

FUNDING OF RESEARCH IN HIGHER EDUCATION: A PANOPTIC VIEW OF THE RAE

A thesis submitted for the degree of Doctor of Philosophy

by

Rosa Scoble

Department of Information Systems and Computing,
Brunel University

September 2002

Abstract

The thesis investigates the effects that the Research Assessment Exercise (RAE) has on the Higher Education sector. The alternative view presented by the thesis is that more knowledge can be created by concentrating on the different constituents of the RAE and their specific interactions with particular areas of the Higher Education sector. The RAE constituents are interpreted as drivers that influence and impact, in dissimilar fashions, on different activities of Higher Education Institutions (HEI). This micro analysis of the RAE enables the investigation to isolate the single effects of the RAE drivers therefore creating a bottom-up analysis of the overall impact of the RAE.

The analysis of the impact that the drivers have on HEIs' activities focuses on the perception that individuals within the system have of the consequences of the RAE. The focus on perceptions derives from personal observation of the lack of consensus on the consequences that different drivers have on different areas. The use of perceptions as the mean to assess the impact of the RAE enables the investigation to create a picture of the consequences of the RAE that addresses behavioural change.

A multi-dimensional crystal view approach is used to accommodate both the micro analysis and the perception assessment. The multi-dimensional crystal view, a research contribution in its own right, is based on the principle that a micro analysis of a complex system can be achieved by decomposing the system into a number of dimensions. Insight is draw when the interactions between some of the dimensions are investigated. In the specific case of the RAE the dimension are: the RAE drivers, HEIs' activities and points of observation (dimension that captures perceptions).

Knowledge and insight can be acquired when the interactions between the dimensions are aggregated at successive higher levels. The supporting tool for the multi-dimensional crystal view approach is a matrix that facilitates the analytical process. The aggregation of the dimensions comes from combining textual statements from the points of observation (perceptions) on the effects that the drivers of the RAE have on the activities of HEIs. The highest level is a textual statement that synthesises all lower level statements.

Acknowledgements

There are many people that have supported me through my PhD. Support has come in all forms. Some have participated directly in my research (the points of observation) and, therefore, I have to give special thanks to Prof. Ray J Paul (panel member), Prof. Guy Fitzgerald (research director) and Mark Judge (planning officer). Some have pressed me along by reminding me of the importance of my PhD when I spent too much time pursuing other interests, a special thank you to Carolyn Bailey. Many others have listened politely to my long convoluted ideas on the RAE and therefore helped me re-order my thoughts. However there are a few special thank yous that I would like to give. Firstly to all my family: to Chris for all the late nights when I tested my ideas on him and he challenged me with incredible insight and logic, to my children, Martina and Thomas, that have had to live with a, sometimes, very “stressy” mother and to my mother that lately has had very little support from me. Secondly to Jasna Kuljis that has initiated, supported and encouraged my journey since we first met in 1993 and without whom I would not have taken my first step. However, my biggest thank you has to go to Prof. Ray J Paul, my supervisor. He has led me through this last leg of my journey in the most unobtrusive and supportive way. He has delicately directed me through the process and it is thanks to him that my ideas are more than just “pub talk”.

Thank you Ray.

Dissemination

Research into the RAE has brought with it an in-depth analysis and understanding of Higher Education Institutions research, institutional performance assessment and university league tables. The knowledge produced has been disseminated both externally and internally in many different ways and formats and has initiated further strands of research.

As a direct consequences of the research in the RAE:

- I was a permanent member of the Brunel RAE taskforce where I have used my knowledge of the RAE to assist in the review of the Institution's submissions to RAE 2001 and produced models for the mapping of the research active staff to the Units of Assessment.
- I assist the pro-vice-chancellor for research in the formulation of the strategy for the forthcoming RAE and have used my knowledge of the RAE, acquired through my research, to produce a package for a meaningful feedback on RAE 2001 to the Institution's departments.

As a consequence of the research into academic research:

- I produced a strategy for the mentoring of staff in their applications for research project grants. The understanding of academic research, acquired through my thesis, has enabled me to model an effective support system for research active staff interested in applying for research grant funding.

As a consequence of the research into institutional performance assessment and university league tables:

- In 2000 I presented a paper on the use of performance indicators in league tables at an international conference on higher education quality assessment (Baldwin et al. 2000)
- I collaborated in the analysis of the 2000 Teacher Training Agency performance indicators for an article that was published in a major broadsheet (The Guardian 2000 August 30)

- I prepared a number of internal documents featuring comparative analysis of all major university league tables
- I am an active member of CAMPUS π (the Centre for Analysis of Measures of Performance in the University Sector - Performance Indicators in Education) where I am engaged in research into the use of performance measures in Higher Education. As a result of this activity the centre has been commissioned to develop a university league table for a major broadsheet.

Table of Contents

Abstract	i
Acknowledgements	ii
Dissemination	iii
1 - Researching the Research Assessment Exercise	1
1.1 Introduction to the Research Assessment Exercise	2
1.2 Why research into the RAE?.....	4
1.3 Some views/ideas on the RAE.....	6
1.4 Research method.....	8
1.5 Research objectives.....	12
1.6 Dissertation outline	12
2 - The Multi-Dimensional Crystal View	14
2.1 Review of the RAE coverage.....	14
2.1.1 Reporting of anecdotal evidence.....	14
2.1.2 Scrutiny by policy-makers	15
2.1.3 Academic research	16
2.2 A panoptic view of a multi-dimensional crystal.....	19
2.3 Selection of the dimensions	20
2.4 A matrix tool for analysis	22
2.5 The presentation tool: Windows style and colour-coding.....	24
2.6 The process	24
3 - Matrix construction	27
3.1 The drivers of the RAE quality assessment framework.....	27
3.2 The areas of impact.....	35
3.3 The points of observation.....	40
4 - Visualisation of the points of observation	44
4.1 Introduction to methodology.....	44
4.2 Method of collection for the points of observation.....	45
4.3 Point of observation: narrator	48

4.4	Point of observation: narrator – completed table	69
4.5	Aggregation of points of observation statements – narrators view.....	71
4.6	Point of observation: panel member	72
4.7	Point of observation: panel member – completed table.....	93
4.8	Aggregation of points of observation statements – panel member view	95
4.9	Point of observation: planning officer	96
4.10	Point of observation: planning officer – completed table.....	117
4.11	Aggregation of points of observation statements – planning officer view ..	119
4.12	Point of observation: research director	121
4.13	Creation of view cells – elimination of points of observation dimension ...	122
5 - Visualisation of the drivers of the RAE and their impact.....		130
5.1	Drivers of the RAE: period of assessment and its impact	131
5.2	Drivers of the RAE: units of assessment and their impact	132
5.3	Drivers of the RAE: number of outputs and their impact.....	133
5.4	Drivers of the RAE: grants expenditure and its impact.....	134
5.5	Drivers of the RAE: PhD completions and their impact.....	135
5.6	Drivers of the RAE: expert panels and their impact	136
5.7	Drivers of the RAE: rating scale and its impact	137
5.8	Drivers of the RAE and their impact - overview	138
6 - Visualisation of the areas of impact and how they are affected		141
6.1	Areas of impact: research and how it is affected	142
6.2	Areas of impact: funding and how it is affected.....	144
6.3	Areas of impact: teaching and how it is affected.....	146
6.4	Areas of impact and how they are affected – overview.....	148
7 - Conclusions – lessons and hypothesis		149
7.1	Panoptic view in a nutshell	149
7.2	Worth and validity of the theoretical approach.....	151
7.2.1	The multi-dimensional crystal view.....	151
7.2.2	The panoptic theoretical view	152
7.2.3	Conceptual validity	152
7.3	Soundness of the analytical tools.....	152
7.4	Critical review of the thesis	153

7.5	Further research	155
7.6	Contributions and conceptual limitations	156
7.7	Personal remarks	159
7.7.1	My contribution.....	159
7.7.2	My voyage and final destination	161
7.7.3	My conclusion on the RAE.....	162
	References.....	164
	A - Rating Scale	A-1
	B - Views of a point of observation: research director	B-1
	Point of observation: research director.....	B-1
	Point of observation: research director – completed table	B-22
	C - Units of Assessment	C-1
	D - Glossary	D-1

Table of Figures

Figure 1 – The two distinct processes of the RAE 7

Figure 2 – A crystal view of the RAE framework 9

Figure 3 – The area of investigation of the thesis 11

Figure 4 – Panoptic View 22

Figure 5 – The matrix 23

Table of Tables

Table 1 – Review of the RAE coverage.....	18
Table 2 – Opinion cell	44
Table 3 – View cell	45
Table 4 – Questioning table	47
Table 5 – Point of observation: narrator – completed textual table.....	69
Table 6 – Point of observation: panel member – completed textual table.....	93
Table 7 – Point of observation: planning officer – completed textual table.....	117
Table 8 – Opinion cells - completed table	120
Table 9 – View cells - coding	122
Table 10 – View cells - completed table.....	129
Table 11 – Effects and consequences of the RAE quality assessment framework....	150
Table 12 – Thesis contributions	157
Table 13 – Thesis contributions and limitations	159
Table 14 – Point of observation: research director – completed textual table.....	B-22

1 - Researching the Research Assessment Exercise

This thesis looks at the research funding in HEIs (Higher Education Institutions) and whether the changes in the method of distributing the funding have fulfilled the expectations of the different stakeholders.

Universities hold two very important functions in society: knowledge creation and knowledge dissemination. Since ancient times individuals decided to dedicate their life both to the pursuit of knowledge and to its propagation. Knowledge dissemination has taken on many forms; from informal discussions in a square in ancient Athens to formal lectures in a modern University theatre. Whatever the format, the scholarship of transmission has always accompanied the scholarship of discovery (Boyer 1994). While it was recognised, early on, that the transmission of knowledge could be made more efficient through the development of formal structures, the creation of knowledge has always remained a mainly autonomous activity stimulated by the scholar's individual interests. The passion of individual scholars and scientists to research and gain understanding in their subjects has brought great discoveries that have revolutionised humanity's way of living and thinking.

The importance to society of knowledge generation and the development of formal structures for knowledge dissemination has led to the creation of institutions that now form our Higher Education system. It is in recognition of the importance of the dual activities performed by HEIs (Higher Education Institutions) that successive UK governments have provided public funds to sustain and develop the Higher Education sector. The enlargement of the Higher Education sector in the mid-eighties has led to a rationalisation of the funding system with the creation, in the early nineties, of the Higher Education Funding Councils (for England, Scotland, Wales and Northern Ireland). The remit of the Funding Councils was the administration and distribution of funding to the entire Higher Education sector, with a clear demarcation between the funding for teaching and the funding for research.

1.1 Introduction to the Research Assessment Exercise

Recognition of research as a valuable asset to a nation has been around since the Second World War where the employment of scientists gave a notable advantage on the battlefield, and immediately after the war when scientists and social scientists helped in the reconstruction of the Western nations (Rosenhead 1989). The recognition of the value of research is underlined in the one of HEFCE's reports (HEFCE 2000):

“Government funding is needed for research which is unlikely to be funded by others, but which offers the possibility of creating new knowledge which is later made available to others to exploit. A study commissioned by the HEFCE and CVCP (the representative body for UK universities) suggests that the rate of return for public investment in research could be upwards of 25 per cent per annum. ... The UK undertakes only 9 per cent of the world's research effort (funded by 4.5 per cent of the world's research expenditure), ...”.

The mid-eighties saw a change in the government's approach to the governance of publicly funded institutions. In the case of publicly funded research, the Government shifted from a system mainly led by priorities set by the individual researchers to a strategic approach with clear objectives of what was expected and a strategic plan on how to achieve it (Lansley 1998). The strategic plan was based on monitoring through assessment to check on progress towards the stated objectives, and rewards to incentivise the desired behaviour. The general change in public funding objectives had a clear impact on the funding for research in Higher Education with a drastic change in the distribution methods. One such method developed into the Research Assessment Exercise.

The importance of research for the development of UK plc was stated by the Government in the White Paper “Realising Our Potential” (UK Government 1993). This White Paper demarcated and emphasised the importance of the ‘dual support’ system for the funding of effective research (Garrett-Jones and Aylward 2000). This

system recognises two different needs. The first one, delivered through the Research Councils (under the Office of Science and Technology that is part of the Department of Trade and Industry), to fund research that will be of benefit to industry and therefore to the growth of national competitiveness. The other, delivered through block grants distributed by the regional Higher Education Funding Councils, is to fund the research infrastructure. It is this second method of funding research through block grants that has developed into the Research Assessment Exercise (RAE).

The dilemma of how to allocate block grants throughout the Higher Education sector was overcome by the University Grants Committee (the now Higher Education Funding Councils) by concluding in 1985 that "... research quality, unlike teaching quality, can be quantified" (Curran 2000). The mechanism to assess research quality was the RAE. The first RAE was attempted in 1985-86 with subsequent refining in 1989, 1992, 1996 and 2001. The RAE allocation method shifted the allocation from one based on student numbers to one based on quality assessment: "The Funding Council's policy is to allocate research funding selectively to those institutions that have demonstrated research quality" (HEFCE 2001a- Annex A Funding of Higher Education).

The RAE is based on a peer review process that evaluates not only the quality of the single outputs produced by the individual researchers, but tries to establish the successful fostering of research by academic departments and research centres. This second element of the evaluation introduces the notion of research management, where the administration of resources and the strategic policies undertaken by academic departments and research centres for research development comes under scrutiny.

The output assessment and the management assessment live together symbiotically in an RAE submission. No matter how good the management strategies are for the development of quality research, they would have little success without a sound base of quality research output. On the other hand, quality output would have little impact if it was seen as an isolated incident and it was not the fruit of a sound strategic management with a vision for the future. This combination of individual effort by the

academic researchers and management of the collective by the academic managers is the key to success in the RAE.

1.2 Why research into the RAE?

The benefits of a successful RAE are significant for any HEI; they involve both enhanced income and prestige. Research income distributed through the RAE mechanism by the Funding Councils assumes the form of an unrestricted block grant that has the advantage of not being targeted to any type of expenditure. This form of funding is particularly attractive to publicly funded institutions because of the fiscal freedom that it carries. The prestige that can be acquired through a successful RAE is further enhanced through league tables that are periodically produced and published by the media. The RAE grades always carry a high weighting in most, if not all, the league tables produced by the major national newspapers.

The attractiveness of the money and other means that the RAE is now part of the strategic agenda in many HEIs. The RAE has become more important (and fruitful if one is successful) for the Higher Education sector and it has involved all academic and administrative levels in HEI. From the top management, that sets the strategic agenda for the RAE period, to the support staff, which is then involved in the material assemblage of the submissions, everyone play a part in the RAE. Since the first RAE in 1986, called the “Research Selectivity Exercise”, there have been concerns surrounding the consequences and ability of the RAE to properly assess quality (Johnes and Taylor 1990). Over the years different parties have started considering the consequences of such an extensive and involving exercise. The consequences investigated and publicly reported on mainly centre on a change in behaviour of HEI management and, consequently, distortions in research activities within the Institution and in the sector. These criticisms are reported as occurring after every RAE despite efforts by the Funding Councils to address them (Cave et al. 1997).

Concerns over the implications and ramifications of the RAE have been aired in both the media and academic publications. For example the “History of the Human Sciences” reported the findings of a one-day seminar held at Bristol University on ‘The Intellectual Consequences of the Research Assessment Exercise’ (Velody 1999).

Publishers have argued that they have noticed changes in publication patterns and more importantly in publication quality closer to RAE submission deadlines (Velody 1999). These concerns have been addressed by the Funding Councils who have initiated reviews on the impact of the RAE after each exercise.

After 1992, Ian McNay was commissioned by HEFCE to assess the impact of the exercise (McNay 1997). After the 1996 RAE a major review of the research environment and research production in HEIs was commissioned. This review lasted 18 months and terminated with an extensive report on the findings (HEFCE 2000) and a nationwide consultation (HEFCE 2001c) on the key issues that arose.

This investigation was very extensive and it is therefore important to illustrate some of its key findings. The concerns investigated in the “Review of Research” report (HEFCE 2000) were of the impact of the RAE on various areas of Higher Education. They span from administrative and resource management, such as promotion and distortion of staff movement, cost of the exercise and equal opportunities, to more academic areas such as volume of publications, disincentive to interdisciplinary research, emphasis on applicable research and imbalance between research and other academic activities.

The “Review of Research” report tried to establish if observed occurrences of changes in the administrative and academic conduct since the introduction of the RAE, were due to chance alone or were a consistent and permanent shift in behaviour. The final report was based on studies compiled by competent sub-panels that, in turn, had looked at all the individual concerns. The report concluded that there had been no dramatic changes and, where changes had occurred, these were due either to natural evolution or to agents and factors outside the RAE.

The “Review of Research” report (HEFCE 2000) concluded that the concerns aired were perception based and could be demonstrated to be unfounded. However, the Funding Councils recognised that these concerns should nevertheless be addressed since they could be detrimental to the process. This view was re-enforced by J. Rogers, manager of 2001 RAE, in a response to a seminar held in March 1999 on ‘The Intellectual Consequences of the Research Assessment Exercise’ (Rogers 2000).

The Government has also been involved, on several occasions, in reappraisal of the RAE. For example in the response to the Dearing Report issues of transparency and international standards were addressed explicitly by supporting the recommendations to change aspects of the RAE process (Department for Education and Employment 1998). Moreover, The House of Commons Select Committee on Science and Technology regularly evaluates the impact of the RAE, the latest investigation occurring in 2002 (Select Committee on Science and Technology 2002). The Committee gathered evidence from academia on the consequences of the RAE and the perceived worth of the whole exercise. The RAE is under constant scrutiny from the policy makers.

All the investigations and reviews of the RAE confirm perceptions that the RAE has great importance for research in HEIs. Whether positive or negative overall, the RAE has triggered changes in how research is conducted and especially in how it is managed (Henkel 1999).

1.3 Some views/ideas on the RAE

As reported above, there have been many studies on the RAE and there is quite an extensive number of papers that look at the RAE both from a sector-wide and from a subject oriented perspective. Some accept the RAE as an inevitable form of resource allocation, while others concentrate on the harmful distortions it introduces in research and other Higher Education activities. HEFCE are generally satisfied with the process, while accepting that it could be improved. A more comprehensive review of the different approaches used to examine the RAE is presented in chapter 2 -.

While the investigations initiated by HEFCE and research done in the area are very important and insightful, this thesis approaches the impact of the RAE from a different angle.

The view taken in this thesis is that the RAE process could be looked upon as having at least two major distinct activities: the assessment of research performed by expert panels appointed through a nationwide consultation exercise and therefore independent from HEFCE; and the formulaic distribution of funds solely based on HEFCE policies and objectives. There may be other research approaches that would

need to consider a strong interaction between the two distinct activities, but, for the purpose of this thesis the two activities can be considered as independent as in Figure 1.

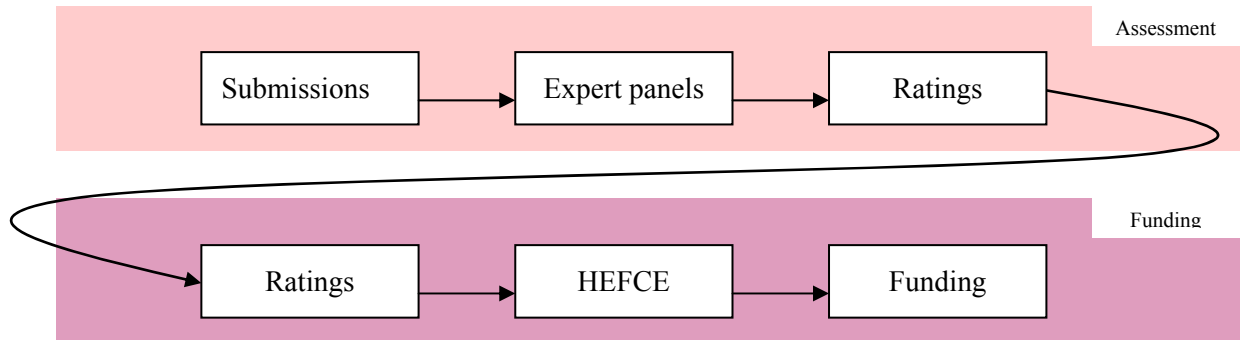


Figure 1 – The two distinct processes of the RAE

While expert panels are aware of HEFCE’s use of their assessment outcomes they do not know the formula that is going to be used in the distribution round, since it is decided upon after their deliberation. The assessment process induces Institutions to maximise the ratings while the funding process induces Institutions to maximise income. The two are not the same. While the maximising of ratings may favour the submission of a limited number of academics, the maximising of income could favour the submission of a greater number of academics. The tension and balance between these two processes influences behaviour and choice of strategies (Talib and Steele 2000).

The stated hypothesis of this thesis is that it is the assessment process which has most impact on research and other institutional activities. With no information on the funding weighting for the different ratings the funding process remains an unknown and, therefore, the search for the highest possible rating from the assessment process is the strategy that can guarantee the highest returns. It has been recognised that the assessment process distorts what it intends to measure (Select Committee on Science and Technology 2002). Moreover the uncertainty about the funding formula before the event and the prestige attached to high rating makes the assessment process the main driver to behavioural change. This thesis, therefore, focuses on the assessment process and on its impact not only on the research, but also on other HEI activities.

There is a distinction to be made between the concept of assessing research quality and the framework and set of criteria used in the assessment. While it could be acceptable to have a periodic assessment of research quality as a fund distribution mechanism, one could have misgivings on how the assessment is framed. The separation of the assessment process and the funding process enables the assumption that any major impact on HEI activities would come from the established assessment process. It distinguishes between the need for an assessment framework and the suitability of the chosen framework.

This thesis accepts that if the objective of an assessment process is to assess quality, then it is acceptable to have a framework to gather the necessary information. Therefore, this thesis is not concerned with investigating the need for a quality assessment framework, but rather with the information, rules and conditions that constitute the elements of the framework used by the expert panels to make their quality judgements.

There are many ways to look at the RAE research quality assessment framework and the different approaches indicate different inclinations to structured thinking rather than the search for an objective truth. Examples of these approaches are described in Chapter 2 - The Multi-Dimensional Crystal View. But, because of personal taste, inclination and expectation of rewarding research outcomes, this thesis departs from more traditional approaches and uses a number of tools to support deductive reasoning and ‘intelligent thinking’ (Kiviat 1990) to reach some form of inductive knowledge.

1.4 Research method

The nature of the RAE is what led to the selection of the tools and techniques of the investigation. The RAE has been part of Higher Education for the best part of the last two decades. The effects and consequences of its impact are now dispersed in the system with little chance of either identifying the primary causes or isolating the resulting effects. The acknowledgement, by HEFCE (HEFCE 2000), of undefined boundaries for the purpose and usefulness of research is also evidence of possible if not probable consequences outside the confinements of Higher Education into society

now and in the future. This vagueness of purpose is underlined by the loose objective of the RAE framework defined as “the assessment of research quality”, with no definition of the rationale for quality research. The lack of well-defined objectives opens the spectrum of investigation to have many dimensions, which may well depart from the research quality assessment framework, but that reach areas of impact both within and outside Higher Education and that are differently perceived by a multitude of individuals and groups. The RAE may be seen as a crystal, a multi-faceted phenomenon where each face is a different dimension, and where the sum of the effects filtered through the infinite points on each side gives a collection of images forming a panoptic view of the occurrence.

This vision of the RAE allows for the investigation of only part of the dimensions without compromising its intrinsic properties. The faces of the crystal may be partially obscured allowing for only a restricted area of the dimensions to be investigated or else totally obscured, eliminating the dimension from the analysis. While the observed phenomenon will be less rich because of the total or partial elimination of a dimension, the result of the observation will still retain all the characteristics of the active dimensions.

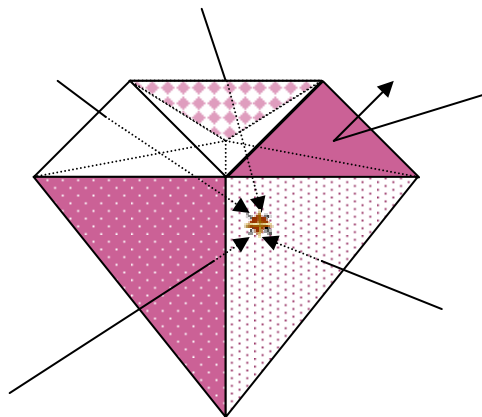


Figure 2 – A crystal view of the RAE framework

The choice of the dimensions, and which sections of the dimensions to consider, is constrained by the time available for the investigation, manageability and personal preference. A case is made for each dimension and section selected.

Since the thesis focuses on the RAE quality assessment framework, the first dimension is the plane of all the information rules and conditions that constitute the research quality assessment framework. Because of time and practical constraints, a limited selection of some of these elements of the RAE assessment framework will be considered in the analysis. The second dimension is the plane of all areas of Higher Education, since these are where most distortions are reported to take place. As for the elements of the RAE framework only some areas will be considered. The third dimension is the plane of all perspectives that individuals and groups have relative to the RAE framework and their consequences.

The three dimensions selected redefine the area of investigation as the analysis of the impact of the elements of the RAE quality assessment framework on the different areas of Higher Education viewed by different individual perspectives within the system. This reduction of dimensions to 3 diminishes the crystal polyhedron to a 3-dimensional cube where each plane, which represents each individual perspective, of the cube is defined by the interaction of the elements on the areas of impact. The space investigated by the thesis is represented in Figure 3.

The tool necessary to support this investigation must reflect the uniqueness of the multi-dimensional concept. Two dimensions can be easily accommodated in a table format with the cells defined by the intersection of the rows and columns. The rows can represent the elements of the RAE framework while the columns can represent the areas of Higher Education. A series of these tables can represent the third dimension, the individual perspectives or, in other words, the points of observation. Each table, therefore, will be a plane of the cube, representing the width and the height, while the points of observation will give the depth to the cube.

Applying this tool several times a matrix is produced, and while the presentation of the individual perspectives on the element-area relationship already builds a rich picture that can disclose hidden distortions, the properties of the matrix also allow for summarisation.

Moreover the plasticity of the matrix structure can be extended to summarise individual perspectives on a single element or on a single area, therefore acquiring

generalisation of the impact of single elements across all areas or the general impact of all elements on a single activity. This level of generalisation can inform on the consequences of some of the elements of the quality assessment framework.

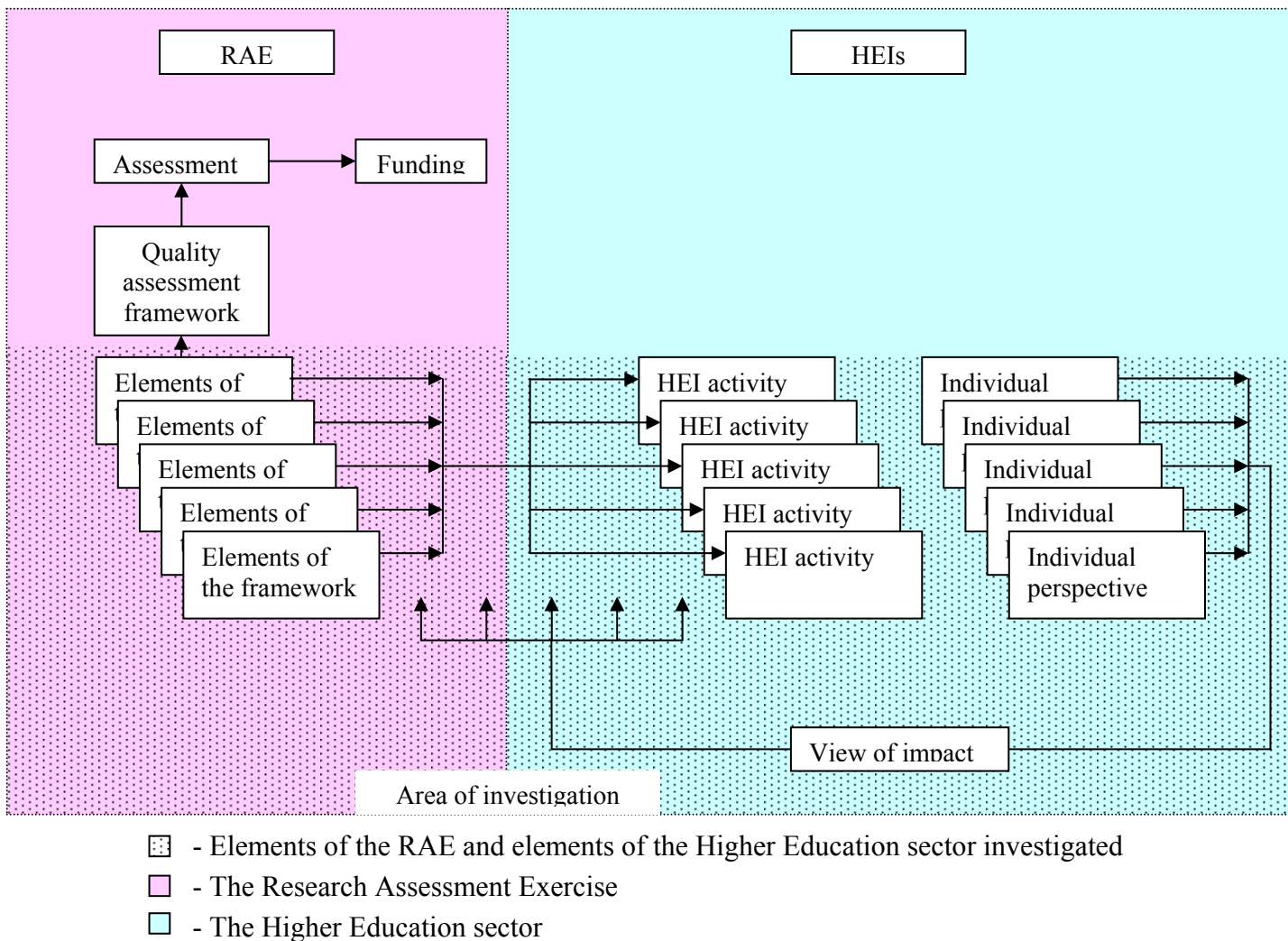


Figure 3 – The area of investigation of the thesis

The ability to summarise the individual perspectives on any element-area relationship is enhanced by a visualisation method. The use of a Window's style presentation can allow for generalisation. The Window's style presentation is another tool that aids deductive reasoning. It is based on the principle of collapsing or summarising results, as in an Excel spreadsheet. Detail may be hidden or revealed according to the level of aggregation that has been chosen. The Window's style presentation is aided by a colour-coding scheme that visually represents the results of the investigation

according to the level of aggregation chosen. This level of aggregation can be taken to the extreme. For example, at the end of the thesis, making one overall summary judgement of all the selected elements and their impact on selected areas as perceived by the selected points of observation.

1.5 Research objectives

There are 3 research objectives:

1. To demonstrate that research into the RAE can benefit from a micro analysis of the interaction between the different dimensions that define the complex system and that one of the dimension has to capture the perceptions of the participants and observers of the RAE to provide in a powerful panoptic view of the RAE.
2. To demonstrate that the multi-dimensional crystal view approach, devised during the thesis research, can support the analysis of the interactions between the dimensions of the RAE.
3. To demonstrate that the multi-dimensional crystal view can be supported by a matrix based tool that aids in logical reasoning and generalisation and that such a tool can accommodate Window's style visualisation techniques and the use of colour coding as an aid for the analysis.

1.6 Dissertation outline

The dissertation is divided into 7 chapters.

Chapter 1 introduces the problem area and some views/ideas on how to approach it. In this chapter the multi-dimensional crystal view is introduced as the research method used in the research.

Chapter 2 presents the research context of the problem area and the literature review highlighting the different publishing medias and modes that have covered the RAE. This chapter also explains the use of the matrix as the tool that supports multi-dimensional crystal view and that leads to the resulting panoptic view. The chapter also describes the Window's style presentation tool used for the presentation of the

results and introduces the terminology and general principles used in the investigation.

Chapter 3 reports on the process used to select the elements, areas and individual perspectives that are to be considered in the analysis and which will form the analytical framework of the matrix. It also illustrates the method of collection of the information and how the analysis is performed.

Chapter 4 reports on the collection of the individual perspectives and the conclusion of the first phase of the analysis. This phase includes the completion of the matrix by assigning the appropriate individual perspectives, in the form of textual statements, to each interaction between elements of the RAE and area of Higher Education. At the end of the chapter all individual perspectives are aggregated into one textual statement for each element-area relationship.

Chapter 5 concentrates on the generalisation of the impact of the elements of the RAE quality assessment framework. Each element is analysed separately and the impact on the different HEI activities are summarised in one textual statement.

Chapter 6 concentrates on the generalisation of how activities are impacted upon by the elements. The impact of different elements on one activity are summarised in one textual statement.

Chapter 7 summarises all individual perceptions and proposes a final statement that encompasses all previous analyses. The chapter considers the value and validity of the methodology, sets some themes for further research and concludes with some reflections based on the author's personal research odyssey.

2 - The Multi-Dimensional Crystal View

The RAE has been a topic of much discussion in most academic circles, as well as to a lesser extent in the national and popular media. Whilst not a subject that most of the population are particularly aware of, it does appear as an important indicator in most of the league tables compiled by national broadsheets. In the academic world the RAE has been reported on in different ways, depending on the line of enquiry being pursued (as in this dissertation).

2.1 Review of the RAE coverage

We would like to define three very broad categories of commentary on the RAE: a) reporting of anecdotal evidence in the sector media that highlights problems and perceptions, b) scrutiny of processes and consequences to inform policy-makers and c) academic research to deepen understanding and knowledge.

2.1.1 Reporting of anecdotal evidence

The periods leading up to the RAE and just after see an increase in the number of letters and articles in Higher Education newspapers, such as The Times Higher Education Supplement. Most of the press appears to be negative except for a few articles that regard the RAE as not perfect but possibly the best way of funding research infrastructure (The Times Higher Education Supplement 2001 September 14). In the period from the 30th November 2001 to the 25th January 2002 the RAE was the front-page leading article (The Times Higher Education Supplement 2001 November 30), (The Times Higher Education Supplement 2001 December 21/28) and (The Times Higher Education Supplement 2002 January 25). Two of the leading articles were concerned with the emergence of a research elite, while the last one reported on the underfunding that resulted from the change of grade weighting after the 2001 RAE.

Articles, letters and opinion pieces cover a wide spectrum of concerns about the RAE. They refer: to consequences for other Higher Education activities such as teaching (The Times Higher Education Supplement 2002 January 18); to researcher's careers and concerns (The Times Higher Education Supplement 2001 October 8); to financial

consequences for HEIs (The Times Higher Education Supplement 2001 August 31); to consequences for the autonomy and governance of Higher Education (The Times Higher Education Supplement 2001 October 19) and many other themes and sub-themes. This collection of anecdotal evidence demonstrate the range of concerns and perceptions of the consequences of the RAE that exist within the sector. The general disquiet towards the RAE is one of the motivational drives that has brought the RAE under such scrutiny both by the policy-makers and by academics.

2.1.2 Scrutiny by policy-makers

Since the first established RAE in 1986, the disquiet in the Higher Education sector has led HEFCE and other government departments to scrutinise the RAE and its impact many times.

After the 1992 RAE, McNay was commissioned to produce a report on the changes in behaviour in HEI due to the introduction of the RAE (McNay 1997). After the 1996 RAE an even more in depth report was commissioned by a committee of both academics and Funding Councils members to look into HEFCE's research policy and funding (HEFCE 2000). This report took nearly 18 months to be completed and it was then submitted to the Higher Education sector for consultation. The result of this consultation was reported (HEFCE 2001c) and feedback from the HEI was taken into consideration when preparing for the 2001 RAE. After the 2001 RAE, HEFCE had to report to the House of Commons Select Committee on Science and Technology in reply to a report commissioned by the committee on the RAE (Select Committee on Science and Technology 2002). The amount of reporting and consultation instigated by HEFCE demonstrates the level of scrutiny under which the RAE operates. Moreover, the RAE has attracted the attention of foreign governments that have commissioned reports to make comparisons between their research funding policies and the UK's (Bourke 1997).

This level of scrutiny and investigation addresses specific concerns, collected after consultation with HEIs, and it is based on evidence gathering and formal analysis. For example the "Review of Research" (HEFCE 2000), the most comprehensive of all

reports, made heavy use of statistical analysis to either prove or disprove changes of behaviour in a number of HEI's activities.

The reports are as factual as possible and address the refining of the RAE process but not the basic principles. The investigations are conducted within the objectives of selective funding on quality assessment. The outcome of the reports is mainly a list of recommendations to be considered for the following RAE that address specific research activity concerns, such as the recommendation to extend the period of assessment for the arts and social sciences UoA in the 2001 RAE.

While the scrutiny by the policy-makers is constrained in its scope to the RAE process more than to the principles of the RAE, it provides an extensive collection of sources of information that gives a bird's-eye view of the state of research. Which can be used as a platform for more in-depth research into specific issues, but does not address the fundamental questions as for the validity of the exercise regarding the long-term development of the U.K. research base.

2.1.3 Academic research

Academic research on the RAE can be divided into three major groups: research that addresses the RAE as a 'game' and therefore looks at potential strategies; research that investigates the validity of the process of the RAE; and research that concentrates on the consequences of the RAE.

The 'game' perspective is the smallest of the groups. Examples of research in this area are a study in the use of citation analysis to predict the outcomes of the RAE (Holmes and Oppenheim 2001) and a study on submission strategies to maximise funding (Talib and Steele 2000). These studies, while limited in their scope, address the issue of research management. They look at the perspective of the HEI's decision-makers and at the choices they are practically faced with when submitting to the RAE.

The group that includes studies on the RAE process is possibly the most varied. Many of the studies base their investigations on different approaches and beliefs. They range from the use of modern philosophy to set the RAE process into the scene of a growing government practice of power and control (Broadhead and Howard 1998) to a quasi-mechanistic treatment of the RAE as a performance measurement framework (Boaden

and Cilliers 2001). Alternative methods of analysis can be found in other studies, such as Warner's which suggests changes to the process based on an in-depth investigation of media reporting (Warner 1998). Example of studies that use more traditional methods of evaluation of the RAE process can be found in Kogan's paper that critically examines the recommendations of the Dearing Report (Kogan 1998). A more mainstream and less extreme use of a performance measurement view of the RAE, compared with Boaden and Cilliers paper, can be found in Garrett-Jones and Aylward's study that relates the performance measurement criteria in the RAE to research project evaluation (Garrett-Jones and Aylward 2000).

Studies into the RAE process indicate that there are a great number of alternative approaches and ways of looking at the RAE. These studies, while specific to the RAE, apply a wide range of research methodologies and approaches. There is a large use of evaluation, even if not in the strict sense as defined by Rossi (Rossi et al. 1999) and Weiss (Weiss 1998). Both Rossi and Weiss define evaluation as the judging of the merit of a phenomenon against some explicit or implicit criteria. Furthermore, most of the traditional evaluation research is in the area of social programme evaluation. There are some difficulties in defining which criteria the RAE assessment process should satisfy since there is no clear purpose in the RAE, just an undefined judgement of quality. Nor can the RAE be seen as a social programme, since it does not address any particular social problem as it is mainly a funding mechanism. Nevertheless a number of studies refer to evaluation and set some parameters of research quality against which to judge the efficacy of the RAE process.

The group of studies that concentrates on the consequences of the RAE includes both subject centred and sector wide investigations. Subject oriented studies focus on the impact of the RAE on the development of their specific research area. Most of these studies are published in subject related journals. A few examples are: in construction research (Lansley 1999); in nursing research (Traynor and Rafferty 1999); in the mental health area (Grey 2000) and in law research (Vick et al. 1998). The sector wide studies concentrate on consequences at a more general level. McNay, who was commissioned to produce the post-1992 RAE report by HEFCE, touches on the consequences at each of individual, institutional and system level. He calls for an

integration of the RAE with other parts of the Higher Education system, from teaching to the reward system (McNay 1999). In a more specific way Henkel concentrates on the changes that have occurred to the academic culture and identity as a consequence of the RAE (Henkel 1999). Other studies focus on particular consequences such as Tomlin’s papers on the way league tables misuse the RAE ratings, and on the impact that this mishandling may have on public perception of institutional quality (Tomlin 1998). Curran investigates the competition element that has been introduced in the Higher Education system by the RAE process and proposes a Porter’s Diamond Model to analyse institutional competitive advantage (Curran 2000). Elton focuses on consequences of the RAE that may become apparent only in the long-term such as a gradual strengthening of academic traditionalism to the detriment of innovation (Elton 2000).

Type of inquiry	Anecdotal evidence	Scrutiny	Academic research			
Focus	Individual experiences	Objective inquiry	RAE Strategy	RAE Process	Consequences of the RAE	
Level					Sector wide	Subject oriented
Type of publication media	Sector press	Public domain reports	Academic press			

Table 1 – Review of the RAE coverage

The extent of the RAE coverage, summarised in Table 1, brings to light the breadth of the impact that such a process has on Higher Education academic culture and identity (Henkel 1999) and on the possible consequences to the development of new modes of practicing research as defined by Gibbons et al. (Gibbons et al. 1994). It also highlights the great number of perspectives, interpretations and focuses that different groups and individuals have. The anecdotal evidence, the scrutiny and the academic research into the RAE can be presented as a rich picture of the RAE that forms the basis for the investigation reported here.

The coverage reviewed in this section reveals that most research concentrates on investigating the consequences of the RAE as a whole while little attention is dedicated to micro analysis that views the consequences of the RAE as the

aggregation of an indefinite number of impacts arising from the interactions between the constituent parts of the RAE. While some of the coverage is based on the perception of the consequences of the RAE, there appears to be no attempt to draw insight from the collation of a number of different perceptions. The research in this thesis has micro analysis as its focus and develops an approach to handle the investigation from the view of different perceptions.

2.2 A panoptic view of a multi-dimensional crystal

The micro analysis of the RAE deals with the breakdown of the system into different constituent parts and with the interactions of these parts with the systems that the RAE affects. The analysis of the interactions, that have to accommodate the expression of perceptions, forms the basis of the investigation and so of the approach. This approach, therefore, had to accommodate interactions from at least 3 different dimensions: the constituent parts of the RAE, the systems impacted upon and the perceptions of the individual. Simple interactions have two dimensions and are easily represented as rows and columns on a grid. But, when other dimension are introduced, to reveal further interactions, a more complex representation must be developed. The basis for the multi-dimensional crystal approach was developed from the author's mental representation of the system of interaction of a non specified number of dimensions. With more than two dimensions the mental representation had to shift from a flat grid to a multi-dimensional object where points of interaction between the planes defining the object could be identified. The multi-dimensional crystal view emerged from this need.

A crystal as a representation of the RAE phenomenon encompasses the properties that are the foundation of the vision of the thesis. A crystal can have from one (in the case of a sphere) up to an infinite number of faces all with different surface areas. Because of the property of transparency, each point within the crystal is a summation of the effects of the light that filter through each point on each face. Therefore by partially or totally obscuring some of the sides one can isolate the effect of the light just to points on the faces that are of interest. The collection of points within the crystal that are defined by the light that goes through all the unobscured points of the crystal surface

will create a panoptic view of all the effects. The panoptic, all-embracing, view will reveal points of intersection of the dimension and the resulting effect. Since the intersection points are a result of the summation of the light going through each single surface point, one can investigate the nature of the intersection points by revealing the constituent surface points one at a time. One can then gradually observe the single effect of each surface point on other points. Another interesting characteristic is the impossibility of interface between points on the same dimension since all points on one dimension will produce parallel rays of light within the crystal. The parallelism also guarantees that intersection between two rays from different dimensions can occur at most once.

The RAE can be represented by the crystal structure. The dimensions can be: the RAE assessment framework, the funding mechanism, society, Higher Education students, HEI's activities, individuals within the Higher Education sector, individuals outside the Higher Education sector and many more. The choice of dimensions will influence the type of analysis. If, for example, the RAE assessment framework and HEI's activities are chosen, then the analysis would be more factual and similar to that performed in many of HEFCE's reports. The crystal structure, therefore, conceptualises an environment where many different types of analyses may be performed accommodating both subjective and factual investigations.

The choice and number of dimensions is determined by the resources available to any particular investigation. It depends on the particular interest of the investigator. Therefore the choice of dimensions in this thesis is determined by the investigator's preferences, which were based on what the literature revealed and the time allocated for a PhD dissertation.

2.3 Selection of the dimensions

It would be possible to define as many dimensions as one wants, but because of time restrictions the number of dimensions has to be manageable and feasible. Humans instinctively understand 3 dimensions: width, height and depth, since this represents our physical world. Four dimensions, where the fourth is time, can be perceived with some imagination. Beyond four our mind struggles to create a representation of such a

world. Therefore, three dimensions are used to create a manageable analysis that can result in the panoptic view of the RAE. More dimensions will be commented on as part of the 3 dimensional analyses.

The first dimension chosen is the RAE quality assessment framework, since it is judged to be the most influential process on the consequences of the RAE. This dimension can be seen as the collection of all elements of the RAE quality assessment framework that include the information to be provided as well as the rules and conditions that regulate it. Most of the studies on the RAE concentrate on the consequences of the RAE since its introduction. The effects of the RAE are sometimes deemed to go beyond research into areas of impact both within and beyond Higher Education. The impact of the RAE therefore naturally becomes the second dimension. The areas of impact will be entirely concentrated to those within HEI; this is because of the active involvement of the investigator in this sector. The third dimension, as with the second, is determined by circumstances and the research method of the thesis. Because of personal active involvement with the RAE process, the investigator has come into contact with many other groups and individuals within the Institution, all associated with the RAE. This collaboration has led to an appreciation of the different views and perceptions of the impact of the RAE quality assessment framework on activities within Higher Education. Interest in the variety of perceptions and points of observation has led to the choice of the points of observation as the third dimension.

Our panoptic view of the RAE can now be visually revisited in the light of the defined dimensions in Figure 4.

The analysis of the dimensions selected and their interactions must be highly flexible and must help the investigator to perform both deductive and inductive reasoning. Flexibility is necessary to accommodate different dimensions according to the preferences of the investigator. Deductive thinking will result in finding correlations and knowledge, and inductive reasoning will result in summation of effects and generalisation. Two tools for the analysis are introduced in the next two sections: a matrix and Windows presentation.

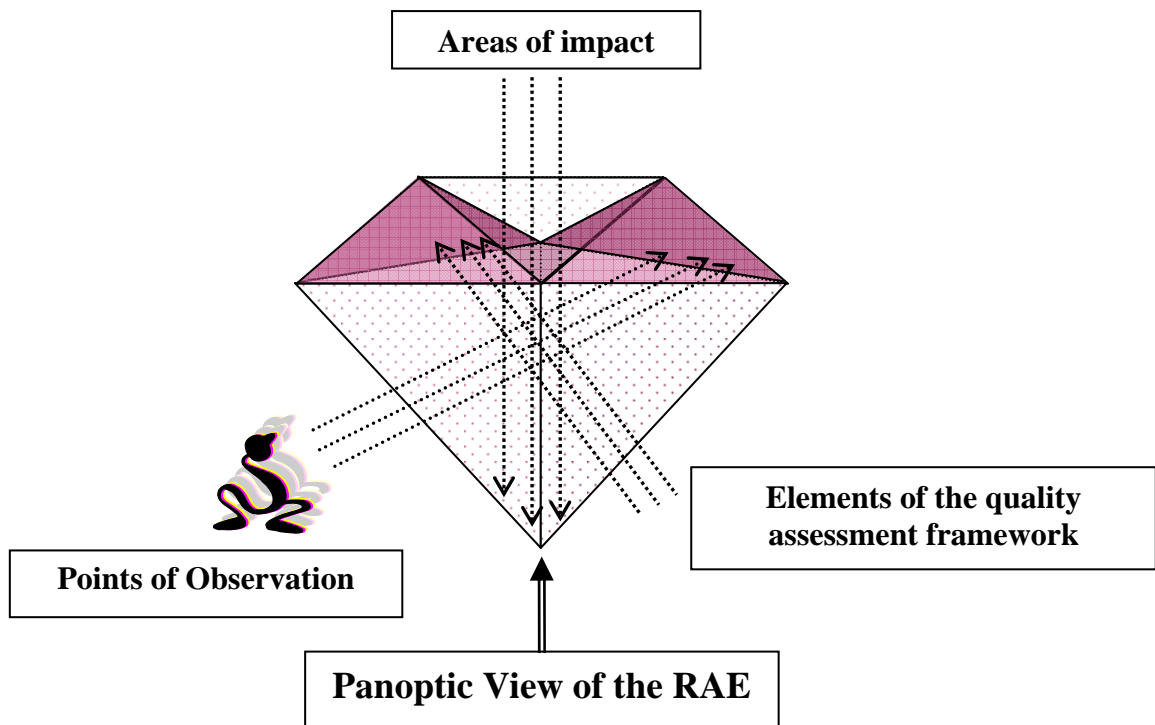


Figure 4 – Panoptic View

2.4 A matrix tool for analysis

An analyses tool needs to be manipulable to allow for the aggregation of the interactions between the individual dimensions. When all the interactions between two dimensions are analysed, the tool must allow the aggregation of the results in order to create the next dimension. This manipulability of the tool will support the reasoning process.

Insight and knowledge generation will also emerge from the summation of all points in one of the dimensions. The tool will have to support the aggregation of all effects in respect of one dimension and hence assist in the inductive reasoning process.

Such a tool will therefore have the ability to switch very easily between detail and summary while maintaining the configuration of the dimension intact. A structure that holds all of the properties necessary is a matrix. The aggregation of details into summary statements may be viewed as a Window styled presentation where on the click of the mouse details may be viewed or hidden.

The matrix is a structure built to present interactions. A simple matrix is a two-dimensional table, but more tables put together can become three dimensional, where the rows are one dimension, the columns are the second dimension and the series of tables are the third dimension.

In the case of this investigation the three dimensions are transposed into matrix structure as represented in Figure 5.

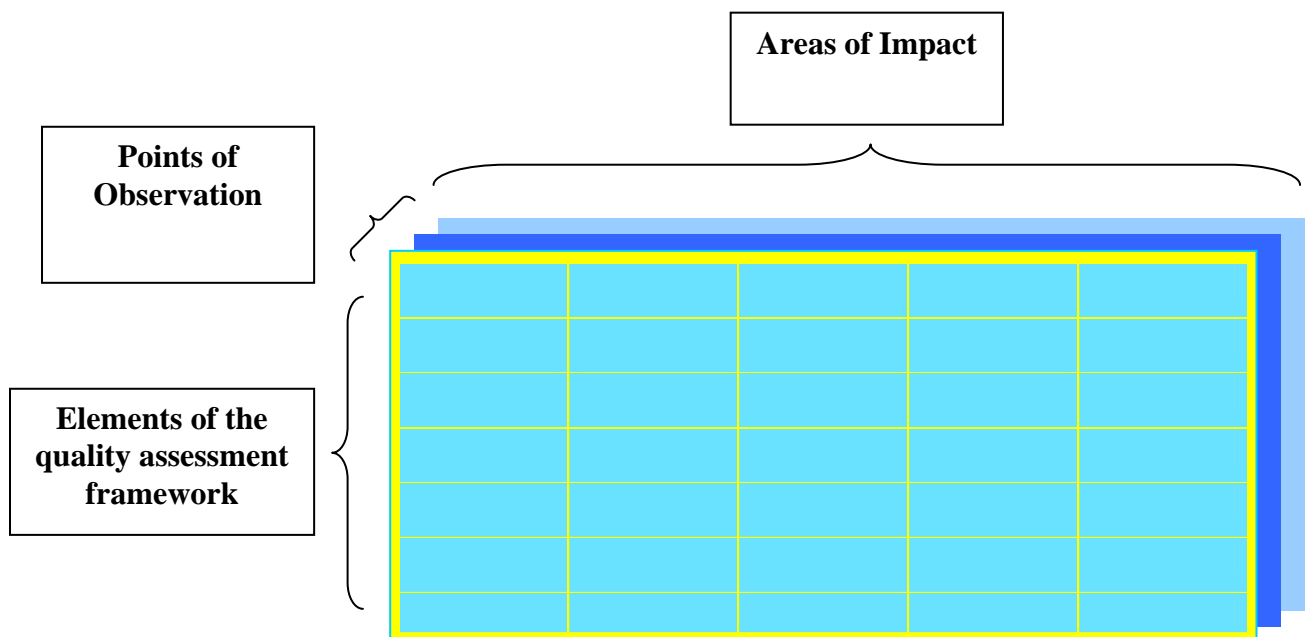


Figure 5 – The matrix

The reasoning process is enabled by aggregating the findings of the different cells along one of the dimensions into one single statement. This process will transform the 3-dimensional matrix into a new 2-dimensional table. Each cell of the new table will contain the summary of the information of the cells from the eliminated dimension. This process can, for example, eliminate redundant information and highlight information that has been found in many of the tables.

The matrix supports the inductive reasoning process by aggregating all points on one dimension. This process will highlight the general effect of one point on the whole of another dimension. The summary of all effects, while incomplete due to the selectivity of the points, will sustain some form of generalisation.

The presentation of interim aggregations and final general statements are facilitated by the Windows styled design. The results of the aggregations can become even more readily apparent with the use of colour coding.

2.5 The presentation tool: Windows style and colour-coding

The colour coding used for the presentation of the results of the aggregation allow for rapid interpretation. After each aggregation the cell containing the summary statement will be colour coded according to the overall judgement of the interaction of the specific points considered. For example, in the case of the negative judgement of a point of observation on the effect of an element of the RAE quality assessment framework on a specific area of Higher Education, the cell containing the statement will be colour coded light blue. For simplicity there are only 3 colours: light blue for a negative effect, pale blue for a positive effect and no colour for no causal effect, in other words, no interaction.

The colour coding is also used when aggregating results. In case of aggregation of non-homogenous results the colours will be shaded with the prevailing judgement as background colour and the weaker judgements as the pattern colour. The shading will be the result of the ‘clicking’ of the matrix to a higher, less detailed, level of the Windows style presentation design.

A step-by-step process regulates the building of the matrix, the assemblage of the primary observations between single dimensional points and the aggregation into multi-dimensional single statements.

2.6 The process

The matrix is built step-by-step by first selecting the points of the chosen dimensions. This first part will proceed by considering one dimension at a time and filling in the row, column and table titles.

The second step is to define the framework for the collection of the information. In this case, since one of the dimensions is ‘points of observation’, the structure is a series of questions, one per cell, to pose to the individual selected. Each question relates only to the row and column it refers to, i.e. to the interaction between a specific

element of the RAE quality assessment framework and a specific Higher Education activity. The reader, if familiar enough with the RAE, might like to try this out for him/her self!

The third step is to fill in each cell on each table according to the coordinates (element, area of impact and point of observation) with a statement of that particular interaction. The statements are a form of judgement of the consequence of the element on the area of impact as perceived by the point of observation. Each cell is colour coded according to the judgement presented.

The fourth step is to aggregate each point of observation on each interaction between element and area. The summary statement will compile a new summary table that is then defined by only the two dimensions: elements and area of impact. The cells in the new table will be colour coded and shaded according to the summary judgement presented.

The fifth step is to aggregate all points in each of the remaining two dimensions. The first dimension to be considered is the area of impact. The result is a table with one summary column for the area of impact and all rows that represent all the points on the element dimension. Therefore, for each point on the element dimension there will be only one summary statement that will encompass all areas of impact and points of observation dimensional points. This will result on an overall statement on the impact, as perceived by all points of observation considered, on the areas of impact. Colour coding is applied according to the summary judgement. The same process is adopted for the aggregation of all points on the element dimension. The resulting table will have just one summary row for the elements and all columns that represent the areas of impact dimension. Therefore, for each point on the areas of impact dimension there will be only one summary statement that encompasses all elements and points of observation dimensional points. Colour coding is applied according to the summary judgement.

The sixth and last step is to aggregate all points from all dimensions. This will result in a single statement that generalises the impact of the elements of the RAE quality assessment framework on areas of Higher Education viewed by different points of

observation within Higher Education. Colour coding is applied according to the summary judgement.

3 - Matrix construction

In this chapter the reader is guided through the process of selection of points on the selected dimensions. The matrix is progressively constructed by inserting each point as it is selected.

3.1 The drivers of the RAE quality assessment framework

The drivers are all those components that define the RAE quality assessment framework. At the outset of the RAE a choice was made of which elements of a research activity were significant when assessing quality. These elements would be both of a quantitative nature, such as number of PhD completions, or qualitative, such as evidence of esteem or output. These elements were then aggregated to form the backbone of the RAE submission. However, it would be restrictive to focus only on the elements in the submission. The submission is the end result of a process and other strategic choices, such as the period of assessment or the maximum number of outputs to be submitted, and these are just as an important part of the RAE quality assessment framework. These strategic choices were then transformed to be the rules and regulations that govern the RAE. Therefore, the elements that constitute the RAE are both the qualitative and quantitative indicators of a submission and the rules and regulations that govern it.

For the purpose of this investigation the matrix is built with those drivers of the RAE that are of interest to the observer, in this case the narrator. Moreover, the drivers selected are to be found in much anecdotal evidence, mainly the academic press, demonstrating that these drivers are of some significance to other observers/participants. The next section describes the process of selection of the drivers.

Driver of the RAE: period of assessment

<i>period of assessment</i>			

The period of publication assessment varies between different UoA. In the 2001 RAE for most UoA the period of assessment was from 1996 to the end of 2000. But all humanities UoA had a period of assessment from 1994, therefore adding two years to the period. The reason given for the difference in the length of the period was to recognise the longer length of time that it takes to undertake research in the humanities, so balancing for 4 outputs irrespective of UoA.

The peculiarity of adopting different periods of assessment is that, while it may well reflect the recognition of different modes of research, it could also impact on choices of submission patterns. Institutions could decide on which UoA to submit to because of the flexibility that the different periods of assessment can give.

Moreover, the funding levels are established at the end of each RAE. The period of assessment therefore reflects the review of the funding for each Institution participating in the RAE. As a consequence, cycles of resource investment planning and research strategy planning are closely related to the period of assessment.

The above considerations of the impacts and consequences of the arbitrary period of assessment of the RAE make this driver of the RAE of considerable interest.

Driver of the RAE: units of assessment

<i>period of assessment</i>			
<i>units of assessment</i>			

There is much to say about the UoA created by the RAE. Firstly UoA should represent all areas of research undertaken by UK institutions. Secondly each UoA could sometimes cover different areas of the same discipline. For example, for mathematics there is both an applied mathematics and a pure mathematics UoA. Thirdly, one would expect that the difference in criteria for each UoA reflects the different modes and expectations of the research conducted in that area. For example, the performing arts UoA accepts videos of performances as research output.

Therefore UoA reflect the diversity of research activity depending on the field of research. This diversity is also reproduced in the funding weightings applied to the UoA. These weightings fall into the same categories as those applied by HEFCE for teaching. Moreover UoA are modular within the RAE allowing for new additions of UoA from emerging areas of research as well as the deletion or regrouping of established ones.

But, despite the sensible approach of using UoA to match research diversity, there is a perception that advantages could be achieved by selecting one UoA against another. The perceptions vary from considering certain UoA more susceptible to the size of the submission to others that consider certain UoA more ‘hard’ than others. The perception of how the diversity in criteria may adversely affect one’s submission is an aspect that adds depth to the investigation of UoA making it a strong candidate for the investigation.

Driver of the RAE: number of outputs

<i>period of assessment</i>			
<i>units of assessment</i>			
<i>number of outputs</i>			

For the 2001 RAE the maximum number of outputs was 4. The number of outputs has not been constant over time. In the previous but one RAE the maximum number of outputs was set at 2. The outputs can be in various formats depending on the UoA that it applies to, but the maximum number is set as a general rule.

The maximum number of outputs has raised concerns that have been aired in the academic press and in published papers. The concerns are mainly based on the interpretation of ‘maximum’ number of outputs. The ‘maximum’ is mostly interpreted as ‘highly recommended’. The perception that anything less than 4 outputs must be justified adds a sense of expectation in most Institutions that want to participate in the RAE. The 4 outputs per period of assessment are now given for any researcher (‘RAE compliant’) who wants to be considered for the following RAE.

Four outputs have been selected as a reasonable amount of research to be produced in a period of assessment. However, some academics believe that important long-term research could be compromised because of the need to produce a minimum number of outputs. During a conversation about the RAE an academic commented, “Not even Einstein would have been RAE compliant”. This apprehension for the fate of groundbreaking research that could span over a number of years is also addressed in Cannadine’s inaugural lecture at the Institute of Historical Research (Cannadine 1999). The fear is that the maximum (now effectively considered as a minimum)

number of outputs could have an affect on how research is segmented to comply with this criterion.

The choice of including the number of outputs as one of the drivers of the RAE reflects the concerns and interest that such a seemingly unimportant criteria can have on research development.

Driver of the RAE: grants expenditure

<i>period of assessment</i>			
<i>units of assessment</i>			
<i>number of outputs</i>			
<i>grants expenditure</i>			

Grants expenditure is one of the quantitative indicators required by the RAE. Grants expenditure assumes different importance depending on the UoA. The amount of grant funding available to the specific area of research is recognised by all the different UoA. For some UoA, such as clinical studies and hard science, it is expected that high calibre research groups would attract a great number of grants since the funding, for example from the Research Councils, is heavily weighted towards these disciplines. While for other UoA, such as the humanities and the social sciences, the funding available is more limited.

However, the pursuit of grants has a number of drawbacks: firstly some funding entities award little or no overhead, for example charities; secondly the cost to the Institution, mainly indirect costs, is perceived as far higher than the overhead can cover; thirdly the ‘hit’ rate is very low, therefore a substantial number of proposals have to be submitted before success and thus increasing the income to the Institution.

Grants expenditure has been selected as a driver of the RAE to illustrate the tension between achieving a high level in a RAE indicator and the true impact of that pursuit on the Institution.

Driver of the RAE: PhD completions

<i>period of assessment</i>			
<i>units of assessment</i>			
<i>number of outputs</i>			
<i>grants expenditure</i>			
<i>PhD completions</i>			

PhD completion is another one of the quantitative indicators of the RAE. There can be no research activity without the fostering of new researchers. As for the grants expenditure, different UoA have different expectations of the ability of its discipline to recruit PhD students. The number of PhD completions is compared with the number of active researchers expecting a good ratio of completions per active researcher.

PhD completions, while having similarities to grants expenditure, raise different types of concerns. The urge to recruit a high number of PhD students may affect both students and research quality in a wider sense. The rising number of PhD students may force departments to assign students to inexperienced supervisors that would, therefore, not deliver the expected high standard support needed by research students. On the other hand the pressure to recruit may force departments into admitting PhD students that are not of the required standard. Since a great number of PhD students move to lectureship posts, a poor studentship may, in the long run, affect the quality of academia.

The importance that PhD students have on the sustainability of the academic world adds breadth to the investigation.

Driver of the RAE: expert panels

<i>period of assessment</i>			
<i>units of assessment</i>			
<i>number of outputs</i>			
<i>grants expenditure</i>			
<i>PhD completions</i>			
<i>expert panels</i>			

A choice was made at the outset of the RAE to have peer review, in the form of expert panels, judge the quality of the research produced by the Institutions. Expert panels are, as the name suggests, a group of researchers that are judged to be the best in their field and that command respect by their peers.

Special attention should be drawn to the perceptions that participants and observers of the RAE have on the expert panels presiding on the UoA. The impact that the expert panel team has on the outcome of the RAE is possibly over estimated, but there is probably an element of truth about subjectivity. Members of the expert panel have their personal likes and dislikes on the different areas of research, viewing some aspects of research as fundamental to the advancement of their field while other aspects fashionable only, or surpassed. Observers have suggested that expert panels as entities could become obsolete in the near future and replaced by a mechanistic system. Expert panels have also been accused of bargaining between themselves to acquire the best results for all institutions represented on the panel. This fear is reinforced by the importance given to panel membership, a membership that is regarded as an inside track on the workings of the RAE.

Whatever the perception one has of expert panels, everybody has one. With this in mind, any investigation into the RAE with the exclusion of an investigation on expert panels would be severely limited.

Driver of the RAE: rating scale

<i>period of assessment</i>			
<i>units of assessment</i>			
<i>number of outputs</i>			
<i>grants expenditure</i>			
<i>PhD completions</i>			
<i>expert panels</i>			
<i>rating scale</i>			

The rating scale applies throughout all the UoA and it is governed by the same rules for all UoA. This method attempts to guarantee comparability of research quality across all submissions no matter what discipline they fall into.

The RAE rating scale possibly represents one of the more interesting drivers of the RAE. The first characteristic that catches the observer’s attention is the rating itself: there are 7 rating scales, but they are not numbered 1 to 7 or A to G or any other incremental measure; they are numbered 1 to 5 with 3 divided into 3a and 3b and 5 that could be either plain 5 or 5*. Questions arise over the significance of this rating scale. The scale is definitely ordinal and not cardinal, or is it? Is a 3b half way between a 2 and a 3a? Is a 5* just the ‘icing on the cake’ for an already excellent 5? These are interesting questions especially if we match the rating with the funding weighting for each rate. What we see is that the rating scale is dynamic; through the years different weightings have been applied to the rating scale. The relative importance of one rating towards another has also shifted through time. The rules, or the rewards of the ‘game’, change and more importantly change after the ‘game’ has ended.

The other important point that needs to be considered is the ‘fairness’ of the rating scale. The rating scale is in place to give a sense of comparability between all submissions; a ‘level playing field’ no matter what UoA one submits to. The rating scale is well defined with target percentages that submissions must achieve to be

awarded that rating (for more detailed analysis of rating scale composition see appendix A - on the Rating Scale). However, in the rules and regulations of the RAE (HEFCE 1999b) a clause reads:

“2.4. Panels may form a view that the balance of quality justifies the award of a particular grade even where the precise terms of the descriptions are not met.”

This clause gives the UoA panel a certain degree of autonomy in interpreting the rating scale and especially in adjudicating a rating.

The implications of these characteristics of the rating scale cannot be ignored when investigating the RAE impact on Institutions and are therefore included in the matrix.

3.2 The areas of impact

The RAE is of great importance to the Higher Education sector especially, but not exclusively because of the funding it can provide. In many cases QR funding (Quality Related research funding directly related to achievements in the RAE) is well over 30% of the total HEFCE funding for a particular institution, and for some specialised institutions it reaches up to 80% and 90% of the total. The significance of the level of funding that can be achieved through the RAE has meant that strategic choices have been made in Higher Education Institutions to maximise the possibilities of achieving better grades. These choices may involve moving resources from one area to another, earmarking investment to strengthen some research areas, abandoning weaker research areas, and any other tactics that can be perceived as delivering an advantage in the following assessment. Many of these tactics have repercussions on the governance of the Institutions, and some are reported by the media as a direct consequence of the introduction of the RAE. This widespread impact has not only emerged in anecdotal evidence, but has been noted by HEFCE itself and, as a consequence, HEFCE has commissioned a report on the perceived negative consequences of the RAE (HEFCE 2000).

The recognition that the RAE is not only a form of assessment, but also that it acts as a driver for the betterment of the research quality in the UK is clearly stated by

HEFCE itself. For example the HEFCE “RAE 2001 - Guidance on Submissions” (HEFCE 1999b) states:

“1.1. The primary purpose of the 2001 RAE is to produce ratings of research quality.”

and

“1.3. The other principles by which the RAE is governed are:

f. Neutrality.

The RAE exists to assess the quality of research in HEIs. It should carry out that function without distorting what it is measuring. In other words, the RAE should not encourage or discourage any particular type of activity or behaviour, other than **providing a general stimulus to the improvement of research quality overall.**”

The impact of the ‘stimulus’ has gone beyond academic research and it has involved funding and resources that are not directly flowing from the RAE (McNay 1999). The shift of resources from other activities inevitably impacts on different areas. Some of these areas may be directly affected; areas such as recruitment strategy where an increase in emphasis on the candidates research record could be directly attributed to the RAE. Other areas may be indirectly affected; areas such as staff/student ratios, where an increase in recruitment of research staff, determined by the introduction of the RAE, may increase workload on a decreasing number of teaching staff therefore altering the staff/student ratio.

Moreover, specific elements, rules and regulations of the RAE may impact different areas of Higher Education in different ways. In some instances the shift in resources to support a specific area that is measured in the RAE may have an adverse outcome on other areas. The analysis of the impact of single elements, rules and regulations of the RAE on the different areas of Higher Education is what concerns this investigation.

Many are the areas that could be considered in this thesis. For the purpose of this investigation a case is made for each area in the following sections.

Area of impact: research

	<i>research quality</i>		
<i>period of assessment</i>			
<i>Units of assessment</i>			
<i>number of outputs</i>			
<i>grants expenditure</i>			
<i>PhD completions</i>			
<i>expert panels</i>			
<i>rating scale</i>			

The primary purpose of the RAE is to assess the quality of the research performed in HEIs. The choice of quantitative and qualitative indicators included in the RAE submission and the conditions that regulate it are aimed at providing sufficient information for the expert panels to make a value judgement on the overall quality of that specific area of research within an HEI. While these indicators are present to allow the assessment to take place, they also have an effect on the production of research in the long run. Some evidence (Gibbons et al. 1994) even hints at a distorting effect that the drivers have on the natural progression of research and knowledge creation. Anecdotal evidence refers to damage to research infrastructure and processes. Therefore the analysis of the single entities of the RAE on the state and future of research has a primary role in the understanding of the complex interactions and long-range effects on the development of a healthy national research infrastructure.

Area of impact: funding

	<i>research quality</i>	<i>funding</i>	
<i>period of assessment</i>			
<i>units of assessment</i>			
<i>number of outputs</i>			
<i>grants expenditure</i>			
<i>PhD completions</i>			

	<i>research quality</i>	<i>funding</i>	
<i>expert panels</i>			
<i>rating scale</i>			

Sources of funding for the Higher Education sector are limited. Most are, in one form or another, government driven. HEFCE is a non-departmental public body. It is not part of the Department for Education and Skills (DfES), but the Treasury sets the funding level, and this works within the policy framework set by the Secretary of State for Education. HEFCE is responsible for the distribution of funds for both teaching and research. Additional funding for research can be obtained, through a bidding process, from the Research Funding Councils. The Research Funding Councils are part of the Department for Trade and Industry (DTI), which is funded by the Treasury. Income from Treasury-funded departments, either directly or indirectly, amounts to roughly 78% of total HEI income (Pricewaterhouse Coopers 2001). Other funding for teaching may come directly through the payment of fees from home, EU and overseas students and additional research funding may arise through collaborations with charities, industry, the European Community and other non-UK organisations.

The sources of income for HEIs are limited and for most HEIs accrue mainly from two activities: teaching and research. The teaching market is heavily regulated. Funding for home students, the largest group of students, is set by HEFCE and, in addition, HEIs are set a maximum number of student (re: “contract number”). The combination of a capped number of students and fixed income per student makes the teaching market extremely static, not allowing competition between HEIs and, therefore, offering very little scope for increases in funding. On the other hand, income for research and more specifically from the RAE, is open to competition. Moreover, unlike the income received from research grants, normally achieved through competitive bidding to the Research Councils, the funding from the RAE is not tied to any type of expenditure. Income from the RAE is earmarked to promote the development of the research infrastructure and, therefore, can be spent by the HEIs as they see fit. The advantage of the unrestricted use of funds from the RAE and

the opportunity of increases in funding through the RAE competitive process has focused resource and management strategies in many HEIs. However, questions must be asked about the overall impact of the drivers of the RAE on the total funding of HEI; questions on whether the focus on developing areas assessed by the RAE are not, in the end, detrimental to other income sources. For example, focusing on Research Council's funding might impact on efforts to generate income from consultancy or commercial enterprises.

The choice to include funding as one of the areas to be looked into in this thesis includes an investigation into the possibility of knock-on effects that strategies especially devised to deal with the RAE have on other areas of funding.

Area of impact: teaching

	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>			
<i>units of assessment</i>			
<i>number of outputs</i>			
<i>grants expenditure</i>			
<i>PhD completions</i>			
<i>expert panels</i>			
<i>rating scale</i>			

Teaching is perceived as one of the great losers in the RAE saga. The emphasis on research production and RAE compliance is seen as detrimental both for the delivery of teaching and for teaching staff moral. An in-depth report was commissioned by HEFCE as part of their review of research and the effects of the RAE (HEFCE 2000). Most claims of adverse effects of the RAE on teaching resource and on teaching staff are dismissed by the HEFCE review of research (HEFCE 2000) as unfounded perceptions. While the HEFCE report is very exhaustive, the analysis conducted is based on the trends of teaching practice and teaching resource since the introduction of the RAE and, therefore, does not investigate the impact of the single drivers of the RAE.

Teaching is the main time-consuming activity in Higher Education and, therefore, any change in HEI management heavily impacts on teaching provision. The analysis of single drivers of the RAE on teaching should, therefore, highlight which of them impacts on teaching provision and resources. So, while the holistic analysis of the RAE returns the overall average impact effect, the element-by-element analysis gives insight in impact paths without the need for either dismissing or approving the whole exercise. The analysis of the impact of the RAE on teaching as presented in this thesis should, at the end, inform on which drivers of the RAE and how they impact on teaching.

3.3 The points of observation

Higher Education is a human system where actors, stakeholders or any other description of human participation can be applied. Like any other human system both the people involved in the systems and the observers outside the system come with their baggage of experiences, pre-conceptions, opinions, goals and objectives. The combination of experiences, pre-conceptions, goals and objectives makes every person have a slightly different point of view from everybody else. Moreover, each individual's points of view varies according to the variations of individual circumstances. This multitude of perspectives forms infinite points on the points of observation dimension that cannot be catered for in one all-inclusive interpretation of the RAE.

The collection of the points of observation relating to a single element and the impact on a single area form a view cell. The view cell can be made up of an unlimited number of points of observation. For the purpose of this analysis we limit the number of points of observation to 4 to scope the research within the expectations of a PhD. The choice of points of observation is restricted by the availability of panel members. Moreover, an attempt has been made to try and represent different views.

Point of observation: narrator

Narrator	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>			
<i>units of assessment</i>			
<i>number of outputs</i>			
<i>grants expenditure</i>			
<i>PhD completions</i>			
<i>expert panels</i>			
<i>rating scale</i>			

The narrator has been heavily involved in the RAE process both from an administrative and strategic point of view for the two years leading up to the 2001 RAE. This involvement was both at departmental and at university level; therefore the narrator's point of observation is an integral part of this analysis.

Point of observation: panel member

Panel member	<i>research</i>	<i>funding</i>	<i>teaching</i>
Narrator	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>			
<i>units of assessment</i>			
<i>number of outputs</i>			
<i>grants expenditure</i>			
<i>PhD completions</i>			
<i>expert panels</i>			
<i>rating scale</i>			

The RAE is based on the assessment of the research quality of submitting HEIs and an appointed panel of experts carries out this assessment. The academic community accepts the view and judgement of the members of the expert panels and, therefore, regards them as truly experts in the field. There is very little evidence of controversy

surrounding the appointment of members to the expert panels. Moreover, the wider academic community itself nominates the experts.

It is assumed that members of the expert panels have a deep understanding of the RAE and of quality research; therefore, the point of observation of a panel member adds value and insight in any analysis of the RAE.

Point of observation: planning officer

Planning officer	<i>research</i>	<i>funding</i>	<i>teaching</i>
Panel member	<i>research</i>	<i>funding</i>	<i>teaching</i>
Narrator	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>			
<i>units of assessment</i>			
<i>number of outputs</i>			
<i>grants expenditure</i>			
<i>PhD completions</i>			
<i>expert panels</i>			
<i>rating scale</i>			

While the RAE and research is an activity performed and mainly administered by academic staff, university administrative staff often assists in the conception of strategies and managerial decisions. Administrative staff, and especially the “planning” department, plays a very important role in the HEI strategy for the RAE. Administrative staff has a different view and different priorities from academic staff. Therefore the point of observation of a planning officer adds to the idea of a panoptic view of the RAE. It helps develop a more rounded and less academic centred view of the impact of the RAE on different areas of Higher Education.

Point of observation: research director

Research director	<i>research</i>	<i>funding</i>	<i>teaching</i>
Planning officer	<i>research</i>	<i>funding</i>	<i>teaching</i>
Panel member	<i>research</i>	<i>funding</i>	<i>teaching</i>
Narrator	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>			
<i>units of assessment</i>			
<i>number of outputs</i>			
<i>grants expenditure</i>			
<i>PhD completions</i>			
<i>expert panels</i>			
<i>rating scale</i>			

Since the RAE is concerned with research, it is very interesting to have the point of observation of a research director. A research director oversees and co-ordinates research within a department/school, but he is also an integral part of the department or school. This gives him the added insight into how managerial decisions, that mainly regard research, impact on other activities of the department/school. This insight is of great assistance in the determination of the impact that the single drivers of the RAE and consequent managerial decisions have on the different areas of the HEI.

4 - Visualisation of the points of observation

4.1 Introduction to methodology

The matrix tool used in the dissertation has been constructed on 3 dimensions:

- ⇒ drivers of the RAE quality assessment framework (7 drivers)
- ⇒ areas of impact (3 areas)
- ⇒ points of observation (4 points of observation).

The intersection of the each of the 3 dimensions gives an opinion cell. The opinion cell reference is given by: the impact of a specific element of the RAE on a specific area as seen by a specific point of observation. For example an opinion cell would be:

Planning officer	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>			
<i>units of assessment</i>		Opinion cell	
<i>number of outputs</i>			
<i>grants expenditure</i>			
<i>PhD completions</i>			
<i>expert panels</i>			
<i>rating scale</i>			

Table 2 – Opinion cell

The objective of this investigation is to look into the impact of a particular element of the RAE on different areas of Higher Education taking into account different points of observation. As part of the deductive reasoning process it is then necessary to aggregate opinion cell statements and summarise the different points of observation into one comprehensive view cell.

The process of aggregating the opinion cells into a view cell is achieved by first partitioning the view cell in as many sectors as points of observation (see Table 3). The points of observation in each view cell are then aggregated and turned into an overall judgement of the impact of the particular element of the RAE on the particular area of Higher Education.

	<i>research</i>	<i>funding</i>		<i>teaching</i>
<i>period of assessment</i>				
<i>units of assessment</i>		point of observation 1	point of observation 2	} View cell
		point of observation 3	point of observation 4	
<i>number of outputs</i>				
<i>grants expenditure</i>				
<i>PhD completions</i>				
<i>expert panels</i>				
<i>rating scale</i>				

Table 3 – View cell

It is important, at this stage, to establish some integrity in the collection of the data for the opinion cells. Since we are dealing with qualitative data, no method will guarantee that each observer’s view will be based on the same premises as the others. However, the formulation of simple and clear questions will at least limit the scope for very diverse interpretation.

So, although the chapter may appear very long, you dear reader should be made aware that the methodology imposes the gradual incorporation of new responses from the points of observation resulting in a stream of gradually changing tables and, therefore, an excessive use of space.

4.2 Method of collection for the points of observation

The collection of the points of observation was achieved by directing to the selected points of observation very specific questions on the causal effects of drivers of the RAE quality assessment framework on areas of Higher Education.

A question table (Table 4) is used to guide the analyst through the collection of the different points of observation. The points of observation were collected by personal interviews. Each interviewee was asked to respond to the questions from the question table. A statement that summarises the interviewee’s position is then entered in the corresponding cell and an appropriate colour coding is applied with the following definitions:

⇒ Positive effect - opinion cell coloured

Pale blue

⇒ Negative effect - opinion cell coloured

Light blue

⇒ No causal effect (no interaction) - opinion cell coloured

No colour

FUNDING OF RESEARCH IN HIGHER EDUCATION: A PANOPTIC VIEW OF THE RAE

	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE effect in any way Higher Education overall funding	Does the period of assessment of the RAE effect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting effect funding	Does the way in which the RAE is divided into UoA effect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE effect funding	Does the max/min number of outputs in the RAE effect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Table 4 – Questioning table

4.3 Point of observation: narrator

Opinion cell (period of assessment, research, narrator):

Q: Does the period of assessment of the RAE affect in any way research quality?

Narrator	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Negative effect

The period of assessment has a great influence on how research is produced and at what rate. The RAE, for example, recognises that some areas of research need more time to produce papers and research output and for this reason has different periods of assessment for certain areas of research. The 4 to 5 year period of assessment focuses researchers' attention on time scales for research and therefore influences the way they conduct it. Research that is expected to last a long period of time may be sacrificed or segmented to fall within the RAE period of assessment. Journals with longer publication cycles may be discarded in favour of journals that publish within shorter periods compromising the quality of dissemination.

The negative effect occurs whenever researchers modify their way of doing research due to external factors that are not quality based.

Opinion cell (units of assessment, research, narrator):

Q: Does the way in which the RAE is divided into UoAs affect research quality?

Narrator	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Negative effect

The way the units of assessment are structured within the RAE has a great effect on the way research is carried out. During the period running up to an RAE researchers are conscious of which unit of assessment they are going to submit to. The perception of how units of assessment view different types of research (for example if they are perceived to be more ‘hard’ or ‘soft’ oriented) puts pressure to comply or fit research to the unit of assessment. Moreover, in the management of research within a department/school, researchers that do not fit into established groups find themselves being ‘judged’ by their colleagues. If their research does not find a unit of assessment to which the Institution submit, they risk not being considered at all in the RAE.

Although optimising the submission to fit the general preference of the panel is not a problem in itself, the researchers left out often believe that they are less respected by their peers and may feel isolated and demotivated.

Opinion cell (number of outputs, research, narrator):

Q: Does the max/min number of outputs in the RAE affect research quality?

Narrator	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE effect in any way Higher Education overall funding	Does the period of assessment of the RAE effect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting effect funding	Does the way in which the RAE is divided into UoA effect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE effect funding	Does the max/min number of outputs in the RAE effect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE effect funding	Does the emphasis on research grants expenditure in the RAE effect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE effect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE effect research quality	Does the rating scale adopted by the RAE effect funding	Does the rating scale adopted by the RAE affect teaching provision

Negative effect

The RAE regulations specify (HEFCE 1999b):

“1.9. Institutions are invited to list up to four items of research output for each member of staff whose research is to be taken into account”

This statement, though, is misleading since four outputs have been the expected number in the submission for each member of staff submitted. Exceptions of 2 outputs are made for members of staff that have recently joined the Institution. Staff submitted who do not have four outputs would be expected by the panels to have mitigating circumstances. Hence, the ‘maximum number of outputs’ is more an ‘expected number of outputs’.

The most serious consequence of this regulation is the fragmentation of research dissemination (Cannadine 1999). Researchers may be tempted to segment comprehensive research in order to be RAE compliant.

Opinion cell (grants expenditure, research, narrator):

Q: Does the emphasis on research grants expenditure in the RAE affect research quality?

Narrator	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Positive effect

Research grants are a positive influence on research. They allow for the application of research concepts through collaboration with industry and therefore speed-up the dissemination of research ideas and achievements. Moreover, research grants are a door for new resources to enter academia through PhD sponsorships and research assistant posts.

The emphasis on grants expenditure therefore fosters research dissemination and application and cultivates new research resources.

Opinion cell (PhD completions, research, narrator):

Q: Does the emphasis on PhD completions in the RAE affect research quality?

Narrator	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Positive effect

A focus on PhD completions not only encourages supervisors to make certain that research students complete within the normal allocated time, therefore focusing students on their research, it also encourages Institutions to concentrate on research student recruitment therefore expanding academic resources. Moreover, any increase in PhDs generates more research ideas and directions adding to the overall research base.

The timely completion of PhDs, the potential increase of academics and the expansion of the research base can only be viewed as positive effects on UK research.

Opinion cell (expert panels, research, narrator):

Q: Does the assessment of the RAE through expert panels affect research quality?

Narrator	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Negative effect

It is the view of the narrator that research gives its best results when it is free to develop and evolve with few or no restrictions (with the exception of limitations due to ethical issues). Given this assumption, any pressure or forced direction on research creates distortions and therefore is deemed as a negative effect. Expert panels are appointed well in advance of the RAE submission date. For the 2001 RAE the panel chairs were announced on the 23-12-1998 (HEFCE 1998) and the full panel membership was announced on the 22-12-1999 (HEFCE 1999a). The panel chairs and members are, naturally, well known to researchers in the area and so are their views and research orientation. It is likely that research undertaken after the announcements would bear in mind the membership of the expert panels, therefore creating a distortion in the natural evolution of research and hence a negative effect.

Opinion cell (rating scale, research, narrator):

Q: Does the rating scale adopted by the RAE affect research quality?

Narrator	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

No causal effect

The rating scale affects researchers more than research, since it does not apply to individual but to departments/schools within an Institution. A 5* rated researcher can easily operate within a 4 rated department/school and a 2 rated researcher can often operate within a 5 rated department/school. The effect of this incongruence may result in a high level of mobility between HEIs, but may not have a direct impact on research itself. One could argue that these movements will eventually result in big homogenous groups of researchers all at the same level and therefore there will be a lack of ‘mixed ability’ groupings, but this would be a long-term secondary effect and, for the purpose of this analysis discarded as not a direct one.

Opinion cell (period of assessment, funding, narrator):

Q: Does the period of assessment of the RAE affect in any way Higher Education overall funding?

Narrator	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Positive effect

Depending on your point of view, having a period of assessment and therefore funding set for a number of years could be seen as both negative and positive for HEI's funding. The negative effect is the element of retrospect. Funding is based on a status that, by the end of the period, can be up to 5 years out of date, therefore not recognising investments and achievement realised in the past few years. On the other hand HEIs would welcome the luxury of a constant fixed income stream that allows then to make proper resource planning.

Overall I judge the positive effect to be superior to the negative effect with some reservations as presented above.

Opinion cell (units of assessment, funding, narrator):

Q: Does the way in which the RAE is divided into UoA and their weighting affect funding?

Narrator	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Positive effect

Subject weighting is not a new phenomenon in HEI's funding. It is adopted by HEFCE for funding of teaching and it is based on the assumption that some subjects are more equipment oriented and that, therefore, they incur more costs. If research funding did not follow the same subject weighting it would definitely have a very negative effect on the overall income.

Opinion cell (number of outputs, funding, narrator):

Q: Does the max/min number of outputs in the RAE affect funding?

Narrator	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Negative effect

The effect that the required number of outputs has on funding can be analysed by considering funding per number of outputs. As a general rule, to achieve a better rating it is better to have a high number of outputs to choose from: as the number of outputs rises the funding per output decreases, therefore decreasing net income (difference between the funding and the resources used). On the other hand a low number of outputs gives less choice in the submission and, therefore, decreases the chance of high rating. In both cases a required number of outputs, in general, has a negative effect on the net income regardless of the rating achieved.

Opinion cell (grants expenditure, funding, narrator):

Q: Does the emphasis on research grants expenditure in the RAE affect funding?

Narrator	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Negative effect

An increase in grants is, on paper, positive, since it increases the overall funding. However, the only real increase is to the turnover and possibly not to net income. Two major sources of grant funding are the EU and the Research Council. All grant costs should be recovered through the grant, and there are doubts on this issue. The net income should come from the overheads (in some cases called indirect costs) charged at fixed rates set by the funding organisation. In the case of the EU the overheads are calculated as 20% of all grant costs, but the administration of these grants is very cumbersome and possibly not covered by the income from the overheads. In the case of the Research Councils the overheads are 46% of all staff costs. In both cases the Principal Investigator and Co-investigators time cannot be included in the staff costs. The net effect is that most hidden costs are not fully re-covered by the overheads making grants a costly activity.

Opinion cell (PhD completions, funding, narrator):

Q: Does the emphasis on PhD completions in the RAE affect funding?

Narrator	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Positive effect

The income side of PhD students is the fees paid, while the expense side is mainly the time of the supervisors. However, there are other hidden benefits that derive from having PhD students and most relate to their support of research. Hence, while they may use some of the supervisor's time they also help with paper publishing and teaching. This amounts to extra resources for the Institutions that more than cover the cost of the supervisor's time.

Opinion cell (expert panels, funding, narrator):

Q: Does the assessment of the RAE through expert panels affect funding?

Narrator	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Negative effect

There could be some negative effect for the Institutions that have staff that are panel members, because of the time panel members have to dedicate to the RAE, but this cannot be considered as a major impact on HEI. The major effect is the difference in rating between panels. The outcome of the RAE (HEFCE 2001b) clearly shows differences in average ratings between panels. The ratings are not normally distributed and some have overall higher ratings than others. The problem with this disparity is the effect of funding in subject areas. While the cost to the Institution of high quality researchers is the same for different areas, the revenue from the RAE may vary depending on the composition and interpretation of the rating scale by the expert panel. The net result is incongruent funding for similar research quality departments/schools within an Institution. In extreme cases this could lead to the closure of departments/schools because of lack of funding.

Opinion cell (rating scale, funding, narrator):

Q: Does the rating scale adopted by the RAE affect funding?

Narrator	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Negative effect

The worst aspect of the rating scale is that it is not visible and it is not treated as proportional. The 4s are not worth twice the 2s (since the 2s attract no funding 200% of 2 would still be 0). Moreover, the unit funding related to the ratings is established post RAE. Therefore any investment made prior to the RAE based on the rating unit funding from the previous RAE can turn out to be a liability. In the 2001 RAE, the rating unit funding was changed in quite an unexpected way. Returns on investment may not materialise, since the levels of rating unit funding are set post event and can be much lower than previous RAEs at the same rating.

Opinion cell (period of assessment, teaching, narrator):

Q: Does the period of assessment of the RAE affect in any way teaching provision?

Narrator	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Negative effect

One problem of having a period of assessment is the strain that is put on other resources towards the end of the period. Since most researchers also teach, teaching would naturally suffer from any pressure put on its providers.

Opinion cell (units of assessment, teaching, narrator):

Q: Does the way in which the RAE is divided into UoA affect teaching provision?

Narrator	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

No causal effect

The way the RAE is organised in UoA has little or no effect on teaching provision. There could possibly be a realignment of researchers due to the UoA they have been submitted to. It may happen that researchers change department/school within an Institution as a consequence of the UoA submitted to. This may create disequilibria in teaching provision both in the new and old department/school. However, this occurrence is infrequent and the causal link to teaching provision distortion is quite weak.

Opinion cell (number of outputs, teaching, narrator):

Q: Does the max/min number of outputs in the RAE affect the teaching provision?

Narrator	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Negative effect

The problem with having a required number of outputs is that it distorts what should be a natural activity. The pressure put on researchers to reach the targeted number of outputs creates imbalances in the other activities mainly in teaching provision. When the time for submission approaches, researchers that are still not compliant with the number of outputs naturally focus on research therefore partially reducing the amount of resources available for teaching. This artificial behaviour impacts negatively on teaching provision planning and management.

Opinion cell (grants expenditure, teaching, narrator):

Q: Does the emphasis on research grants expenditure in the RAE affect teaching provision?

Narrator	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Negative effect

As with most of the other drivers of the RAE any forced increment in other activities increases the pressure on teaching provision. At the moment there is no equivalent to the RAE for teaching. As a consequence, there is no incentive in increasing the existing resources for teaching provision. Researchers that are engaged in teaching have to balance all the activities, and since the RAE has very clear targets, such as grants expenditure, in the short term these targets are going to prevail. There is no judgement in this statement, but it is a reality that these drivers of the RAE have a negative effect on teaching provision because of the concentration of resources to reach pre-defined targets.

Opinion cell (PhD completion, teaching, narrator):

Q: Does the emphasis on PhD completions in the RAE affect teaching provision?

Narrator	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Positive effect

PhD students are a very positive influence on departments/schools, and very often they are used as teaching assistants. While there may be concerns on the quality of their teaching, their enthusiasm, and eagerness and hard work because of fear of failure can only be seen as positive.

Opinion cell (expert panels, teaching, narrator):

Q: Does the assessment of the RAE through expert panels affect teaching provision?

Narrator	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

No causal effect

Expert panels have no influence on teaching provision.

Opinion cell (rating scale, teaching, narrator):

Q: Does the rating scale adopted by the RAE affect teaching provision?

Narrator	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Negative effect

The effect that the rating scale has on teaching provision is a consequence of league tables. RAE ratings are included in most, if not all, league tables. While rating has no direct bearing on the quality of teaching in an Institution, it does weigh on the overall score of an Institution in league tables. The league tables' scores, in turn, are aimed at undergraduates to support them in their choice of HEI. Therefore the quality of undergraduate students, and consequently of teaching, is influenced by the RAE rating. Moreover the uneven distribution of the scale is normally transformed, in league tables, into an even scale from 1 to 7. The nuances between 3a and 3b and between 5 and 5* are lost giving HEIs inaccurate league table scores. This effect is not literally direct, but it is a major spin-off of RAE rating and their use in league tables.

4.4 Point of observation: narrator – completed table

Narrator	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

The following is the textual completion of all opinion cells from the point of observation of the narrator.

Narrator	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Distortions of research activity.	Predictable income stream.	Distortion of teaching provision.
<i>units of assessment</i>	Distortions of research activity.	Subject funding.	
<i>number of outputs</i>	Distortions of research activity.	Cost per number of output.	Distortion of teaching provision.
<i>grants expenditure</i>	Increase of collaborative research and research output dissemination.	Hidden costs of project grants.	Distortion of teaching provision.
<i>PhD completions</i>	Increase of research resources and ideas.	Increase in income stream.	Increase in resources.
<i>expert panels</i>	Distortions of research activity.	Incongruent rating between panels.	
<i>rating scale</i>		Unpredictable funding.	Impact on undergraduate admission through league tables scoring.

Table 5 – Point of observation: narrator – completed textual table

Negative effect	–	12/21	–	57%
Positive effect	–	6/21	–	29%
No causal effect	–	3/21	–	14%

From the narrator's point of observation there are only two drivers of the RAE that have either a positive or a negative effect on all areas of impact. These are the number of outputs and PhD completions. The number of outputs has an overall negative effect on the areas of impact because it forces unnatural behaviour in the system. PhD completions have an overall positive effect because in all cases it adds resources to the system. Impact in funding is mainly determined by the net income generated by any element of the RAE; this is different from looking at an increase in turnover. Sometimes an increase in turnover disguises an increase in expenditure.

The negative effects are mainly determined by the distortions that RAE drivers generate in the areas of impact. Positive effects are generated by increase in resources.

4.5 Aggregation of points of observation statements – narrators view

Each opinion cell from the first point of observation table is now inserted in the view cells of the final table. This process eliminates the one dimension to enable further analysis of the correlation between drivers of the RAE and areas of impact, and, ultimately, to present a panoptic view.

	<i>research</i>		<i>funding</i>		<i>teaching</i>	
<i>period of assessment</i>	Distortions of research activity.		Predictable income stream.		Distortion of teaching provision.	
<i>units of assessment</i>	Distortions of research activity.		Subject funding.			
<i>number of outputs</i>	Distortions of research activity.		Cost per number of output.		Distortion of teaching provision.	
<i>grants expenditure</i>	Increase of collaborative research and research output dissemination.		Hidden costs of project grants.		Distortion of teaching provision.	
<i>PhD completions</i>	Increase of research resources and ideas.		Increase in income stream.		Increase in resources.	
<i>expert panels</i>	Distortions of research activity.		Incongruent rating between panels.			
<i>rating scale</i>			Unpredictable funding.		Impact on undergraduate admission through league tables scoring.	

4.6 Point of observation: panel member

Opinion cell (period of assessment, research, panel member):

Q: Does the period of assessment of the RAE affect in any way research quality?

Panel member	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Negative effect

The period of assessment introduced a time cycle in the system. As a consequence targets are set in correspondence with the cycle end and, therefore, returns are viewed only in connection to the cycle. The shorter the cycle the more short-term the aims are and hence the worse the quality.

Opinion cell (units of assessment, research, panel member):

Q: Does the way in which the RAE is divided into UoAs affect research quality?

Panel member	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Negative effect

The major effect that the UoA have on research is that they tend to discourage multi-disciplinarity. Panel members tend to have a narrow view of their subject area and, therefore do not reward multi-disciplinary research.

Opinion cell (number of outputs, research, panel member):

Q: Does the max/min number of outputs in the RAE affect research quality?

Panel member	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Negative effect

The max/min number of outputs is an entry ticket. Less than the established number means that the researcher is inadequate. Questions arise on why there should be a maximum number of outputs at all. The worst consequence is that to be RAE compliant researchers may tend to use ‘salami slicing’, the practice to slice one piece of research into a number of papers.

Opinion cell (grants expenditure, research, panel member):

Q: Does the emphasis on research grants expenditure in the RAE affect research quality?

Panel member	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Negative effect

Emphasis on grants expenditure creates a distortion in the researchers activity. The mere fact that grants expenditure is one of the measures for research quality introduces the concept that to be a good researcher you have to have grants. There is no evidence to support this statement.

Opinion cell (PhD completions, research, panel member):

Q: Does the emphasis on PhD completions in the RAE affect research quality?

Panel member	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Positive effect

The inclusion of PhD completions as one of the measures is a very good incentive to increase the number of PhD students and to put pressure on timely completion.

Opinion cell (expert panels, research, panel member):

Q: Does the assessment of the RAE through expert panels affect research quality?

Panel member	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Negative effect

As with most peer reviews; conservative ideas predominate. New ideas and novel approaches are ruled out since they lie outside mainstream thinking.

Opinion cell (rating scale, research, panel member):

Q: Does the rating scale adopted by the RAE affect research quality?

Panel member	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Negative effect

The rating scale adopted by the RAE is a bizarre idea. It is mostly incomprehensible to anyone outside the RAE process and it is not taken into consideration by society at large. Moreover it is a label, or in some cases a stigmata, for the researchers involved. It grows to have the meaning of ‘good’ or ‘bad’ and even if it is a rating given to the collective it becomes an individual characteristic.

Opinion cell (period of assessment, funding, panel member):

Q: Does the period of assessment of the RAE affect in any way Higher Education overall funding?

Panel member	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Negative effect

RAE funding is distributed every year to HEIs in the same cycle as funding for teaching. This funding is distributed by HEFCE under the heading QR (quality related) funding and it almost always impacts directly on the submitting department/school. The distortion arises in the different nature of QR and teaching funding. Whilst teaching monies are hypothecated to teaching, QR monies are not. If the QR income is not sufficient to cover the investment made by the department/school to increase the research profile, essential teaching income may, despite its stated purpose, be switched from teaching to sustain research.

Opinion cell (units of assessment, funding, panel member):

Q: Does the way in which the RAE is divided into UoA and their weighting affect funding?

Panel member	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Negative effect

The problem lies with the multi-disciplinary research, since many disciplines that are truly multi-disciplinary can receive different ratings and different funding from different panels. This introduces an element of incongruence in the funding process.

Opinion cell (number of outputs, funding, panel member):

Q: Does the max/min number of outputs in the RAE affect funding?

Panel member	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

No causal effect

There could be an element of distortion of use of time by the researchers to comply with the max/min requirement of outputs. Furthermore, this time distortion could affect resource planning and therefore funding, but this can be seen as a minor effect.

Opinion cell (grants expenditure, funding, panel member):

Q: Does the emphasis on research grants expenditure in the RAE affect funding?

Panel member	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Negative effect

Officially there is no relationship between RAE rating and funding from the UK Research Councils. On the other hand there seems to be a disguised effect that the RAE rating has on grants adjudication. Departments/schools that have high RAE ratings appear to be more successful at securing Research Council funding. The reason may be the high quality research; on the other hand, a high RAE rating may change the perception that grant referees have of the research quality of the investigators.

Opinion cell (PhD completion, funding, panel member):

Q: Does the emphasis on PhD completions in the RAE affect funding?

Panel member	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Positive effect

Increases in PhD completions and PhD students have both a direct and an indirect effect on funding. PhD students bring in more income and the more students go through the system the better the funding.

Opinion cell (expert panels, funding, panel member):

Q: Does the assessment of the RAE through expert panels affect funding?

Panel member	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Negative effect

The ratings assigned by the expert panels affect greatly the level of funding of HEI. But, the relationship between ratings and funding is not transparent to the expert panels since it is decided a posteriori with no input from the panel. Therefore expert panels affect funding but with very little knowledge on how they do so.

Opinion cell (rating scale, funding, panel member):

Q: Does the rating scale adopted by the RAE affect funding?

Panel member	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Negative effect

The problem with the rating scale lies with how it is conceived. The distortion occurs with the 3a and 3b and with the 5 and 5*. If the scale was properly constructed on a 7-point grading then the funding could be more stretched out, with a pseudo 5-point scale the funding becomes warped.

Opinion cell (period of assessment, teaching, panel member):

Q: Does the period of assessment of the RAE affect in any way teaching provision?

Panel member	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Negative effect

Every time the end of the period of assessment is reached a general panic sets in departments/schools. The subsequent frantic activity affects everything including the ability to ‘think rationally’. Short-termism prevails over long-term planning and as a consequence teaching suffers.

Opinion cell (units of assessment, teaching, panel member):

Q: Does the way in which the RAE is divided into UoA affect teaching provision?

Panel member	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Negative effect

Units of assessment work in a compartmentalised manner forcing a narrow view of disciplines. The units of assessment impose a structure that is possibly acceptable for academia but not for teaching which should prepare individuals for the outside world where inter-disciplinarity is probably one of the biggest challenges.

Opinion cell (number of outputs, teaching, panel member):

Q: Does the max/min number of outputs in the RAE affect the teaching provision?

Panel member	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Negative effect

The more outputs you have to produce the less time you have to perform teaching duties properly. While research should enhance teaching, the practice of ‘salami-slicing’ uses time and does not add any material to the teaching curriculum. There is also a substantial minority that uses students’ projects as a resource for their research activity therefore altering the staff/student relationship.

Opinion cell (grants expenditure, teaching, panel member):

Q: Does the emphasis on research grants expenditure in the RAE affect teaching provision?

Panel member	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Negative effect

Running grants can be a very tedious activity. The increase in paperwork and administration creates stress and students are then viewed as a further irritation. This occurs especially with EU grants that tend to be over-bureaucratic.

Opinion cell (PhD completions, teaching, panel member):

Q: Does the emphasis on PhD completions in the RAE affect teaching provision?

Panel member	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Positive effect

If PhD students are managed properly they should provide valuable teaching support.

Opinion cell (expert panels, teaching, panel member):

Q: Does the emphasis on PhD completions in the RAE affect teaching provision?

Panel member	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Negative effect

Expert panels add a great workload to their members, therefore detracting very valuable individuals from teaching.

Opinion cell (rating scale, teaching, panel member):

Q: Does the rating scale adopted by the RAE affect teaching provision?

Panel member	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

No causal effect

If the rating scale did affect students' choices then there would be a negative effect, but there is no evidence. The problem of the rating scales is that it does not reflect the value of all research, but it is only a sum of some selected output. If there was, in fact, any evidence of an influence of the rating grade on the students' choice of HEI, this could only be a negative one, because the students would not be in possession of a true representation of the value of the department/school.

4.7 Point of observation: panel member – completed table

Panel member	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

The following is the textual completion of all opinion cells from the point of observation of the panel member.

Panel member	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Introduces short-termism.	Distortion of resources value by separating teaching from research.	Introduces short-termism.
<i>units of assessment</i>	Discourages multi-disciplinarity.	Absence of link to funding for multi-disciplinary subjects.	Absence of multi-disciplinarity essential for teaching.
<i>number of outputs</i>	Artificial measure of quality. Introduction of salami-slicing		Strain on teaching resources.
<i>grants expenditure</i>	Artificial measure of quality.	Effect of rating on grant awarding by RC.	Strain on student contact time.
<i>PhD completions</i>	Good incentive for valuable activity.	Increase in income stream.	Increase in resources.
<i>expert panels</i>	Introduces conservatism.	Panel's unawareness of rating consequence.	Increase burden on teaching resources involved in panels.
<i>rating scale</i>	Effect on researchers' reputation.	Incongruence of scale.	

Table 6 – Point of observation: panel member – completed textual table

Negative effect	–	16/21	–	76%
Positive effect	–	3/21	–	14%
No causal effect	–	2/21	–	10%

Apart from PhD completions all other drivers of the RAE appear to have negative effects on all areas of impact taken into consideration. There are two main themes: the introduction of short-termism and the absence of any recognition of multi-disciplinary research. The lack of interest in multi-disciplinarity is viewed as highly damaging for teaching provision as its absence does not adequately prepare students for the extremely multi-disciplinary labour market and therefore directly effects the UK plc.

4.8 Aggregation of points of observation statements – panel member view

Each opinion cell from the second point of observation table is now inserted in the view cells of the final table.

	<i>research</i>		<i>funding</i>		<i>teaching</i>	
<i>period of assessment</i>	Distortions of research activity.	Introduces short-termism.	Predictable income stream.	Distortion of resources value by separating teaching from research.	Distortion of teaching provision.	Introduces short-termism.
<i>units of assessment</i>	Distortions of research activity.	Discourages multi-disciplinarity.	Subject funding.	Absence of link to funding for multi-disciplinary subjects.		Absence of multi-disciplinarity essential for teaching.
<i>number of outputs</i>	Distortions of research activity.	Artificial measure of quality. Introduction of salami-slicing	Cost per number of output.		Distortion of teaching provision.	Strain on teaching resources.
<i>grants expenditure</i>	Increase of collaborative research and research output dissemination.	Artificial measure of quality.	Hidden costs of project grants.	Effect of rating on grant awarding by RC.	Distortion of teaching provision.	Strain on student contact time.
<i>PhD completions</i>	Increase of research resources and ideas.	Good incentive for valuable activity.	Increase in income stream.	Increase in income stream.	Increase in resources.	Increase in resources.
<i>expert panels</i>	Distortions of research activity.	Introduces conservatism.	Incongruent rating between panels.	Panel's unawareness of rating consequence.		In crease burden on teaching resources involved in panels.
<i>rating scale</i>		Effect on researchers' reputation.	Unpredictable funding.	Incongruence of scale.	Impact on undergraduate admission through league tables scoring.	

4.9 Point of observation: planning officer

Opinion cell (period of assessment, research, planning officer):

Q: Does the period of assessment of the RAE affect in any way research quality?

Planning officer	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Negative effect

The RAE period of assessment affects the way academic departments construct their departmental plans. There is, therefore, a distortion of normal strategic decisions to fit with the RAE submission periods.

Opinion cell (units of assessment, research, planning officer):

Q: Does the way in which the RAE is divided into UoAs affect research quality?

Planning officer	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

No causal effect

Researchers are submitted to units of assessment depending on the research they have conducted during the period. Since this activity is post-research it has no effect on the researchers' outputs.

Opinion cell (number of outputs, research, planning officer):

Q: Does the max/min number of outputs in the RAE affect research quality?

Planning officer	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Negative effect

It has quite an effect on the morale of the research staff that feel under great pressure to achieve the required number of outputs. The consequence of not being RAE compliant is the stigmata of not been included in a RAE submission.

Opinion cell (grants expenditure, research, planning officer):

Q: Does the emphasis on research grants expenditure in the RAE affect research quality?

Planning officer	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Negative effect

Departmental plans have to include an increase in grants. Therefore the management of the departments/schools is affected by the presence of grants expenditure as a measure of assessment in the RAE.

Opinion cell (PhD completions, research, planning officer):

Q: Does the emphasis on PhD completions in the RAE affect research quality?

Planning officer	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Negative effect

PhD completions have the same effect on departmental management as grants expenditure. The problem lies with the re-alignment of targets to fit with the RAE indicators.

Opinion cell (expert panels, research, planning officer):

Q: Does the assessment of the RAE through expert panels affect research quality?

Planning officer	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Negative effect

Expert panels give subjective measures of quality. While certain panels seem more inclined to give high ratings, others are more conservative in their judgement. The result is that some disciplines, through out the whole of Higher Education, are penalised with grave consequence to research investment for that discipline.

Opinion cell (rating scale, research, planning officer):

Q: Does the rating scale adopted by the RAE affect research quality?

Planning officer	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Negative effect

Departments/schools with high ratings have an advantage in attracting higher quality researchers. While this could be seen as positive for the specific department/school, it limits the ability of lower rated departments/schools to improve the quality of their research, therefore restricting diversification throughout the sector.

Opinion cell (period of assessment, funding, planning officer):

Q: Does the period of assessment of the RAE affect in any way Higher Education overall funding?

Planning officer	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Negative effect

Given the length of the period of assessment, the link between performance and funding is very weak. The reward of the increased funding in the case of good quality research becomes remote and therefore the incentive decreases with time.

Opinion cell (units of assessment, funding, planning officer):

Q: Does the way in which the RAE is divided into UoA and their weighting affect funding?

Planning officer	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Positive effect

There is an assumption that the units of assessment can be mapped quite closely to the teaching areas. If this assumption stands, it is, therefore, quite legitimate to have units of assessment in the RAE, and the funding distribution within HEI can then follow the same route for both research and teaching. This practice allows for integrated strategies within the departments/schools regarding investment that affects both teaching and research.

Opinion cell (number of outputs, funding, planning officer):

Q: Does the max/min number of outputs in the RAE affect funding?

Planning officer	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Positive effect

Research outputs, in some cases and in some disciplines, can produce patents or can be commercially exploited. Any pressure on increasing research outputs increases the possibility of commercial exploitation and, therefore, widens funding opportunities.

Opinion cell (grants expenditure, funding, planning officer):

Q: Does the emphasis on research grants expenditure in the RAE affect funding?

Planning officer	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Positive effect

Any increase in grants expenditure is an increase in funding for the HEI. The problem arises when the individuals are too overstretched.

Opinion cell (PhD completions, funding, planning officer):

Q: Does the emphasis on PhD completions in the RAE affect funding?

Planning officer	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Positive effect

Increase in PhD studentship directly relates to an increase in funding.

Opinion cell (expert panels, funding, planning officer):

Q: Does the assessment of the RAE through expert panels affect funding?

Planning officer	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Negative effect

The use of expert panels does not guarantee common assessment and is very damaging for funding on a national scale. Panels such as education and health award, on average, lower grades than other panels. Since funding from the RAE is a zero-sum-game, subjects with panels that award lower grades are penalised. The net result is less national funding for these subjects.

Opinion cell (rating scale, funding, planning officer):

Q: Does the rating scale adopted by the RAE affect funding?

Planning officer	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Negative effect

The effect on funding occurs not because of how the rating scale is structured but on how the funding is awarded after the outcome of the RAE is published. The inability to make any prediction on the funding that may be received makes it very difficult draw up any investment planning.

Opinion cell (period of assessment, teaching, planning officer):

Q: Does the period of assessment of the RAE affect in any way teaching provision?

Planning officer	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

No causal effect

There could be some disruption to teaching towards the end of the period of assessment when resources concentrate heavily on the RAE submissions. However, in general, this is not a major consequence.

Opinion cell (units of assessment, teaching, planning officer):

Q: Does the way in which the RAE is divided into UoA affect teaching provision?

Planning officer	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

No causal effect

Since the units of assessment in general map the QAA subject reviews, there is no major effect of the units of assessment on teaching provision.

Opinion cell (number of outputs, teaching, planning officer):

Q: Does the max/min number of outputs in the RAE affect the teaching provision?

Planning officer	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Negative effect

The max/min number of outputs increases the strain on teaching staff and the workload for the academic manager that has to balance the teaching/research split.

Opinion cell (grants expenditure, teaching, planning officer):

Q: Does the emphasis on research grants expenditure in the RAE affect teaching provision?

Planning officer	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

No causal effect

Apart from workload increase for teaching/research staff there is no major effect.

Opinion cell (PhD completions, teaching, planning officer):

Q: Does the emphasis on PhD completions in the RAE affect teaching provision?

Planning officer	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

No causal effect

Apart from an increase in workload due to PhD students' supervision there is no major effect.

Opinion cell (expert panels, teaching, planning officer):

Q: Does the assessment of the RAE through expert panels affect teaching provision?

Planning officer	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

No causal effect

Apart from an increase in workload for panel members there is no major effect.

Opinion cell (rating scale, teaching, planning officer):

Q: Does the rating scale adopted by the RAE affect teaching provision?

Planning officer	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

No causal effect

Apart from affecting individual esteem and morale of teaching/research staff there is no major effect.

4.10 Point of observation: planning officer – completed table

Planning officer	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

The following is the textual completion of all opinion cells from the point of observation of the panel member.

Planning officer	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Distortion of academic department plans.	Weakening of link between assessment and funding.	
<i>units of assessment</i>		Alignment between teaching and research funding.	
<i>number of outputs</i>	Pressure on being RAE compliant. Stigmata of being excluded.	Increase in possible commercial exploitation.	Difficulty in managing teaching/research workload.
<i>grants expenditure</i>	Distortion of academic department plans.	Increase in funding.	
<i>PhD completions</i>	Distortion of academic department plans.	Increase in funding.	
<i>expert panels</i>	Rating inconsistency due to subjectivity.	Damage to national funding for subject with conservative panels.	
<i>rating scale</i>	Distortion of research staff recruitment.	Impossibility of planning investment since funding is decided post RAE.	

Table 7 – Point of observation: planning officer – completed textual table

Negative effect	–	10/21	–	48%
Positive effect	–	4/21	–	19%
No causal effect	–	7/21	–	33%

From the point of observation of the planning officer there is hardly any impact of the drivers of the RAE on teaching. But the RAE in some cases affects research by distorting the departmental plans to fit RAE targets. Interesting points are made on the effect that expert panels have on the overall well-being of some subjects. The realisation, by the planning officer, that expert panels have different attitudes to rating and that therefore there is no guarantee that the same level of quality receives the same level of funding is very insightful and raises important questions on long-term development of these subjects.

4.11 Aggregation of points of observation statements – planning officer view

Each opinion cell from the third point of observation table is now inserted in the view cells of the final table.

	<i>research</i>		<i>funding</i>		<i>teaching</i>	
<i>period of assessment</i>	Distortions of research activity.	Introduces short-termism.	Predictable income stream.	Distortion of resources value by separating teaching from research.	Distortion of teaching provision.	Introduces short-termism.
	Distortion of academic department plans.		Weakening of link between assessment and funding.			
<i>units of assessment</i>	Distortions of research activity.	Discourages multi-disciplinarity.	Subject funding.	Absence of link to funding for multi-disciplinary subjects.		Absence of multi-disciplinarity essential for teaching.
			Alignment between teaching and research funding.			
<i>number of outputs</i>	Distortions of research activity.	Artificial measure of quality. Introduction of salami-slicing	Cost per number of output.		Distortion of teaching provision.	Strain on teaching resources.
	Pressure on being RAE compliant. Stigmata of being excluded.		Increase in possible commercial exploitation.		Difficulty in managing teaching/research workload.	
<i>grants expenditure</i>	Increase of collaborative research and research output dissemination.	Artificial measure of quality.	Hidden costs of project grants.	Effect of rating on grant awarding by RC.	Distortion of teaching provision.	Strain on student contact time.
	Distortion of academic department plans.		Increase in funding.			
<i>PhD completions</i>	Increase of research resources and ideas.	Good incentive for valuable activity.	Increase in income stream.	Increase in income stream.	Increase in resources.	Increase in resources.
	Distortion of academic department plans.		Increase in funding.			

	<i>research</i>		<i>funding</i>		<i>teaching</i>	
<i>expert panels</i>	Distortions of research activity.	Introduces conservatism.	Incongruent rating between panels.	Panel's unawareness of rating consequence.		In crease burden on teaching resources involved in panels.
	Rating inconsistency due to subjectivity.		Damage to national funding for subject with conservative panels.			
<i>rating scale</i>		Effect on researchers' reputation.	Unpredictable funding.	Incongruence of scale.	Impact on undergraduate admission through league tables scoring.	
	Distortion of research staff recruitment.		Impossibility of planning investment since funding is decided post RAE.			

Table 8 – Opinion cells - completed table

4.12 Point of observation: research director

Since the views expressed by the research director found out to be very similar to those expressed by the other points of observation, his views are omitted from the analysis. However they can be found in Appendix B: Views of a point of observation: research director.

4.13 Creation of view cells – elimination of points of observation dimension

In order to eliminate the points of observation dimension the opinion cells have to be merged in a single view cell. The difficulty arises when the opinion cells differ on the effect the driver of the RAE analysed has on a particular area of impact.

Part of the method used to perform the investigation centres on the use of colour coding to produce a visual effect of the results. There are many ways in which the colours used in the completion of the tables for the points of observation can be merged to indicate the aggregate perceptions. However, any colour aggregation must maintain the representation of the single points of observation. After some experimentation Table 9 appears to effectively represent the aggregate view while maintaining the single views.

Causal Effect				
Points of observation			Resultant view cell	
Positive	Positive	Positive	Positive	Positive
Negative	Negative	Negative	Negative	Negative
None	None	None	None	None
Positive	Positive	Negative	Mainly Positive with some negative effects	
Positive	Positive	None	Mainly Positive possibly no causal effect	
Negative	Negative	Positive	Mainly Negative with some positive effects	
Negative	Negative	None	Mainly Negative possibly no causal effect	
None	None	Positive	Mainly None with some positive effect	
None	None	Negative	Mainly None with some negative effects	
Positive	Negative	None	Untraceable	

Table 9 – View cells - coding

The following are a few colour coding rules that will be followed in this process:

Where the majority (i.e. 2 out of 3) agree on the effect the element has on the area of impact that position will be taken as the predominant, but reservations will be made in view of a lack of unanimity.

No weighting is given to any of the points of observation. Observers are valued for the contribution they make and no judgement is passed on the quality of their opinions.

The following table illustrates all the opinion cells and summarises their content in the view cell. Detail of the opinion cells may be found in the corresponding section.

FUNDING OF RESEARCH IN HIGHER EDUCATION: A PANOPTIC VIEW OF THE RAE

	<i>research</i>		<i>funding</i>		<i>teaching</i>	
<i>period of assessment</i>	Distortions of research activity.	Introduces short-termism.	Predictable income stream.	Distortion of resources value by separating teaching from research.	Distortion of teaching provision.	Introduces short-termism.
	Distortion of academic department plans.	Time constraint distorts natural research and administrative activities	Weakening of link between assessment and funding.	The period of assessment can be positive for funding giving predictability to the income stream. But it also separates teaching from research and, with the passage of time; it loses the link between quality assessment and funding.		The period of assessment introduces short-termism and distorts teaching provision towards the end of the period. There are doubts on the existence of any causality.
<i>units of assessment</i>	Distortions of research activity.	Discourages multi-disciplinarity.	Subject funding.	Absence of link to funding for multi-disciplinary subjects.		Absence of multi-disciplinarity essential for teaching.
		The narrowness of the units of assessment distorts research activity and discourages multi-disciplinarity. There are some doubts on the existence of causal effects.	Alignment between teaching and research funding.	Units of assessment create a sense of subject funding because they are aligned to subject teaching. But, they still lack any recognition of multi-disciplinarity that is fundamental in preparing students for the outside world.		Mostly no causality is reported, except for the effect on multi-disciplinary teaching.

FUNDING OF RESEARCH IN HIGHER EDUCATION: A PANOPTIC VIEW OF THE RAE

	<i>research</i>		<i>funding</i>		<i>teaching</i>	
<i>Number of outputs</i>	Distortions of research activity.	Artificial measure of quality. Introduction of salami-slicing	Cost per number of output.		Distortion of teaching provision.	Strain on teaching resources.
	Pressure on being RAE compliant. Stigmata of being excluded.	Required number of outputs distorts natural research activity and puts pressure on researchers to salami-slice. It also threatens researchers with the stigmata of not being compliant.	Increase in possible commercial exploitation.	Increase in number of outputs may create commercial exploitation and therefore increase in funding. On the other hand the cost per output may be quite high compared to the income from the selected outputs. The causal link may be seen as weak.	Difficulty in managing teaching/research workload.	Teaching is mostly adversely affected by the strain and workload put on teaching/research staff to comply with output requirements.
<i>Grants expenditure</i>	Increase of collaborative research and research output dissemination.	Artificial measure of quality.	Hidden costs of project grants.	Effect of rating on grant awarding by RC.	Distortion of teaching provision.	Strain on student contact time.
	Distortion of academic department plans.	Emphasis on grants creates an artificial measure of quality and distorts planning. But, it can benefit collaborative research and dissemination.	Increase in funding.	While grants increment turnover there is no clear indication that these increment income. Moreover there could be some bias by the RC towards departments with high RAE ratings.		There is a link between grants and time that can be devoted to teaching and students contact time.

FUNDING OF RESEARCH IN HIGHER EDUCATION: A PANOPTIC VIEW OF THE RAE

	<i>research</i>		<i>funding</i>		<i>teaching</i>	
<i>PhD completions</i>	Increase of research resources and ideas.	Good incentive for valuable activity.	Increase in income stream.	Increase in income stream.	Increase in resources.	Increase in resources.
	Distortion of academic department plans.	PhD completions are an incentive to increase studentship, while some distortion to planning may occur. PhDs students are mainly seen as a valuable contribution to research.	Increase in funding.	PhD studentship and timely completions increase funding stream.		PhD completions mostly increase the resources available for teaching.
<i>Expert panels</i>	Distortions of research activity.	Introduces conservatism.	Incongruent rating between panels.	Panel's unawareness of rating consequence.		In crease burden on teaching resources involved in panels.
	Rating inconsistency due to subjectivity.	Expert panels introduce conservatism into research and distort activity to suit panel membership. It also creates inconsistency in quality judgement between subjects due to their subjectivity.	Damage to national funding for subject with conservative panels.	Expert panels are mostly unaware of the eventual consequences of their judgements. Moreover the incongruence between panels may damage subjects nationally.		There is mostly no causal effect between the expert panels and teaching except for an increase in workload for panel members that are involved in teaching as well.

FUNDING OF RESEARCH IN HIGHER EDUCATION: A PANOPTIC VIEW OF THE RAE

	<i>research</i>		<i>funding</i>		<i>teaching</i>	
<i>rating scale</i>		Effect on researchers' reputation.	Unpredictable funding.	Incongruence of scale.	Impact on U.G. admission through league tables scoring.	
	Distortion of research staff recruitment.	The rating scale becomes a measure of individual quality and therefore attaches labels to researchers. It also distorts the recruitment market concentrating quality in a few Institutions. There are reservations on the existence of any major causal effect.	Impossibility of planning investment since funding is decided post RAE.	The rating scale is somewhat opaque and incongruent. The funding attached to the ratings is unpredictable and it inhibits proper investment planning.		Apart from the impact that the rating scale has on league tables and possibly on undergraduates' choice of Institution there is no strong causal link.

The finalised table appears below. Summarising the opinion cells in one view cell has eliminated the points of observation dimension. The cells have been coloured coded according to the effect that each element of the RAE has on the areas of impact.

	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Time constraint distorts natural research and administrative activities	The period of assessment can be positive for funding giving predictability to the income stream. But it also separates teaching from research and, with the passage of time, it loses the link between quality assessment and funding.	The period of assessment introduces short-termism and distorts teaching provision towards the end of the period. There are doubts on the existence of any causality.
<i>units of assessment</i>	The narrowness of the units of assessment distorts research activity and discourages multi-disciplinarity. There are some doubts on the existence of causal effects.	Units of assessment create a sense of subject funding because they are aligned to subject teaching. But, they still lack any recognition of multi-disciplinarity that is fundamental in preparing students for the outside world.	Mostly no causality is reported, except for the effect on multi-disciplinary teaching.
<i>Number of outputs</i>	Required number of outputs distorts natural research activity and puts pressure on researchers to salami-slice. It also threatens researchers with the stigmata of not being compliant.	Increase in number of outputs may create commercial exploitation and therefore increase in funding. On the other hand the cost per output may be quite high compared to the income form the selected outputs. The causal link may be seen as weak.	Teaching is mostly adversely affected by the strain and workload put on teaching/research staff to comply with output requirements.
<i>Grants expenditure</i>	Emphasis on grants creates an artificial measure of quality and distorts planning. But, it can benefit collaborative research and dissemination.	While grants increment turnover there is no clear indication that these increment income. Moreover there could be some bias by the RC towards departments with high RAE ratings.	There is a link between grants and time that can be devoted to teaching and students contact time.
<i>PhD completions</i>	PhD completions are an incentive to increase studentship, while some distortion to planning may occur. PhDs students are mainly seen as a valuable contribution to research.	PhD studentship and timely completions increase funding stream.	PhD completions mostly increase the resources available for teaching.
<i>Expert panels</i>	Expert panels introduce conservatism into research and distort activity to suit panel membership. It also creates inconsistency in quality judgement between subjects due to their subjectivity.	Expert panels are mostly unaware of the eventual consequences of their judgements. Moreover the incongruence between panels may damage subjects nationally.	There is mostly no causal effect between the expert panels and teaching except for an increase in workload for panel members that are involved in teaching as well.

	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>rating scale</i>	<p>The rating scale becomes a measure of individual quality and therefore attaches labels to researchers. It also distorts the recruitment market concentrating quality in a few Institutions. There are reservations on the existence of any major causal effect.</p>	<p>The rating scale is somewhat opaque and incongruent. The funding attached to the ratings is unpredictable and it inhibits proper investment planning.</p>	<p>Apart from the impact that the rating scale has on league tables and possibly on undergraduates' choice of Institution there is no strong causal link.</p>

Table 10 – View cells - completed table

The next chapter will proceed with a view based on drivers of the RAE quality assessment framework. This view will concentrate on which characteristics of these drivers may induce causal effect.

5 - Visualisation of the drivers of the RAE and their impact

In this chapter the focus is on the drivers of the RAE quality assessment framework and the characteristics that, in view of the analysis performed in the previous chapter, have effects on the areas of impact.

Looking at the view cells by rows we can see the predominant effect that the drivers have on the areas of impact. Visually the background of the view cells highlights the prime effect. The background reflects the prevalent opinion of the points of observation (2 out of 3) while the shading reflects the minority opinion (1 out of 3). In the case of all three opinions being different the background colour is different from all three colours.

The short description in each cell gives some insight on what the effect is and what consequences it has. The analysis, though, will refer to the more detailed description of each point of observation as reported in the previous chapter.

5.1 Drivers of the RAE: period of assessment and its impact

	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Time constraint distorts natural research and administrative activities	The period of assessment can be positive for funding giving predictability to the income stream. But it also separates teaching from research and, with the passage of time; it loses the link between quality assessment and funding.	The period of assessment introduces short-termism and distorts teaching provision towards the end of the period. There are doubts on the existence of any causality.

The period of assessment is viewed as having mainly a negative effect on the areas of impact taken into consideration. The period of assessment introduces a time component, which is chosen arbitrarily and, therefore it is artificial. While at the beginning of the period it is safe to assume that research activities are paced at a natural rhythm, by the end of the period there is an artificial increase in the activity to meet the targets set by the RAE. This increase in activity affects areas that are unrelated to the RAE such as teaching and puts a strain on all resources. The time component also distorts the planning of research activities and strategic investments by introducing short-termism. In the long run, the cyclic review will affect the way in which long-term research is perceived and how it will be resourced.

On the other hand, there is a positive aspect of having a period of assessment for funding, since it allows the planning of the constant income stream incurred by the RAE. The link between performance and reward appears to weaken by the end of the period

	<i>areas of impact</i>
<i>period of assessment</i>	The period of assessment introduces an artificial time component. By the end of the period there is an artificial increase in the activity to meet the targets set by the RAE. The time component distorts the planning of research activities and strategic investments by introducing short-termism. But, it allows planning because of the knowledge of a constant income stream.

5.2 Drivers of the RAE: units of assessment and their impact

	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>units of assessment</i>	<p>The narrowness of the units of assessment distorts research activity and discourages multi-disciplinarity. There are some doubts on the existence of causal effects.</p>	<p>Units of assessment create a sense of subject funding because they are aligned to subject teaching. But, they still lack any recognition of multi-disciplinarity that is fundamental in preparing students for the outside world.</p>	<p>Mostly no causality is reported, except for the effect on multi-disciplinary teaching.</p>

One of the characteristics identified as having a negative effect is the lack of recognition of multi-disciplinarity. This omission is viewed as having an impact on all areas especially on research itself and on teaching. The challenge to HEIs is to prepare undergraduates for a multi-disciplinary world; any disincentive to address this challenge can be seen as very damaging for the UK work force.

However, there is no consensus on the overall effects of this element of the RAE. Moreover there is some recognition that, since the units of assessments are quite closely related to academic taught subject, this alignment is beneficial in the management of funds within an Institution.

In more than one point of observation no causal effect is reported.

	<i>areas of impact</i>
<i>units of assessment</i>	<p>The units of assessment lack recognition of multi-disciplinarity. This omission impacts all areas and it does not address the challenge of a multi-disciplinary world. But, there is some recognition that the alignment between units of assessment and taught subjects is beneficial in the management of funds within an Institution. Some reservations on the existence of any causal effect.</p>

5.3 Drivers of the RAE: number of outputs and their impact

	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>Number of outputs</i>	Required number of outputs distorts natural research activity and puts pressure on researchers to salami-slice. It also threatens researchers with the stigmata of not being compliant.	Increase in number of outputs may create commercial exploitation and therefore increase in funding. On the other hand the cost per output may be quite high compared to the income from the selected outputs. The causal link may be seen as weak.	Teaching is mostly adversely affected by the strain and workload put on teaching/research staff to comply with output requirements.

As with the period of assessment, the worst effect that the number of outputs has on areas of impact is the distortion to the natural flow of research activities. The stigmata of not being compliant by not having the required number of outputs affect the behaviour of researchers. The pressure on producing outputs may force researchers to abandon long-term research projects in favour of projects that will give more short-term publishable outputs. In other cases it could introduce the practice of ‘salami-slicing’, where researchers would slice one research output to create more, therefore degrading the quality of the output. This strain on compliancy also affects workload management by shifting the balance between research and other activities and, therefore, harming teaching. There are also doubts on the financial viability and the cost of each output. There is a view that the pressure to increase the number of outputs to have more choice in the submission, while possibly influential to the rating and the funding, increases costs for the Institution. On the other hand, an increase in number of outputs opens new avenues to commercial exploitation.

	<i>areas of impact</i>
<i>number of outputs</i>	A required number of outputs distorts the natural flow of research activities. The pressure on producing outputs may force researchers to abandon long-term research project in favour of projects that will give more short-term publishable outputs and introduce the practice of ‘salami-slicing’. It also affects workload management by shifting the balance between research and other activities. There are also doubts on the financial viability and the cost of each output. On the other hand an increase in number of outputs opens new avenues to commercial exploitation.

5.4 Drivers of the RAE: grants expenditure and its impact

	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>Grants expenditure</i>	Emphasis on grants creates an artificial measure of quality and distorts planning. But, it can benefit collaborative research and dissemination.	While grants increment turnover there is no clear indication that these increment income. Moreover there could be some bias by the RC towards departments with high RAE ratings.	There is a link between grants and time that can be devoted to teaching and students contact time.

Grants expenditure is seen mostly as having a negative effect on the areas of impact. As with other drivers it introduces a fictitious measure of quality, therefore pressurising researchers to increment the number of grants. There is no clear indication that grants are economically sound and that the overheads allowed cover all hidden costs. And there is some suspicion that the peer review process used by Research Councils is biased towards departments/schools with high RAE scales, therefore further damaging financially the departments/schools that are at the lower end of the rating. Grants are also very time consuming to administrate increasing the workload for research/teaching staff.

	<i>areas of impact</i>
<i>grants expenditure</i>	Grants expenditure introduces a fictitious measure of quality, therefore pressurising researchers to increment the number of grants and increasing their workload. There is no clear indication that grants are economically sound and that the overheads allowed cover all hidden costs. There is also some suspicion that RC are biased towards departments/schools with high RAE scales.

5.5 Drivers of the RAE: PhD completions and their impact

	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>PhD completions</i>	<p>PhD completions are an incentive to increase studentship, while some distortion to planning may occur. PhDs students are mainly seen as a valuable contribution to research.</p>	<p>PhD studentship and timely completions increase funding stream.</p>	<p>PhD completions mostly increase the resources available for teaching.</p>

PhD completions are viewed mostly as having a very positive effect. It brings funding, it increases resources and it encourages new ideas and stimulus for research. The only small downside is that it necessitates additional planning and administration.

	<i>areas of impact</i>
<i>PhD completions</i>	<p>PhD completions bring funding, increase resources and encourage new ideas and stimulus for research. The only small downside is that it necessitates additional planning and administration.</p>

5.6 Drivers of the RAE: expert panels and their impact

	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>Expert panels</i>	Expert panels introduce conservatism into research and distort activity to suit panel membership. It also creates inconsistency in quality judgement between subjects due to their subjectivity.	Expert panels are mostly unaware of the eventual consequences of their judgements. Moreover the incongruence between panels may damage subjects nationally.	There is mostly no causal effect between the expert panels and teaching except for an increase in workload for panel members that are involved in teaching as well.

One major concern with the adoption of expert panels is the inconsistency in rating between the panels. There is no mechanism to guarantee that the rating scale is interpreted in the same way by different panels. This lack of alignment between expert panels not only influences the reputation and funding of departments/schools, but it can be very damaging for some subject areas throughout the UK. The strictness of some expert panels may lead to under-funding at national level of the particular discipline. Moreover, members of expert panels, being mainly part of the establishment, are often assumed not likely to be as open to innovation as the average researcher and therefore foster conservatism in research.

	<i>areas of impact</i>
<i>expert panels</i>	There is no mechanism to guarantee that the rating scale is interpreted in the same way by different panels. This lack of alignment between expert panels influences the reputation and funding of departments/schools. The strictness of some expert panels may lead to under funding at national level of the particular discipline. Members of expert panels are mainly part of the establishment, therefore not very open to innovation and therefore foster conservatism in research.

5.7 Drivers of the RAE: rating scale and its impact

	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>rating scale</i>	<p>The rating scale becomes a measure of individual quality and therefore attaches labels to researchers. It also distorts the recruitment market concentrating quality in a few Institutions. There are reservations on the existence of any major causal effect.</p>	<p>The rating scale is somewhat opaque and incongruent. The funding attached to the ratings is unpredictable and it inhibits proper investment planning.</p>	<p>Apart from the impact that the rating scale has on league tables and possibly on undergraduates' choice of Institution there is no strong causal link.</p>

The rating scale is viewed as opaque and incongruent. It has very little recognition outside the academic world except for its use in league tables. This indirect link with league tables may have some influence on undergraduate recruitment. For academia the rating has now assumed the status of quality labels; this introduces some distortions in the research recruitment market by stigmatising some departments/schools and not allowing them to recruit high calibre researchers. On the other hand, the ratings filter down to the individual member of the department/school giving quality labels that should only be viewed as a collective and not an individual measure.

Apart from the problem of reputation, the problem with the rating scale lies more with the mechanism that attaches funding to ratings. Since the funding is decided after the RAE is completed, investments made in view of good RAE ratings may become economically unsustainable because of a change in the funding formula.

	<i>areas of impact</i>
<i>rating scale</i>	<p>The rating scale has an indirect link with league table and may therefore have some influence on undergraduate recruitment. Rating in academia has become a quality label and stigmatises departments/schools that does not allow them to recruit high calibre researchers. The main problem lies more with the mechanism that attaches funding to ratings. Investments made in view of good RAE ratings may become economically unsustainable because of a change in the funding formula after the event.</p>

5.8 Drivers of the RAE and their impact - overview

	<i>areas of impact</i>	
<i>period of assessment</i>		The period of assessment introduces an artificial time component. By the end of the period there is an artificial increase in the activity to meet the targets set by the RAE. The time component distorts the planning of research activities and strategic investments by introducing short-termism. But, it allows planning because of the knowledge of a constant income stream.
<i>units of assessment</i>		The units of assessment lack recognition of multi-disciplinarity. This omission impacts all areas and it does not address the challenge of a multi-disciplinary world. But, there is some recognition that the alignment between units of assessment and taught subjects is beneficial in the management of funds within an Institution. Some reservations on the existence of any causal effect.
<i>number of outputs</i>		A required number of outputs distorts the natural flow of research activities. The pressure on producing outputs may force researchers to abandon long-term research project in favour of projects that will give more short-term publishable outputs and introduce the practice of 'salami-slicing'. It also affects workload management by shifting the balance between research and other activities. There are also doubts on the financial viability and the cost of each output. On the other hand an increase in number of outputs opens new avenues to commercial exploitation.
<i>grants expenditure</i>		Grants expenditure introduces a fictitious measure of quality, therefore pressurising researchers to increment the number of grants and increasing their workload. There is no clear indication that grants are economically sound and that the overheads allowed cover all hidden costs. There is also some suspicion that RC are biased towards departments/schools with high RAE scales.
<i>PhD completions</i>		PhD completions bring funding, increase resources and encourage new ideas and stimulus for research. The only small downside is that it necessitates additional planning and administration.
<i>expert panels</i>		There is no mechanism to guarantee that the rating scale is interpreted in the same way by different panels. This lack of alignment between expert panels influences the reputation and funding of departments/schools. The strictness of some expert panels may lead to under funding at national level of the particular discipline. Members of expert panels are mainly part of the establishment, therefore not very open to innovation and therefore foster conservatism in research.
<i>rating scale</i>		The rating scale has an indirect link with league table and may therefore have some influence on undergraduate recruitment. Rating in academia has become a quality label and stigmatises departments/schools that does not allow them to recruit high calibre researchers. The main problem lies more with the mechanism that attaches funding to ratings. Investments made in view of good RAE ratings may become economically unsustainable because of a change in the funding formula after the event.

We can draw some conclusions from the table of the drivers of the RAE: most drivers appear to have a negative effect (5 out of 7) of the 2 remaining one has positive effects and one is inconclusive.

The five negative drivers have this effect because they distort the behaviour of the researcher:

- ⇒ period of assessment – by introducing time constraints
- ⇒ units of assessment – by introducing constraints on the nature of the research (discouragement of multi-disciplinarity)
- ⇒ number of outputs – by introducing quantitative constraints
- ⇒ expert panels – by introducing constraints on creativity (conservatism of expert panels)
- ⇒ rating scale – controlling behaviours by stigmatising entire departments/schools, introducing the fear of being labelled as a poor quality researcher in case of non compliance with the RAE quality measures.

The damage, in certain cases, may extend to the undermining of the research base for a whole discipline. The need for rationalising research funding is not in itself a bad proposition, but the problem arises when the assessment is based on a set of measures that are arbitrarily considered indicators of good quality. These measures, or set of rules and regulations, are based on assumptions that are perhaps true today but may not be tomorrow and introduces the notion of a right way to structure and conduct research activity. Pressuring departments/schools to have high grants expenditure does not guarantee that the quality of research will improve. Besides, as we have seen in the analysis, it has negative effects in other areas. The quality of a researcher that has less than 4 outputs in the period cannot be assumed to be poor, but, under the current system, the researcher would probably be omitted from the submission, impacting on their moral and self-esteem.

If there is something positive emerging from the analysis of these drivers, it is the positive effects that an increase in PhD studentships and completions has on the Higher Education system. PhD students are viewed as an asset no matter what area of impact is being considered. They allow for new, fresh ideas to emerge from the

relationship with their supervisors. They are a resource for HEIs both for teaching and for funding. Moreover they are potentially new resources for the national research base as they would, in the majority of cases, become full time lecturers and researchers.

The next chapter analyses the view cells from another dimension. Investigating which drivers have what impact on the areas of impact selected. This different view is intended to give more insight on the sensitivity of the areas of impact to the drivers of the RAE.

6 - Visualisation of the areas of impact and how they are affected

The drivers of the RAE impact on different areas of Higher Education in different ways. What determines the effect of these drivers and how these areas are affected under this influence? These are the questions that will be addressed in this chapter.

The same colour coding will apply as in the previous chapter. The descriptions of the effects will be different since they will be portrayed as more passive as the areas are the recipients rather than the cause of the effects.

6.1 Areas of impact: research and how it is affected

	<i>research</i>	
<i>period of assessment</i>		Time constraint distorts natural research and administrative activities
<i>units of assessment</i>		The narrowness of the units of assessment distorts research activity and discourages multi-disciplinarity. There are some doubts on the existence of causal effects.
<i>Number of outputs</i>		Required number of outputs distorts natural research activity and puts pressure on researchers to salami-slice. It also threatens researchers with the stigmata of not being compliant.
<i>Grants expenditure</i>		Emphasis on grants creates an artificial measure of quality and distorts planning. But, it can benefit collaborative research and dissemination.
<i>PhD completions</i>		PhD completions are an incentive to increase studentship, while some distortion to planning may occur. PhDs students are mainly seen as a valuable contribution to research.
<i>Expert panels</i>		Expert panels introduce conservatism into research and distort activity to suit panel membership. It also creates inconsistency in quality judgement between subjects due to their subjectivity.
<i>rating scale</i>		The rating scale becomes a measure of individual quality and therefore attaches labels to researchers. It also distorts the recruitment market concentrating quality in a few Institutions. There are reservations on the existence of any major causal effect.

From the drivers considered in the analysis the following distortions emerge:

- ⇒ the research cycle, from inception of a research idea to publication, is distorted to fit the RAE cycle determined by the period of assessment
- ⇒ some research is not pursued or submitted because it does not fit either with the research cycle imposed or with perceptions on the focus of the units of assessment and the expert panels

- ⇒ choice of where and when to publish are not decided by the nature of the research completed but on RAE targets; that is whether the number of outputs required is achieved or whether the publishing time will fit the period of assessment
- ⇒ other research activities, such as research projects, are engaged not on their merits but on whether RAE targets are reached
- ⇒ researchers' moral is determined by a collective quality grading and not on the true merits of their research.

Most points of observation agree that the predominant negative effect of the drivers considered is the distortion to research activity as outlined above, while the increase in PhD studentship and PhD completion is a very positive effect on research activity.

	<i>research</i>
<i>drivers of the RAE</i>	<p>Choices on research activities are judged not on their merit but on constraints set by the drivers of the RAE. These drivers affect choices on: the nature of the research to engage with, where to publish, how many papers to produce from one piece of research, which projects to pursue. Some of the drivers of the RAE also introduce a simplistic label of quality that may deeply effect moral. One element of the RAE, though, is very positive because it incentivises the admission of PhD students.</p>

6.2 Areas of impact: funding and how it is affected

	<i>funding</i>	
<i>period of assessment</i>		The period of assessment can be positive for funding giving predictability to the income stream. But it also separates teaching from research and, with the passage of time; it loses the link between quality assessment and funding.
<i>units of assessment</i>		Units of assessment create a sense of subject funding because they are aligned to subject teaching. But, they still lack any recognition of multi-disciplinarity that is fundamental in preparing students for the outside world.
<i>Number of outputs</i>		Increase in number of outputs may create commercial exploitation and therefore increase in funding. On the other hand the cost per output may be quite high compared to the income form the selected outputs. The causal link may be seen as weak.
<i>Grants expenditure</i>		While grants increment turnover there is no clear indication that these increment income. Moreover there could be some bias by the RC towards departments with high RAE ratings.
<i>PhD completions</i>		PhD studentship and timely completions increase funding stream.
<i>Expert panels</i>		Expert panels are mostly unaware of the eventual consequences of their judgements. Moreover the incongruence between panels may damage subjects nationally.
<i>rating scale</i>		The rating scale is somewhat opaque and incongruent. The funding attached to the ratings is unpredictable and it inhibits proper investment planning.

The effects of the drivers of the RAE considered on funding are not all negative. Looking at the table we can see that only 4 out of the 7 are clearly negative while 2 are considered positive and 1 undefined.

There is no common theme for the negative effects that occur in funding as a consequence of drivers of the RAE. They span from hidden costs of activities initiated by drivers of the RAE to the unpredictability of the return on investment, funding of rating post RAE, and incongruence of funding between subject areas. We could probably cautiously draw a link based on cost recovery. If we assume that the investment made in order to increase the chances of a high rating is a cost that may

not be recovered because of the unpredictable behaviour of expert panels or unpredictable rating funding, then we can see that this compares with the recovery of hidden costs in grants. Unfortunately cost recovery, in most cases, can only be quantified after the event and does not allow for much planning. Therefore, the consequences of this imbalance in cost recovery may impact quite harshly on the HEI's finances.

Other negative consequences concern the planning of resources that derive from different resources, teaching and research, but relate to the same resources, teaching/research staff. Although the alignment of teaching and research subject areas is, in some cases, seen as positive.

Funding gains from high PhD studentships is very positive since it is a net gain with very little cost. There is no agreement on how funding is affected by a fixed number of outputs. There are concerns on the costs in terms of resources of each output, but there is also recognition that income could be generated through commercial exploitation of the outputs. Overall there is not a strong causal effect.

	<i>funding</i>	
<i>drivers of the RAE</i>		Investment made to increase the chances of high rating is a cost that may not be recovered because of unpredictable expert panels behaviour or unpredictable rating funding, and this compares with the recovery of hidden costs in grants. Negative consequences occur from the planning of resources that derive from the different resources: teaching and research. Funding gains from high PhD studentship is very positive since it is a net gain with very little costs. Overall, funding appears not to be affected by a fixed number of outputs.

6.3 Areas of impact: teaching and how it is affected

	<i>teaching</i>
<i>period of assessment</i>	The period of assessment introduces short-termism and distorts teaching provision towards the end of the period. There are doubts on the existence of any causality.
<i>units of assessment</i>	Mostly no causality is reported, except for the effect on multi-disciplinary teaching.
<i>Number of outputs</i>	Teaching is mostly adversely affected by the strain and workload put on teaching/research staff to comply with output requirements.
<i>Grants expenditure</i>	There is a link between grants and time that can be devoted to teaching and students contact time.
<i>PhD completions</i>	PhD completions mostly increase the resources available for teaching.
<i>Expert panels</i>	There is mostly no causal effect between the expert panels and teaching except for an increase in workload for panel members that are involved in teaching as well.
<i>rating scale</i>	Apart from the impact that the rating scale has on league tables and possibly on undergraduates' choice of Institution there is no strong causal link.

Teaching appears not to be greatly affected by drivers of the RAE. 3 out of 7 drivers appear to have no causal effects, with a few reservations on indirect links with league tables and increase in workload. The most interesting reservation is the effect on the nature of teaching that, due to the units of assessment, may be discouraged to develop multi-disciplinarity.

The negative effects all refer to increase in workload for teaching staff due to distortions in the research activity.

As for the other areas of impact, teaching is positively effect by the increase in PhD studentship due to an increase in teaching resources.

	<i>teaching</i>
<i>drivers of the Rae</i>	Teaching appears not to be greatly affected by the drivers of the RAE, except for an increase in workload for teaching staff. PhD studentship is perceived as a positive increase in resources.

6.4 Areas of impact and how they are affected – overview

	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>drivers of the RAE</i>	<p>Choices on research activities are judged not on their merit but on constraints set by the drivers of the RAE. These drivers affect choices on: the nature of the research to engage with, where to publish, how many papers to produce from one piece of research, which projects to pursue. Some of the drivers of the RAE also introduce a simplistic label of quality that may deeply effect moral. One element of the RAE, though, is very positive because it incentivises the admission of PhD students.</p>	<p>Investment made to increase the chances of high rating is a cost that may not be recovered because of unpredictable expert panels behaviour or unpredictable rating funding, and this compares with the recovery of hidden costs in grants. Negative consequences occur from the planning of resources that derive from the different resources: teaching and research. Funding gains from high PhD studentship is very positive since it is a net gain with very little costs. Overall, funding appears not to be affected by a fixed number of outputs.</p>	<p>Teaching appears not to be greatly affected by the drivers of the RAE, except for an increase in workload for teaching staff. PhD studentship is perceived as a positive increase in resources.</p>

The above table shows that, perhaps unexpectedly, drivers of the RAE have most negative effects on research. The RAE, its drivers, rules and regulations were set up to encourage quality research, but it appears that, instead by comparison, it suffers most. This perception possibly derives from the unconditional belief that research cannot be structured, that there is not a good or a bad way of achieving high quality research and that time should not be an issue. The freedom of researchers to pursue long-term research or to dedicate their time to esoteric subjects is what is perceived to lead to great advancements. The collation of a set of measurements of quality on the background of established, possibly conservative, judgements appears to curb one of the most essential characteristics of researchers: creativity.

Oddly there seems to be very little recognisable impact on teaching, apart from increase in workload. Possibly this should be further analysed to determine if the increase in workload ever reaches critical proportions.

Funding, while mainly judged to be negatively affected, appears to benefit as well. The benefits relate to a stimulus to increase funding from sources outside HEFCE, however there are doubts that activities such as grant expenditure, identified as one of the RAE drivers, can generate any profit.

7 - Conclusions – lessons and hypothesis

The analyses conducted so far allows for some inductive reasoning. What generalisations can be made from the analyses conducted so far? In this chapter we will look at the overall effects of the RAE, taking into account the selected number of drivers, areas of impact and points of observation considered.

The final analysis will also be used to draw some conclusions on: the theoretical framework of the investigation, the approach adopted and its strengths, weaknesses and limitations. The concluding remarks will highlight the scope for further research into both the theoretical framework and the methodological approach.

7.1 Panoptic view in a nutshell

<i>drivers of the RAE</i>	<i>areas of impact</i>
	<p>The effects of the RAE quality assessment can be separated into two distinct categories: direct and indirect. Since the same individuals share most core activities in HEIs, indirect effects are centred on the use of resources. Increase in one core activity may bring stress to other. Direct effects appear to be a consequence of the setting of standard assessment criteria. The notion of an average acceptable way of performing research appears to create distortions and sometimes resentment in the system.</p>

What does the analysis conducted so far tell us? We appear to have identified two types of effects of the quality assessment framework on areas of impact: direct and indirect. This differentiation is helpful to understand the type of consequences produced. Consequences that are directly linked to the RAE quality assessment framework occur in those areas where the measured activities take place. In this analysis research represents one of these areas. The perceived negative effect manifests itself in a distortion of researchers' behaviour, where they feel constrained to fit their interests to the activities measured by the RAE. This external influence may manifest itself in the pursuit of specific research themes or income generating activities that may, in certain circumstances, be ill at ease with the researcher's natural tendencies.

Negative indirect effects may manifest themselves in those areas that are not directly assessed by the RAE quality framework, in this analysis funding and teaching. In

many of these cases the negative effect is determined by a disproportionate use of resources by research to the detriment of other resource intensive areas of HE. The focus on the RAE quality assessment framework may change the balance in the distribution of resources between different activities. In this analysis, for example, intensification in grant activity may result in a strain on teaching or diversion of resources to, sometimes, financially unprofitable projects.

		Areas of impact	
Quality assessment framework	Effects	Direct	Indirect
	Consequences	Distortion in activity	Distortion in the allocation of resources

Table 11 – Effects and consequences of the RAE quality assessment framework

What both direct and indirect effects have in common is to cause some distortion in the system. That is not to say that these distortions have to be negative, for example, an increase in PhD studentship appear to be beneficial both directly, by invigorating and stimulating research, and indirectly by increasing income and teaching resources.

The panoptic view of the analysis conducted on the selected dimensions can be consolidated into a single simplified statement:

“The RAE produces strong direct effects and weaker indirect effects in the Higher Education system. The consequences of the direct effects are the distortion of the measured activity while the consequences of the indirect effects are a distortion in the allocation of resources”.

While this statement may not appear surprising, the analysis has highlighted particular interactions between drivers of the RAE research quality framework and areas of activity within HEIs. Some of these interactions appear to be weaker than sometimes reported by anecdotal evidence reinforcing the view of some of the policy-makers that most criticism of the RAE is based on perception and not on fact. Other interactions unveil long-term wider concerns such as the danger to the survival of whole disciplines due to incongruous assessments between panels.

The theoretical bases for the investigation and the tool used have contributed to a deeper understanding of the RAE through the analysis of interactions and consequences.

7.2 Worth and validity of the theoretical approach

The RAE is no doubt a complex system with repercussions that go beyond the stated objective of funding quality research. Evidence of this is the wide and disparate coverage that it had since its introduction. The coverage, covered in chapter 2, highlights the extensive consequences: emotional, as reported in some anecdotal evidence, political, as scrutinised in the policy-makers reports, and theoretical, as research in academic publication. This plethora of different focuses in RAE reporting and investigating highlights an inherent complexity that could be tackled in its entirety only with great difficulty. The recognition of the near impossibility of analysing all aspects of the RAE has been the first step in the development of the theoretical approach of this investigation.

7.2.1 The multi-dimensional crystal view

All parts of the RAE and its consequences are of interest and cannot be ignored. Therefore, the multi-dimensional crystal view was introduced as a representation of the RAE that would encompass the many dimensions that have been tackled in so many investigations and others not yet considered. This view allows for the definition of different dimensions and different elements within the dimensions giving a sense of clarity and order. The multi-dimensional crystal view gives a mental framework that aids in the process of establishing connections and interactions between the different dimensions. The benefit of such a view is also reflected in the flexibility of adding new dimensions to the analysis without revisiting the initial analysis.

The multi-dimensional crystal view is an approach developed for this thesis to represent the micro analysis of a complex system that, through the exploitation of the interactions present in the system, produces insights that otherwise might emerge only with difficulty.

7.2.2 The panoptic theoretical view

One of the fundamental concepts of the multi-dimensional crystal view is the focus on aggregation and not on mode. While, in some cases investigations focus on the modal effect or consequence of a phenomenon, this theoretical view concentrates on the aggregation of all effects or consequences discarding only those already represented. This characteristic is what identifies the panoptic view, it is not a question of what occurs most or of what is perceived by most, but all that occurs and all that is perceived. Because of the aggregation process dimensions may be added to the original analysis just by integrating the new dimension in the existing results. The encompassing of all views and the aggregation of all views define the panoptic nature of the results.

7.2.3 Conceptual validity

The choices of dimensions in this investigation are solely determined by preferences and time constraint, but, because of the theoretical approach, the results have validity in their own right. The investigation does not set out to analyse the whole of the RAE and its consequences, but to expose interactions that exist within the system and draw insight and general applicable conclusions. Since the purpose of framework is to enable a process of reasoning that will inevitably give understanding of some aspects of the complex RAE system, validation will be intrinsic in any analysis on any dimensions.

The characteristics of the theoretical approach are maintained in the tools chosen for the analysis.

7.3 Soundness of the analytical tools

There are two main characteristics of the theoretical framework that need to be applied in the analysis: the representation of the interactions between the dimensions and the aggregation of the resulting insights. The interactions can be easily represented with one of the most popular reasoning aid: a table. The table is a two-dimensional structure that forces the analysis of all elements of each dimension against all elements of the other dimension. Moreover the results of the effects of one dimension on another can be used as the base for the analysis against a third

dimension. Each aggregate result of the analysis of the interaction between the first two dimensions can be analysed with regard to the third dimension therefore reaching a further level of aggregation. This characteristic of table and, when considering more than two dimensions, matrices satisfy the multi-dimensional nature of the theoretical framework. In the case of this investigation only 3 dimensions were considered, but the flexibility was demonstrated, there were no signs of an inability to handle more elements on each dimension or more dimensions apart from time constraint.

The matrix, as an analytical tool, also has the property of defining each aggregation of effects by the specific elements of the dimensions that were considered. The subsequent levels of aggregation can be retraced moving between detail and summary. The specific definition of each result allows for heavy use of colour coding. It has been seen in the investigation that the aggregation of different effects can be immediately visualised by adopting colour coding. The colour coding defines the level of uncertainty or disagreement on a particular effect or interaction. The colour coding, in a way, encompasses the 'history' of the aggregations and the Windows style presentation allows for results to be view at different levels retracing their 'history'.

7.4 Critical review of the thesis

The strengths are quite apparent when you perform the analysis. The process is very easy to apply; the tools are of common use and therefore do not present difficulty. The theoretical framework allows for freedom in the choice of the dimensions and the elements within the dimension. The dimensions can be as broad as the analyst decides. For example 'teaching', one of the elements of the 'areas of impact' dimension, which has been selected in this investigation, could be a dimension in its own right. Teaching could be analysed as a dimension with, for example, 'undergraduate teaching', 'post graduate teaching', etc. as its elements.

The aggregation process can be quite revealing, in this investigation using points of observation as one of the dimensions exposed quite a few incongruences on the effects of some of the elements of the quality assessment framework on the different areas of impact. Incongruences are very easily observed through the colour coding and shading which makes the results of the analysis immediate. The subsequent

aggregations are of great aid to inductive reasoning. Each level summarises common characteristics and highlights differences leaving, at the end, a general statement that is true for all interactions.

The weaknesses are more difficult to generalise since some of the strengths, such as the easy of use and analytical support, are possibly highly correlated to the choice of dimensions and elements within the dimensions. The most interesting results that have appeared from this investigation are due to the choice of the points of observation as one of the dimensions. The collection of the necessary information from the different points of observation was an easy process and easy to aggregate. But, if one wanted to analyse only the impact of the quality assessment framework on the different areas of impact the collection of data and the analysis would have been more problematic. With no element of perception the analysis would necessarily be based on facts with no room for interpretation, and this would have possibly involved large amounts of data and some statistical analysis technique with uncertain results.

The high level of the analyst's 'thinking' in the aggregation phase may also introduce doubt on the validity of the results, however the clarity of the presentation of all the steps involved makes the results extremely transparent. What has not yet been investigated but that can present some problems is the order in which the dimensions are aggregated. Results may vary depending on the aggregation order, but without further research this may not be established.

The limitation of the theoretical framework resides in the objectives of the investigation. The framework is very suitable to raise awareness of potential interactions and mistaken perceptions, to give a panoptic view. It is unsuitable for in-depth analysis of cascading effects since it is constraint by the incorporation of the dimensions one at a time and elements of the dimension are kept separate. If, for example, the increase in teaching resources, due to the inclusion of PhD completions in the RAE quality assessment framework, increased the amount of time researchers had to produce the number of outputs required for the RAE, this would not be highlighted by the analysis. The framework is limited to the analysis of interactions between single elements on different dimensions and therefore cannot draw attention to offsets and rebalances within the dimensions.

The theoretical framework and the tools adopted in this investigation have not been thoroughly tested because of time constraints. Therefore some of the strengths, weakness and limitation exposed in this section could be reinforced or undermined by further research.

7.5 Further research

To establish how widely the theoretical framework can be used more research should be completed in the following areas:

- ⇒ Include dimensions that are not based on perceptions and individual views. The interest in this investigation was stimulated by including different views of causal effects, more research should be conducted with dimensions that have to be investigated using just data.
- ⇒ Compare results when dimensions are aggregated in different orders. This could also reveal if changing the order of aggregation would result in failure to achieve any sensible outcomes. There could be impossibility of performing any analysis once the order of aggregation is changed. If this was the case this could lead to the construction of a set of aggregation rules based on the type of dimension.
- ⇒ Investigate the possibility of introducing a system that would allow for the analysis of secondary interactions between the elements within a dimension. A system of analysis of the interactions of the elements within a dimension after the primary analysis of the interaction between the different dimensions could result in a more balanced view of causal effects and highlight interference within dimensions.
- ⇒ Investigate the possibility of introducing a weighting system in the aggregation of the results. It could be possible to envisage the need for giving more importance to some of the elements within a dimension in respect to the others. However such a system may make the results more susceptible to interpretation and possibly weaken their validity.

The tools applied in the investigation should also be further researched to establish:

- ⇒ How feasible it is to use four or more dimensions. Research on the critical number of dimensions could also provide a set of rules on how to incorporate each dimension.
- ⇒ For the aggregation system criteria on how concise or explanatory the summary statements should be.
- ⇒ If further research in the theoretical framework established the need for weightings, then further research into a set of criteria for their application in the aggregation process would be necessary.

There is a lot of scope for furthering research in both the theoretical framework and the tools applied in this investigation. With time and commitment this approach could possibly be used more widely.

7.6 Contributions and conceptual limitations

In this chapter we have looked at the validity of the theoretical approach, the multi-dimensional crystal view, and the validity of the analytical tool. We also had a critical review of the thesis underlining the strengths, weakness and limitations of the methodology. However, while it is important to reassess both approach and methodology it is also necessary to set the thesis against the wider issues of knowledge creation. In this context we undertake a critical analysis of the thesis' contributions to the body of knowledge balanced against their limitations.

The contributions of this thesis cover three different elements of the research process: theory, practice and outcome. The theoretical contributions are both of a general and specific nature and emerge from the innovative approach defined as the multi-dimensional crystal view. This approach departs from the research methodologies adopted so far in the study of the RAE, as described in Chapter 2, and suggests a possible alternative view for the analysis of complex systems that includes the stakeholders' perceptions of the system. The general contribution of the approach is the view that knowledge of the mechanisms governing a complex system may be drawn from the study of the interactions, micro-analysis, of the elements of the different dimensions defining the system. While the contribution deriving from the

specific problem area under investigation, the RAE, is the use of perceptions as one of the dimensions for the micro-analysis.

The contribution that emerges from the practical part of the research process is the development of an analytical tool that can achieve the goals set by the multi-dimensional crystal view. This tool, through a very simple table structure, is capable of integrating different perceptions on the effect of the interactions of the different dimensions of the problem under analysis and, while maintaining integral the nature of each perspective, can visually present the overall effect. The contribution of such a tool is its ability to serve as a thinking aid when faced with the problem of shifting from a micro-analysis, the study of the interactions, to a generalised outcome, the integration of different perceptions.

The general contribution that emerges from the application, through the use of the analytical tool, of the multi-dimensional crystal view approach is the panoptic view of the RAE. This contribution deals with the outcome of the analysis and provides a panoramic scan of the different perceptions that different stakeholders have of the RAE. While much of the anecdotal evidence, as described in Chapter 2, reports on these perceptions there has been little or no attempt to integrate some of the perceptions to give a more global view of the problem. The panoptic view, achieved through the theory and application of the multi-dimensional crystal view, contributes in a novel fashion to the RAE debate.

Research process		Contribution
Theory	General	Use of micro-analysis to investigate complex systems
	Specific to problem area	Integration of different perceptions in the micro-analysis of complex systems such as the RAE
Practice		Development of a method that can integrate different perceptions in the micro-analysis of complex systems
Outcome		Panoptic view of the RAE

Table 12 – Thesis contributions

While it is important to underline the contributions of the thesis it is also important to set these against their limitations. The whole approach adopted by the investigation may be rigorous and may contribute to the general debate on complex systems,

perceptions and the RAE. However, each contribution should be seen as one side of a discourse and therefore rebalanced against contrasting arguments.

The view that complex systems may be defined by a set of interacting dimensions and that the analysis of the interactions may bring insight into the workings of the system is an interesting and appealing thought. However, this approach is limited to analyse a number of dimensions and, therefore, a small subset of all the interactions present in the system. The outcome is a limited and subjective vision that does not attempt, and it is not forced to, consider the system as a whole. Therefore, the multi-dimensional crystal view, while being novel and rigorous, does not address the concerns of the impact of the whole systems on neighbouring systems. In the particular case of the RAE the multi-dimensional crystal view does not tackle the issue facing the government and the Higher Education sector of maintaining or replacing this method of research quality assessment.

Since the RAE assesses the output of its participants the use of perceptions of the assessed as one of the dimensions in the multi-dimensional crystal view approach is very pertinent. However, the use of perceptions to identify weaknesses in the system limits the validity of the outcomes. Perceptions are an important pointer for further analysis of areas of concern but do not present a solution to the identified problems.

The tool developed to support the multi-dimensional crystal view approach does work as a thinking aid, it is a framework within which the investigator has total freedom over the content. This freedom, while conducive to original thought by the investigator, does not guarantee coherence between investigations. The lack of rules and regulations on how to conduct the analysis limits the ability to compare investigations even if they are based on the same set of dimensions. This results in the investigations using this tool being limited to be one-offs and not able to be part of a more wide and complex analysis.

A panoptic view of the RAE is the outcome of the multi-dimensional crystal view approach applied in the thesis. While interesting and insightful in what the stakeholders perceive as the consequences of the RAE in the different areas of Higher Education, the panoptic view does not address the overall view of their impact. The panoptic view limits itself to give a snapshot of a collection of ideas and perceptions

limited in their scope to a small sub-system of the whole system. Therefore, the panoptic view does not aid in finding alternatives and ways forwards in the general debate.

The balancing of the contributions and limitations, as summarised in table 13, addresses the positioning of this thesis in the wider context of the existing knowledge and its advancement. The outcome of this argumentation is that the limitations exposed in this section may result in the sidelining of the multi-dimensional crystal view approach, its application and outcomes, as an interesting exercise that, however, lacks the necessary breadth to be considered as a tool for any decision-making.

Research process		Contribution	Limitation
Theory	General	Use of micro-analysis to investigate complex systems	Lack of view of the whole
	Specific to problem area	Integration of different perceptions in the micro-analysis of complex systems such as the RAE	Perception identify only a sub-system of the system
Practice		Development of a method that can integrate different perceptions in the micro-analysis of complex systems	Lack of rules and regulations for the investigation limit the comparability between different studies
Outcome		Panoptic view of the RAE	Restricted view that limits the use of the outcomes in decision-making

Table 13 – Thesis contributions and limitations

7.7 Personal remarks

7.7.1 My contribution

There is a fundamental question that every PhD student I have spoken to is terrified of being asked: that question is “What is your contribution to knowledge”. At the start of a PhD the literature review is probably the most disheartening experience that any student can go through. The more knowledge you acquire in the chosen area the more you realise how difficult it will be to make any, even small, contribution. You normally find a multitude of research covering every and any aspect of your area and some of the research is exceptionally insightful. The more you try for a different angle of approach to your chosen problem the more literature you find and the less options you have. However, there comes a time when you start feeling a sense of uneasiness

and dissatisfaction. You find that there is a particular question that has not yet been answered, that there is a very small hole that appears that no literature has covered. That is the moment when you feel that you can make your own very small, possibly miniscule, contribution to knowledge.

As any other student I went through the same process. My sense of uneasiness and dissatisfaction came when I realised that all the very extensive and informative reports I was reading on the RAE and all the papers and media coverage were not answering my question. While this extensive and, in most cases, high quality research in the RAE dealt with the RAE as a whole system there appeared to be very little research into the interactions and effects of single parts of the RAE on different single parts of the Higher Education system. Moreover, the published research appeared to attempt to find a final objective judgement on the RAE and its consequences. However, from personal experience, I had noticed the lack of a unanimous objective judgement on the RAE from participants and observers of the RAE phenomenon. I had found an area where I could make a contribution. My interest in the effects of single elements of the RAE on different areas of Higher Education combined with an interest in capturing the variety of perceptions present in the system prompted me to construct an approach capable of dealing with multi-dimensional interactions and perceptions.

The multi-dimensional crystal method of analysis, which I have constructed and applied, is still very experimental, but it gave me the rich insight into the RAE that previous very extensive reviews had not uncovered. It is a method of analysis that guided me into the intricate mechanisms of a complex system and that has uncovered the multifaceted impact the RAE system has on its constituent parts, namely the individuals involved.

My contribution, achieved through the development of the multi-dimensional crystal view, can be summarised into three points:

- ⇒ An alternative approach to the investigation of a complex system such as the RAE through the micro analysis of the interactions of different dimensions within the systems
- ⇒ The integration of different perspectives in the analysis of a complex system

⇒ A different view of the RAE that could be defined as panoptic view embracing different dimensions and different perspectives.

7.7.2 My voyage and final destination

My PhD has been the longest and most satisfying leg of a long journey into structured and conceptual thinking. The journey started in 1996 when I enrolled on a BSc course in Managements Sciences (Operational Research) at the London School of Economics and Political Sciences. This first leg gave me the first glimpse of the wonderful world of problem solving and structured thinking. Where intuition, through acquired processes, can be developed into sustainable ideas that can stand debate. These acquired processes gradually interlace with personal experiences and individuality to become part of the approach you have to everyday problem solving.

Fascinated by the possibility of applying systematic thinking to real and possibly complex social problems I ventured into my PhD, the second leg of my journey. The process of completing the PhD took me through a series of emotions that helped me understand that serious research is not only a question of application of methodologies, but it is also about attitudes, primarily humility. The realisation that the great ideas you have in your mind transform into vague and vacuous statements when written on paper is a hard but necessary lesson to learn. This lesson helps one to become critical about your own work and always question the assertions that, at times, are not corroborated by facts or evidence. Parallel to the very real and recognisable emotions that I went through there was a very gradual underlining process that I was unaware I was going through. An unconscious process that has lead to a point where I can say “I am a researcher. I know how to do research”. When this process started, where it took me or what has changed in me are all questions I cannot answer, but I know I have arrived.

What is then my final destination. I have enjoyed my PhD. I loved the subject and I am fascinated by the research process, but what I enjoy most is problem solving. Real material problems where I can implement my ideas and see the consequences of my thinking. My final destination will probably be in planning or strategic planning, hopefully in a HEI, where I would apply the mental rigour and experience of HE that I have acquired during my PhD, and possibly where I could still dedicate some time to

specific research projects. However, wherever my final destination will be, I will set aside some time, probably some of my free time, to explore the feasibility of taking the multi-dimensional crystal view forward. Even if my final destination is not in Higher Education I will always have the benefit of quite an extraordinary journey that has expanded my mind while giving structure to the thoughts.

7.7.3 My conclusion on the RAE

The choice of this topic for the investigation emerges from a fascination with the RAE. The RAE is a complex system; it not only includes political and financial issues but also poses questions of governance and freedom of the academic Institutions. Yet the central questions that arise from the RAE are all about research. What is research? Can you measure it? How can you measure it? How can you define it so that you can measure it? What is the value of research? Who should research be for? Who should it benefit? A piece of apparently useless research today can have a thousand fold returns tomorrow, as has been the case with the initial research into DNA structure. Therefore should we impose standards? There are no answers, or perhaps too many, to all these questions.

The attempt to look into the RAE and to establish what consequences it has brought to Higher Education has unveiled the uneasiness that academics have with the notion of a set of criteria to judge the worth of research. There is no agreement on the answers to the above questions, but there could be agreement on the nature of the research process. Research needs creativity; it is based on intuition and lateral thinking. It could be compared to a painter that has a vision of his painting and then applies techniques, hard work and experimentation to reproduce it on canvas for the world to be seen and enjoyed. Therefore could you set standards of worth and quality on art or any other creative activity? Possibly not. Picasso was not valued for a long time before his genius was recognised. Would Picasso have been submitted to the RAE?

However, I will leave this thesis with an open question. If we compare the creative process of research with the artistic process we should perhaps look back into our history. Would Michelangelo have made a greater masterpiece than the Sistine Chapel if he was not under the control of the Catholic Church, or would Leonardo have

excelled the Last Supper if he was not sponsored by Sforza? We will never know, but compliance, standards and criteria have never stopped geniality.

References

- Baldwin, L., R. J. Paul and R. Scoble (2000). *Evaluating Standards in Higher Education: The Use of Performance Indicators*. The Transactions of the Twelfth International Conference on Assessing Quality in Higher Education, Centre for Management Quality Research at RMIT University, Melbourne, Australia, 28-30 June.
- Boaden, R. F. and F. F. Cilliers (2001). Quality and the Research Assessment Exercise: Just One Aspect of Performance. *Quality Assurance in Education* 9(1): 5-13.
- Bourke, P. (1997). *Evaluating University Research: The British Research Assessment Exercise and Australian Practice*. National Board of Employment, Education and Training - Australian Research Council - Higher Education Council. **Commission report No. 56**.
- Boyer, E. (1994). Scholarship Reconsidered: Priorities for a New Century. *Universities in the Twenty-First Century*. London, UK, National Commission on Education.
- Broadhead, L. and S. Howard (1998). "The Art of Punishing": The Research Assessment Exercise and the Ritualisation of Power in Higher Education. *Education Policy Analysis Archives* 6(8).
- Cannadine, D. (1999). *Inaugural Lecture*, Institute of Historical Research, London.
- Cave, M., S. Hanney, M. Henkel and M. Kogan (1997). Performance Indicators of Research. *The Use of Performance Indicators in Higher Education: The Challenge of the Quality Movement*. London, UK, Jessica Kingsley Publisher.
- Curran, P. J. (2000). Competition in UK Higher Education: Competitive Advantage in the Research Assessment Exercise and Porter's Diamond Model. *Higher Education Quarterly* 54(4): 386-410.
- Department for Education and Employment (1998). *Higher Education for the 21st Century: Response to the Dearing Report*.
- Elton, L. (2000). The UK Research Assessment Exercise: Unintended Consequences. *Higher Education Quarterly* 54(3): 274-283.
- Garrett-Jones, S. and D. Aylward (2000). Some Recent Developments in the Evaluation of University Research Outcomes in the United Kingdom. *Research Evaluation* 8(1): 69-75.
- Gibbons, M., C. Limonges, H. Nowotny, S. Schwartzman, P. Scott and M. Trow (1994). *The New Production of Knowledge: The Dynamics of Science and Research in Contemporary Societies*. London, UK, Sage Publications Ltd.
- Grey, S. J. (2000). The Research Assessment Exercise: Good or Bad for Mental Health Research. *Journal of Mental Health* 9(6): 555-557.
- HEFCE (1998). *Chairs of Unit of Assessment Panels*. Higher Education Council for England. **RAE 04/98**.

- HEFCE (1999a). *Membership of Assessment Panels*. Higher Education Council for England. **RAE 03/99**.
- HEFCE (1999b). *RAE 2001 - Guidance on Submissions*. Higher Education Council for England. **RAE 2/99**.
- HEFCE (2000). *Review of Research*. Higher Education Council for England. **00/37**.
- HEFCE (2001a). *Guide for Members of Governing Bodies of Universities and Colleges in England, Wales and Northern Ireland*. Higher Education Council for England. **01/20**.
- HEFCE (2001b). *RAE 2001: The Outcome*. Higher Education Council for England. **RAE 04/01**.
- HEFCE (2001c). *Review of Research: Report on Consultation*. Higher Education Council for England. **01/17**.
- Henkel, M. (1999). The Modernisation of Research Evaluation: The Case of the UK. *Higher Education* **38**: 105-122.
- Holmes, A. and C. Oppenheim (2001). Use of Citation Analysis to Predict the Outcome of the 2001 Research Assessment Exercise for Unit of Assessment (UoA) 61: Library and Information Management. *Information Research: an international electronic journal* **6**(2).
- Johnes, J. and J. Taylor (1990). The Evaluation of Research Output in the Higher Education Sector. *Performance Indicators in Higher Education*. Ballmoor, UK, SRHE and Open University Press.
- Kiviat, P. J. (1990). *Simulation, Technology and the Decision Process*. 1990 Winter Simulation Conference, San Diego: Society for Computer Simulation.
- Kogan, M. (1998). The Treatment of Research. *Higher Education Quarterly* **52**(1): 48-63.
- Lansley, P. R. (1998). *Key Note Speech: Strategic Challenges for the Organisation of Building Research*. BEAR '98 the W89 International Conference on Building Education and Research, Brisbane, Australia, 10, July 1998.
- Lansley, P. R. (1999). Determinants of Performance for UK Universities in Built Environment and Town and Country Planning Research. *Engineering Construction & Architectural Management* **6**(4): 391-402.
- McNay, I. (1997). *The Impact of the 1992 RAE on Institutional and Individual Behaviour in English Higher Education: The Evidence from a Research Project*. HEFCE. **M 5/97**.
- McNay, I. (1999). The Paradoxes of Research Assessment and Funding. *Changing Relationships between Higher Education and the State*. Ed. B. Little. London, UK, Jessica Kingsley Publishers Ltd: 162-190.
- Pricewaterhouse Coopers (2001). *Higher Education Financial Yearbook: The Definitive Guide to the Financial Performance of the Top Universities*. Pricewaterhouse Coopers. **ISBN: 09540310-0-8**.

- Rogers, J. (2000). The Intellectual Consequences of the Research Assessment Exercise: A Reponse. *History of the Human Sciences* **13**(2): 101-106.
- Rosenhead, J., Ed. (1989). *Rational Analysis for a Problematic World: Problem Structuring Methods for Complexity, Uncertainty and Conflict*. Chichester, UK, Wiley.
- Rossi, P. H., H. E. Freeman and M. W. Lipsey (1999). *Evaluation: A Systematic Approach*. Thousand Oaks, CA, SAGE Publications Inc.
- Select Committee on Science and Technology (2002). *The Research Assessment Exercise*. House of Commons: Science and Technology. **HC 507**.
- Talib, A. and A. Steele (2000). The Research Assessment Exercise: Strategies and Trade-Offs. *Higher Education Quarterly* **54**(1): 68-87.
- The Guardian (2000 August 30). *Schools Snap up New Teachers* by W. Woodward. pp: 7.
- The Times Higher Education Supplement (2001 August 31). *Why the Smart Cash Is Not So Clever* by A. Goddard. pp: 6-7.
- The Times Higher Education Supplement (2001 December 21/28). *Ministers Favour RAE Elite* by A. Thomson. pp: 1.
- The Times Higher Education Supplement (2001 November 30). *Investing in Success Puts Elites in Red* by T. Tysome. pp: 1.
- The Times Higher Education Supplement (2001 October 8). *RAE under Fire for 'Pressurising' Researchers* by A. Goddard.
- The Times Higher Education Supplement (2001 October 19). *A Bewildered Tribe* by S. Jenkins.
- The Times Higher Education Supplement (2001 September 14). *It Might Be Imperfect and Infuriating ...* by M. Edmunds.
- The Times Higher Education Supplement (2002 January 18). *Divide and Demotivate* by C. Clark.
- The Times Higher Education Supplement (2002 January 25). *Knives Are out as Hefce Breaks Vow* by A. Goddard. pp: 1.
- Tomlin, R. (1998). Research League Tables: Is There a Better Way? *Higher Education Quarterly* **52**(2): 204-220.
- Traynor, M. and A. M. Rafferty (1999). Nursing and the Research Assessment Exercise. *Journal of Advanced Nursing* **30**(1): 186-192.
- UK Government (1993). *Realising Our Potential - a Strategy for Science, Engineering and Technology*. HMSO. **Cm 2250**.
- Velody, I. (1999). Knowledge for What? The Intellectual Consequences of the Research Assessment Exercise. *History of the Human Sciences* **12**(4): 111-146.

Vick, D. W., A. D. Murray, G. F. Little and K. Campbell (1998). The Perceptions of Academic Lawyers Concerning the Effects of the United Kingdom's Research Assessment Exercise. *Journal of Law and Society* **25**(4): 536-561.

Warner, J. (1998). The Public Reception of the Research Assessment Exercise 1996. *Information Research: an international electronic journal* **3**(4).

Weiss, C. H. (1998). *Evaluation*. Upper Saddle Rive, New Jersey, Prentice-Hall Inc.

A - Rating Scale

Here are the RAE rating scale definitions ((HEFCE 1999b). The column on the right has been added to help understand the definitions.

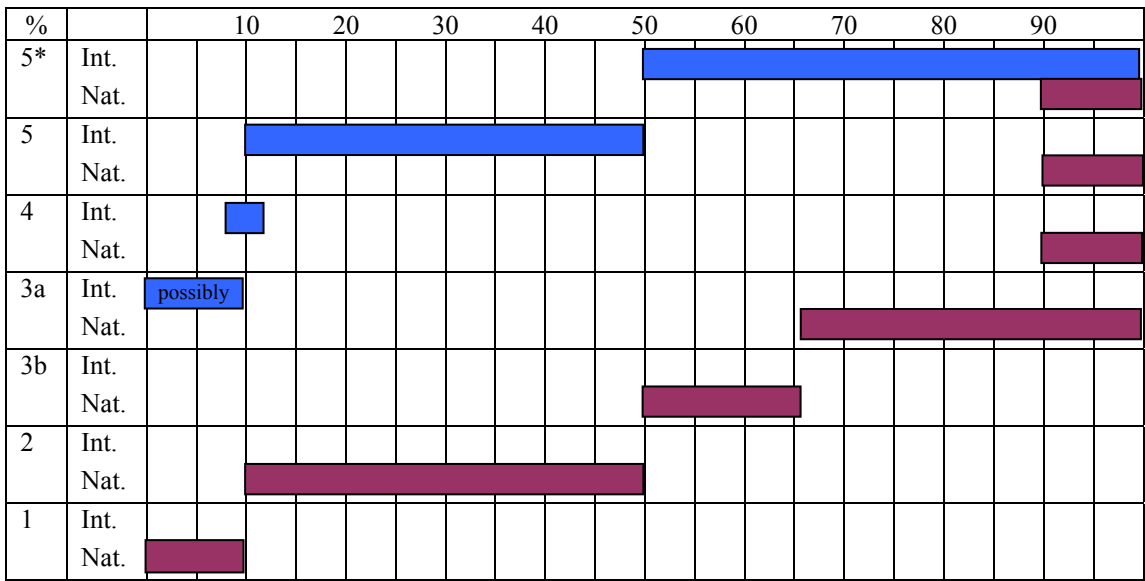
	From HEFCE	Percentages: Int. – international quality Nat. – national quality
5*	Quality that equates to attainable levels of international excellence in more than half of the research activity submitted and attainable levels of national excellence in the remainder	Int. > 50%
5	Quality that equates to 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.	10% > Int. < 50% Nat. > 90% of Total - Int.
4	Quality that equates to attainable levels of national excellence in virtually all of the research activity submitted, showing some evidence of international excellence.	Int. = 10% circa Nat. > 90%
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.	0% > Int. < 10% possibly Nat. > 66%
3b	Quality that equates to attainable levels of national excellence in more than half of the research activity submitted.	Nat. > 50%
2	Quality that equates to attainable levels of national excellence in up to half of the research activity submitted.	10% > Nat. < 50%
1	Quality that equates to attainable levels of national excellence in none, or virtually none, of the research activity submitted	Nat. < 10%

N.B.

HEFCE definitions can be visualised in the following way:

“Virtually all” and “virtually none” should be understood as within the top and bottom 10% respectively. “Some” should be understood as around 10%.

FUNDING OF RESEARCH IN HIGHER EDUCATION: A PANOPTIC VIEW OF THE RAE



B - Views of a point of observation: research director

Point of observation: research director

Opinion cell (period of assessment, research, research director):

Q: Does the period of assessment of the RAE affect in any way research quality?

Research director	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Negative effect

Researchers are very conscious of the period of assessment and consequently change their behaviour. By the end of the period researchers tend to intensify their publishing activity therefore increasing the strain on the publishing sector.

Opinion cell (units of assessment, research, research director):

Q: Does the way in which the RAE is divided into UoAs affect research quality?

Research director	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Negative effect

The way the Units of Assessment are structured within the RAE does not deal effectively with multi-disciplinarity therefore forcing researchers to compartmentalise their research to fit the Units of Assessment.

Opinion cell (number of outputs, research, research director):

Q: Does the max/min number of outputs in the RAE affect research quality?

Research director	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE effect in any way Higher Education overall funding	Does the period of assessment of the RAE effect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting effect funding	Does the way in which the RAE is divided into UoA effect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE effect funding	Does the max/min number of outputs in the RAE effect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE effect funding	Does the emphasis on research grants expenditure in the RAE effect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE effect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE effect research quality	Does the rating scale adopted by the RAE effect funding	Does the rating scale adopted by the RAE affect teaching provision

Negative effect

The drive to produce a minimum number of outputs may force researchers to perform some ‘salami-slicing’ by segmenting their research to produce more papers and, in some cases, reduce the quality.

Opinion cell (grants expenditure, research, research director):

Q: Does the emphasis on research grants expenditure in the RAE affect research quality?

Research director	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Negative effect

Grants are not a necessity for research production and for disciplines such as Information Systems it is not a surrogate for quality.

Opinion cell (PhD completions, research, research director):

Q: Does the emphasis on PhD completions in the RAE affect research quality?

Research director	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Positive effect

The drive to increase the number of PhD students in the sector and to drive them to complete on time is very positive.

Opinion cell (expert panels, research, research director):

Q: Does the assessment of the RAE through expert panels affect research quality?

Research director	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Negative effect

Expert panels give an element of judgement. Since the panel members are selected from the established community they also introduce an element of conservatism.

Opinion cell (rating scale, research, research director):

Q: Does the rating scale adopted by the RAE affect research quality?

Research director	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Negative effect

While the rating scale is attribute to a department it is perceived as a measure of the individual, therefore changing behaviours and strategies.

Opinion cell (period of assessment, funding, research director):

Q: Does the period of assessment of the RAE affect in any way Higher Education overall funding?

Research director	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Negative effect

Funding from the RAE is awarded for a long period. This period does not necessarily fit with planning strategies.

Opinion cell (units of assessment, funding, research director):

Q: Does the way in which the RAE is divided into UoA and their weighting affect funding?

Research director	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Negative effect

Researchers shift between Units of Assessment and avoid multi-disciplinarity to maximise their chances of achieving high ratings and, therefore, increased funding.

Opinion cell (number of outputs, funding, research director):

Q: Does the max/min number of outputs in the RAE affect funding?

Research director	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

No causal effect

Opinion cell (grants expenditure, funding, research director):

Q: Does the emphasis on research grants expenditure in the RAE affect funding?

Research director	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Positive effect

An increase in grants is, overall positive, since it increases the overall funding and it diversifies the income sources.

Opinion cell (PhD completions, funding, research director):

Q: Does the emphasis on PhD completions in the RAE affect funding?

Research director	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Positive effect

As for the grants income, income for PhD studentships diversifies the Institutions' income streams.

Opinion cell (expert panels, funding, research director):

Q: Does the assessment of the RAE through expert panels affect funding?

Research director	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

No causal effect

Opinion cell (rating scale, funding, research director):

Q: Does the rating scale adopted by the RAE affect funding?

Research director	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Negative effect

The funding levels are unpredictable since their set after the assessment process it is very difficult for Institutions to use the funding from the RAE for any budgetary and planning activity.

Opinion cell (period of assessment, teaching, research director):

Q: Does the period of assessment of the RAE affect in any way teaching provision?

Research director	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

No causal effect

Opinion cell (units of assessment, teaching, research director):

Q: Does the way in which the RAE is divided into UoA affect teaching provision?

Research director	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

No causal effect

Opinion cell (number of outputs, teaching, research director):

Q: Does the max/min number of outputs in the RAE affect the teaching provision?

Research director	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Negative effect

The RAE forces research active staff to concentrate on research while there are no equivalent drivers for teaching.

Opinion cell (grants expenditure, teaching, research director):

Q: Does the emphasis on research grants expenditure in the RAE affect teaching provision?

Research director	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

Negative effect

The drive to increase income from grants, shifts resources away from teaching.

Opinion cell (PhD completion, teaching, research director):

Q: Does the emphasis on PhD completions in the RAE affect teaching provision?

Research director	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

No causal effect

Opinion cell (expert panels, teaching, research director):

Q: Does the assessment of the RAE through expert panels affect teaching provision?

Research director	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

No causal effect

Opinion cell (rating scale, teaching, research director):

Q: Does the rating scale adopted by the RAE affect teaching provision?

Research director	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

No causal effect

Point of observation: research director – completed table

Research director	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Does the period of assessment of the RAE affect in any way research quality	Does the period of assessment of the RAE affect in any way Higher Education overall funding	Does the period of assessment of the RAE affect in any way teaching provision
<i>units of assessment</i>	Does the way in which the RAE is divided into UoAs affect research quality	Does the way in which the RAE is divided into UoA and their weighting affect funding	Does the way in which the RAE is divided into UoA affect teaching provision
<i>number of outputs</i>	Does the max/min number of outputs in the RAE affect research quality	Does the max/min number of outputs in the RAE affect funding	Does the max/min number of outputs in the RAE affect the teaching provision
<i>grants expenditure</i>	Does the emphasis on research grants expenditure in the RAE affect research quality	Does the emphasis on research grants expenditure in the RAE affect funding	Does the emphasis on research grants expenditure in the RAE affect teaching provision
<i>PhD completions</i>	Does the emphasis on PhD completions in the RAE affect research quality	Does the emphasis on PhD completions in the RAE affect funding	Does the emphasis on PhD completions in the RAE affect teaching provision
<i>expert panels</i>	Does the assessment of the RAE through expert panels affect research quality	Does the assessment of the RAE through expert panels affect funding	Does the assessment of the RAE through expert panels affect teaching provision
<i>rating scale</i>	Does the rating scale adopted by the RAE affect research quality	Does the rating scale adopted by the RAE affect funding	Does the rating scale adopted by the RAE affect teaching provision

The following is the textual completion of all opinion cells from the point of observation of the research director.

Research director	<i>research</i>	<i>funding</i>	<i>teaching</i>
<i>period of assessment</i>	Distortions of research activity.	Incompatible with planning cycle.	Distortion of teaching provision.
<i>units of assessment</i>	Negative effects on multi-disciplinarity.	Subject funding no multi-disciplinary funding.	
<i>number of outputs</i>	Distortions of research activity and 'salami-slicing'.		Distortion of teaching provision.
<i>grants expenditure</i>	Artificial measure of quality.	Increase in income stream	Distortion of teaching provision.
<i>PhD completions</i>	Increase of research resources.	Increase in income stream.	
<i>expert panels</i>	Conservatism.		
<i>rating scale</i>	Distortion of researcher's reputation.	Unpredictable funding.	

Table 14 – Point of observation: research director – completed textual table

C - Units of Assessment

1. Clinical Laboratory Sciences
2. Community-based Clinical Subjects
3. Hospital-based Clinical Subjects
4. Clinical Dentistry
5. Pre Clinical Studies
6. Anatomy
7. Physiology
8. Pharmacology
9. Pharmacy
10. Nursing
11. Other Studies and Professions Allied to Medicine
12. Discontinued for 2001
13. Psychology
14. Biological Sciences
15. Agriculture
16. Food Science and Technology
17. Veterinary Science
18. Chemistry
19. Physics
20. Earth Sciences
21. Environmental Sciences
22. Pure Mathematics
23. Applied Mathematics
24. Statistics and Operational Research
25. Computer Science
26. General Engineering
27. Chemical Engineering
28. Civil Engineering
29. Electrical and Electronic Engineering
30. Mechanical, Aeronautical and Manufacturing Engineering

31. 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. Social Policy and Administration
41. Social Work
42. Sociology
43. Business and Management Studies
44. Accountancy
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

D - Glossary

Funding Councils		The Funding Councils distribute public money for teaching and research to universities and colleges. In doing so, it aims to promote high quality education and research, within a financially healthy sector. The Councils also plays a key role in ensuring accountability and promoting good practice.
Census date	<i>RAE definition</i>	The date for assigning research active individuals to the HEIs where they are in post.
Expert panel		A number of individuals selected for their expertise in order to assess the RAE submission in their particular area.
Grant income		Income from a research project spent in the period.
HEFCE		The Higher Education Funding Council for England.
Panoptic		All-embracing, viewing all aspects.
Period of Assessment	<i>RAE definition</i>	The period in which the research output submitted have to be in the public domain. For the 2001 RAE the period was from 1 January 1994 to 31 December 2000 for arts and humanities subjects (UoAs 45 to 67 inclusive); and 1 January 1996 to 31 December 2000 for other subjects (UoAs 1 to 44, 68 and 69).
PhD completions		Number of PhD's awarded in the period.
RA5	<i>RAE definition</i>	Textual description including information about the environment, structure, policies and strategies within which research is undertaken and developed.
RA6		Textual description of the esteem in which the active researcher submitted are held by their peers.
Rating		Grade assigned by the expert panel to the individual submissions.

Research active	<i>RAE definition</i>	Individuals in an HEI who are (or have been) employed under a contract of salaried employment with the HEI during the specified period of assessment and whose primary employment function is (or was) teaching, research or both.
Research Councils		<p>There are seven UK Research Councils each established under Royal Charter. The Councils fulfil the objectives set out by Government in the White Paper "<i>Realising our Potential</i>" (1993). Statutory control of the Councils is exercised by the Department of Trade & Industry, supported by the Director-General of Research Councils within the Office of Science & Technology.</p> <p>Their remit is to support research by funding specific research project in line with the Department of Trade & Industry priorities.</p>
Research Output	<i>RAE definition</i>	<p>Research output produced, during the assessment period, by any staff member submitted as research active. These may be any form of publicly available assessable output, including work that is directly relevant to industrial, business, governmental and other users of research. The items selected should be the outcomes of research which best reflect the quality of work of the member of staff. Work which is forthcoming may not be submitted, even if it has been accepted for publication.</p> <p>In general all work which is eligible for submission must be publicly available. The sole exception to this is where completed work is not in the public domain because it is confidential.</p>
Submission	<i>RAE definition</i>	A complete set of returns describing the research submitted in the specified area by an Institution for assessment.
Unit of Assessment	<i>RAE definition</i>	(UoA) means an academic subject area or grouping as defined in Appendix C - Units of Assessment.