions should have the effect that the government desires it to – a situation where the primary role of academic research is to enhance national wealth creation and innovation, thus cementing the UK in the shadow of the United States. Research departments that have equilibrium between research, teaching and administration are quickly becoming a thing of the past. Whether or not an individual academic becomes considered excellent depends very much on whether he or she has both the necessary skills and also the desire to 'play the game' of research intensive production. Someone who wanted to take this career path would ideally look to situate themselves in a department at one of the golden triangle institutions, preferably one that had achieved 5* recognition in the last 2 RAEs.

7. Appendix 1: RAE Panels 2001

Unit of Assessment	Subject
1	Clinical Laboratory Sciences
2	Community-based Clinical Subjects
3	Hospital-based Clinical Subjects
4	Clinical Dentistry
5	Joint Panel: Pre-clinical Studies, Anatomy, Physiology and Pharmacology
6	
7	
8	
9	Pharmacy
10	Nursing
11	Other Studies and Professions Allied to Medicine
12	Discontinued for 2001
13	Psychology
14	Biological Sciences
15	Joint Panel: Agriculture, Food Science and Technology and Veterinary Science
16	
17	
18	Chemistry
19	Physics
20	Joint Panel: Earth Sciences and Environmental Sciences
21	
22	Pure Mathematics
23	Applied Mathematics
24	Statistics and Operational Research
25	Computer Science
26	Joint Panel: General Engineering and Mineral and Mining Engineering
27	Chemical Engineering
28	Civil Engineering
29	Electrical and Electronic Engineering
30	Mechanical, Aeronautical and Manufacturing Engineering
31	Joint Panel: General Engineering and Mineral and Mining Engineering
32	Metallurgy and Materials
33	Built Environment
34	Town and Country Planning
35	Geography
36	Law
37	Anthropology
38	Economics and Econometrics
39	Politics and International Studies
40	Joint Panel: Social Policy and Administration and Social Work
41	

42	Sociology
43	Business and Management Studies
44	Accounting and Finance
45	American Studies
46	Middle Eastern and African Studies
47	Asian Studies
48	European Studies
49	Celtic Studies
50	English Language and Literature
51	French
52	German, Dutch and Scandinavian Languages
53	Italian
54	Russian, Slavonic and East European Languages
55	Iberian, and Latin American Languages
56	Linguistics
57	Classics, Ancient history, Byzantine and Modern Greek Studies
58	Archaeology
59	History
60	History of Art, Architecture and Design
61	Library and Information Management
62	Philosophy
63	Theology, Divinity and Religious Studies
64	Art and Design
65	Communication, Cultural and Media Studies
66	Drama, Dance and Performing Arts
67	Music
68	Education
69	Sports-related Subjects

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