

**DOES UNIVERSITY RESEARCH IMPROVE UNIVERSITY  
TEACHING IN MANAGEMENT?**

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## Abstract

It seems widely accepted, not least by academics, that university research improves university teaching. However, it is not always clear how important the links are. In the UK a huge amount of detailed information has become available as a result of two extensive exercises undertaken to measure the quality of research and teaching – the Research Assessment Exercise (RAE) and the work of the government Quality Assurance Agency (QAA). The RAE was primarily set up to provide the basis on which public funds for research could be allocated by government funding bodies though it is now used more generally as an indicator of the quality of research in university departments. The QAA's mission is to safeguard the public interest in sound standards of higher education qualifications. The result of their work has generated a natural experiment in which universities departments strove to achieve the best results they could for their research and teaching. During 2000/2001 university departments including those in Business and Management were assessed by the QAA and in 2001 the results of the most recent RAE assessment of university research performance were also published. This paper reviews the two exercises and then undertakes some preliminary analysis of the results for departments of Business and Management and also, as a comparison, for Economics departments. On the basis of the evidence so far, it does not seem that high quality research as defined by the RAE has a very large and measurable benefit on the quality of teaching. However, the analysis of teaching quality and research outcomes using chi-square indicates that the results for Economics are significant at the 10 per cent level but not at the 5 per cent level. For Business and Management there is no statistically significant association between higher scores in the RAE and higher scores in the QAA reviews. Such a result may have arisen for one or more of a range of reasons. One plausible possibility is that the range and nature of the research that helps the delivery of excellent teaching in Business and Management is not the same as it is in Economics.

## 1. Introduction

University research is widely thought to improve university teaching. This seems to be a view held particularly by academics (see for example, Elton, 2001). This has not always been the case. In the preface to his influential *The Idea of a University* John Henry Newman (1854) wrote:

[A University] is a place of *teaching universal knowledge*. This implies that its object is, on the one hand, intellectual, not moral; and, on the other, that it is the diffusion and extension of knowledge rather than the advancement. If its object were scientific and philosophical discovery, I do not see why a University should have students;

However, as outlined below, research has more recently been thought to be important to university teaching and teaching to have benefits for research. What is not clear is how important these benefits are. Distinguished academics have taken more than a passing interest in these matters. One in particular, Lionel Robbins, chaired the

Committee on Higher Education that had such a powerful influence on the subsequent development of the university sector in the UK. Views on the subject of university research and teaching were expressed clearly in the Robbins Report (Committee on Higher Education, 1963: 90). The Committee stated that 'We use "research" as a convenient portmanteau word to cover the wide range of intellectual activities that serve to increase man's power to understand, evaluate and modify his world and his experience' (para. 553). The Committee went on to say:

It is the essence of higher education that it introduces students to a world of intellectual responsibility and intellectual discovery in which they are to play their part. They have to be taught techniques and methods and acquire a corpus of relevant knowledge; but, more important, they have to be inspired to learn and to work. Here an ounce of example is worth a pound of exhortation. The element of partnership between teacher and taught in a common pursuit of knowledge and understanding, present to some extent in all education, should become the dominant element as the pupil matures and as the intellectual level of work done rises. In the graduate school there are no ultimate authorities, no orthodoxies to which the pupil must subscribe, and he finds himself taking his part, however, humbly and modestly, in the task of making experience intelligible and illuminating areas of ignorance (para. 555).

Although the Robbins Report gave a clear indication of the importance of research to higher education, Robbins himself was aware that there were difficulties in achieving the right balance between teaching and research and these seemed to have increased since the publication of the Robbins Report. As Robbins (1980: 66) subsequently pointed out, the emphasis has shifted from teaching to research and publication. He suggested that two consequences follow from this. The first and 'lesser evil, is that a good deal of time is wasted on research and publication which frankly is not worthwhile'. The second and more serious was 'Where promotion depends on publication, students and teaching tend to be neglected. Teaching and supervision tend to be regarded as evils subtracting time from one's own research' (*ibid.*, p. 67). Possibly this was an unduly pessimistic view but questions remain about how much and in what way research and teaching are complementary activities.

More recently UK universities have been subject to extensive and detailed research of their research output by the Research Assessment Exercise (RAE) and teaching quality by the Quality Assurance Agency (QAA). These have generated a very large amount of data. Although as indicated below there are substantial difficulties in interpreting this data, it does provide a huge amount of information about the academic output of UK universities.

This paper starts in section 2 by looking at the possible relationships between research and teaching. Sections 3 and 4 examine the work of the RAE and the QAA in turn. Section 5 looks at some relationships relating to the data and with respect to Business and Management and also Economics. Finally Section 5 outlines scope for further research.

## **2. The Relationship between Research and Teaching**

HEFCE (2000) identified three main mechanisms by which teaching benefits from research and scholarly activity and these can be used as a framework for summarising

such benefits as in Table 1. The first was direct knowledge-led benefits where student learning can benefit from knowledge at the 'cutting edge'. Secondly there may be 'direct culture-led' benefits arising from students being exposed to a research culture. Thirdly there may be 'indirect resource-based' benefits whereby teaching can benefit from the resources made available for research and to beneficial effects on the reputation of institutions and the calibre of staff it can attract. In a recent survey Zaman (2004) has also identified a number of possible links between teaching and research and some these are also incorporated in Table 1.

Teaching may, of course, also enhance research. It can provide a direct stimulus in the generation of both new ideas and data that can contribute to further research. Teaching a subject might clarify thinking and the ability to explain a topic. Furthermore it may help researchers to appreciate the subject as a whole and to link their research into related areas.

As Zaman points out (2004: 7), although there is considerable empirical research on the relationship between the quality of teaching and research, it is not an easy relationship to measure and much of the relevant research is critically flawed through defects in methodology. The 'quality' of teaching, of course, might be defined differently for different groups of students or in different subjects and, except possibly for the most basic forms of teaching, is very difficult to measure. 'Research' may also be defined in many ways and different types of research might contribute to teaching quality in different ways.

One of the biggest difficulties is that there are important factors that will affect both teaching and research. One of the most obvious is the level of resources available. Others include the type and culture of an institution, the level of study, the subject area and the profile of the academic staff. The stage of an academic's career might also make a difference. Possibly younger academics might be more enthusiastic and students find it easier to engage with them but they might devote more of their time to research in order to establish their careers. More experienced academics might find that experience valuable in both teaching and research. Furthermore the existing knowledge, abilities and motivation of the students can make a substantial difference to the types of teaching required and to their more general contribution to the academic activity in an institution.

Nevertheless, despite the difficulties, it is worth briefly reviewing some of the existing work. An early study by Faia (1976) examined 11 previous studies finding that four showed no relationship between teaching and research though the others found weak positive associations. In his own study Faia used a sample of 53,034 US teachers in higher education collected by the American Council on Education during 1972/73. The study examined whether or not the teachers had received an award for outstanding teaching (almost 17.5 per cent had) with the number of self-reported publications or acceptances in the preceding two years. The study did find a relationship between these two variables.

## **Table 1 Reasons Why Research May Enhance Teaching**

### **Knowledge – led benefits**

Active researchers have expert and current knowledge in the field. Textbooks may not contain the latest developments in the field.

Students benefit from direct exposure to current methods and approaches involved in scholarly activity.

### **Culture-led benefits**

Active researchers might be more successful in transmitting a critical approach rather than a passive acceptance of facts.

Students benefit from a spirit of enquiry and might be stimulated by the experience of being at the frontiers of knowledge.

Research increases the credibility of the teachers and thereby might increase the willingness of students to learn.

Research activity could help maintain the teacher's interest in the subject.

There may be a beneficial impact on the reputation of an institution that research can generate.

### **Indirect resource-based benefits**

Teaching activity may share resources provided for research that would not otherwise be available.

Research attracts high quality staff. Furthermore personal abilities and skills necessary for excellence in research might also contribute to excellence in other areas of academic activity.

Research can increase lecturers' skills of communication, methodology as well as confidence and thereby improve their performance as teachers.

Centra (1983) cited several studies from the USA in the 1960s and 1970s and used two large samples for his own investigation. He concluded that students' ratings of teaching are either unrelated or not strongly related to research productivity. Feldman (1987) and Hattie and Marsh (1996) used meta-analysis - statistical procedures designed to analyse and integrate the results of a range of individual studies. Feldman included 29 studies, which Hattie and Marsh also included in their collection of 58 studies. Both Feldman and Hattie and Marsh found the overall relationship between the quality of teaching and research to be slightly positive.

Noser *et al.* (1996) looked specifically at Economics academics in the USA basing their study on a mail questionnaire sent at random in 1992 to 1,000 members of the American Economics Association. The response rate was 34.4 per cent. Teaching performance was based on student course evaluations though it was recognised that these could be influenced by factors such as the interpersonal skills of the teacher. The authors found only a marginal relationship between research and teaching effectiveness.

There has been some work examining the UK's research assessment results and teaching quality assessment (TQA). Ellis (2001) looked at the research and teaching results for English departments that entered both the 1996 research assessment exercise and the 1995 teaching quality assessment. Drennan and Beck (2001) examined the relationship between TQA scores and other variables. They took the mean TQA scores for all subjects across each institution with the mean RAE scores from the 1996 exercise. In order to isolate the contribution of research to teaching quality results the authors also took account of other factors, particularly the entry standards for students in terms of examination scores on entry, the staff/student ratio and spending on libraries and computers. Drennan and Beck found a significant correlation between TQA scores, student entry standards and RAE results. However, since that time there has been a further round of TQA inspections and RAE results. Furthermore their results were general ones across universities and this paper examines Economics and, for comparative purposes, Business and Management Studies. However, first of all, it is helpful to summarise the main types of university in the UK.

### *UK Universities*

In the UK, although there have been times when universities were considered equal in some respects, there are identifiable categories. A distinction is sometimes made between 'research-led' and 'teaching led' universities. Such a distinction is thought to be present in many countries, including the UK and the USA. In the UK the ancient universities are well known and have long traditions of teaching and research. Many more universities were established in the 19<sup>th</sup> and 20<sup>th</sup> centuries with similar missions of teaching and research. In a supposedly parallel development, polytechnics were established with a primary mission of teaching. The Polytechnics and Colleges Funding Council (PCFC) was formed in 1988 to allocate government funding across this sector but had only a small amount of money to support research. The 1992 Further and Higher Education Act led to most of the institutions covered by the PCFC being re-titled as universities. However, as noted for example by HEFCE (1997), the post 1992 universities 'had a stronger orientation toward professional education and

multi-disciplinary study. Their smaller research portfolios were built up from consultancy or contract and applied work, sponsored by (often local) users'. In contrast HEFCE pointed out that 'all institutions funded by the Universities Funding Council were funded for research, and had reasonably similar amounts of teaching and research activity and similar disciplinary priorities'.

### **3. The Research Assessment Exercise**

The RAE was set up to measure research output in higher education in the UK in order to form the basis of allocating public money for research. The RAE was first undertaken in 1986 and subsequently in 1989, 1992, 1996 and 2001. The next RAE is scheduled for 2007 with the results due to be published in 2008. The RAE was changed significantly in 1992 with the creation of the new universities largely from the established polytechnics and the setting up of new Higher Education Funding Councils.

For the RAE 2001 research was divided into 68 subject areas, known as Units of Assessment (UoAs). Institutions of higher education were invited to make submissions to as many UoAs as they chose. Each submission contained a list of 'research active staff' with up to four research outputs per person for the previous five years in most subjects but seven years in most humanities subjects. The research outputs could consist of journal articles, books, book chapters and so on. Each UoA Panel then made judgements about the quality of the research submission and allocated a rating varying from 1 (excellence achieved in none or virtually none of the research submitted) up to 5\* (more than half the research at international levels of excellence). Further details of the rating scale and definitions are given in Table 2. For each submission, the proportion of the research active academic staff was indicated by a suffix ranging from A denoting over 95 per cent of staff submitted to F denoting less than 20 per cent.

**Table 2 The Rating Scale and Definitions used in the 2001 RAE**

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- 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.
  5. Quality that equates to attainable levels of international excellence in up to half of the research activity submitted and to attainable levels of national excellence in virtually all of the remainder.
  4. Quality that equates to attainable levels of national excellence in virtually all of the research activity submitted, showing some evidence of international excellence.
  - 3a Quality that equates to attainable levels of national excellence in over two-thirds of the research activity submitted, possibly showing evidence of international excellence.
  - 3b Quality that equates to attainable levels of national excellence in more than half of the research activity submitted.
  2. Quality that equates to attainable levels of national excellence in up to half of the research activity submitted.
  1. Quality that equates to attainable levels of national excellence in none, or virtually none, of the research activity submitted.
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*Source:* HERO, RAE 2001 Research Assessment Exercise: The Outcome, Section 3. [www.hero.ac.uk/rae/Pubs/4\\_01/section3.htm](http://www.hero.ac.uk/rae/Pubs/4_01/section3.htm), accessed 12 May 2004

*The RAE 2001: Overall Results*

For the 2001 RAE There were 2,598 submissions from 173 institutions of higher education for the RAE 2001. The submissions represented the work of just over 48,000 researchers – some 50 fewer than in 1996. The results were announced with claims that the RAE had substantially improved research output in the UK. As Table 3 shows, in 1996 31 per cent of research active academics worked in 573 departments rated at 5 or 5\* (a substantial proportion of the work submitted was of ‘international excellence’). In 2001 55 per cent of academics of research active staff were working in 1,081 departments rated at 5 or 5\*. Furthermore 64 per cent of the work submitted was ranked at levels of national or international levels of excellence – ratings of 4, 5 or 5\*.

**Table 3 The Distribution of Staff and Departments in RAE Grades**

Rating	1996			2001		
	Number of staff	Percentage of staff	Number of depts.	Number of staff	Percentage of staff	Number of depts
5*	5,173	10.8	170	8,975	18.7	326
5	9,610	20.0	403	17,278	36.0	755
4	13,263	27.6	671	11,913	24.8	690
3a	8,862	18.4	528	5,981	12.4	520
3b	5,233	10.9	422	2,635	5.5	279
2	4,329	9.0	464	1,144	2.4	140
1	1,625	3.4	236	94	0.2	18
Total	48,095	100	2894	48,020	100	2,728

Source: House of Commons (2002).

There have been reservations expressed that the improved scores were not entirely the result of improvements in research output but to some extent because UK universities were becoming more expert in manipulating the RAE system. The Parliamentary Science and Technology Committee considered some of these concerns, quoting for example the biological societies' statement that 'some or all of this improved RAE score is undoubtedly due to increased familiarity with RAE exercises and the ability of university departments to play the RAE game' (House of Commons, 2002, para. 23). There were also concerns such that valuable academic staff, who were excluded from the RAE only in order that their institution could achieve a higher rating, found their careers blighted and some subsequently faced redundancy or early retirement. The Committee suspected that the RAE had been a contributory factor in the closure of some university science departments (para. 44). It was also thought the RAE might have had an adverse effect on teaching: 'If a strong financial incentive is introduced in one area of universities' activities, it cannot fail to have a negative effect elsewhere. It seems likely that the RAE has had this effect on teaching' (para. 48). The Committee thought that the RAE had distracted universities from other traditional contributions and concluded that:

The RAE has undoubtedly brought benefits but it has also caused collateral damage. It has damaged staff careers and it has distracted universities from their teaching, community and economic development roles. Higher education should encourage excellence in all these areas, not just in research (House of Commons, 2002, para. 59).

Nevertheless, it was an exercise that universities take very seriously and therefore the results are worth examining.

*The RAE Results in Business and Management and in Economics*

The RAE results are available on the Higher Education and Research Opportunities (HERO) website <http://www.hero.ac.uk/rae/Results/>. The outcomes for Business and

Management Studies are discussed in the overview report RAE (2002a) and for Economics and Econometrics in RAE (2002b). There were links between the work of the two panels. In addition to assessing the contributions made directly to it, the Economics and Econometrics Panel also assessed 12 groups of economists that had been submitted under the Business and Management unit of assessment but had been referred to it by the Business and Management panel. There had also been some movement by institutions in the subject area of submission. The number of universities making submissions to Economics and Econometrics had fallen significantly from 1992 to 1996 and again in the 2001 exercise. As the Economics Panel pointed out, (RAE 2002b, para. 3) this seemed to reflect a trend where an 'ever larger number of departments return to the Business and Management Studies Panel'.

For Business and Management, the outcomes of the RAE include the reflections of the Panel in Business and Management in a paper authored by all 14 of them (Bessant, *et al.*, 2003). The results for 1992, 1996 and 2001 are shown in Table 4. As the entries for Business and Management were larger and more stable than for those in Economics and this Panel covered a wider range of study, it seemed worth looking at the improvements in RAE ratings over the period for those entries. Table 4 indicates that the general direction has been one of improvement. The final column on the right indicates for each institution an improvement in the rating as a plus sign (+) and a fall as a minus sign (-). This was derived on the basis of the numerical grade and not on the proportion of staff submitted unless the numerical grade had remained the same.

**Table 4 Research Assessment Exercise 1992-2001**  
**Unit of Assessment: Business and Management**

	1992	1996	2001	+ or -
Aberdeen, University of	1A	3bC	3aB	+
Abertay, University of, Dundee	1D	1D	3bE	+
Anglia Polytechnic University	2E	2E	2D	0
Aston University	3B	4C	5B	+
Bath University of	3B	5B	5A	+
Bath College of HE	2C	1D	-	W
Birkbeck College	-	3aA	4B	+
Birmingham, University of	3B	4C	4D	+
Bolton Institute of HE	1E	2E	1D	0
Bournemouth University	2F	2F	3aE	+
Bradford, University of	5B	4A	4C	-
Brighton, University of	2D	3aE	3aE	+
Brunel University	2A	3bC	4C	+
Buckinghamshire Chilterns University College	1E	2F	2E	+
Cambridge, University of	-	4A	5A	+
Central England, University of (Birmingham)		2D	2F	0
Central Lancashire, University of	1E	2F	-	W
City University	4B	4B	5C	+
Coventry University	2E	2F	2E	0
Cranfield University	3D	4D	4D	+
De Montfort University	2E	3bC	3aC	+
Derby, University of	1E	2E	2E	+
Durham, University of	2C	3aD	3aD	+
East Anglia, University of		2C	3aC	+
East London, University of		2E	2E	0
Edinburgh, University of	3A	4A	4B	+
Exeter, University of		2D	4C	+
Glamorgan, University of	1E	2E	3bD	+
Glasgow, University of	3B	4B	4C	+
Glasgow Caledonian University	1D	3bE	3aE	+
Gloucestershire, University of	1E	2E	3aD	+
Greenwich, University of	1C	2F	3bF	+
Heriot-Watt University	3C	3aC	4D	+
Hertfordshire, University of	2E	3bC	3aC	+
Huddersfield, University of	2E	2C	3bE	+
Hull, University of	3A	2C	4C	+
Imperial College	3A	4C	5B	+
Keele University	3A	4A	4B	+
Kent, University of, at Canterbury	3B	3aC	3aC	0
King's College, London	1A	3bC	4B	+
Kingston University	2E	3bD	3aE	+
Lancaster University	5B	5*B	5*B	+
Leeds, University of	2A	4C	5C	+
Leeds Metropolitan University		2E	2F	0
Leicester, University of		2A	3aB	+
Lincoln, University of		3aF	3bD	-
Liverpool John Moores University	2E	2E	3bE	+
London Business School	5A	5*A	5*A	+
London School of Economics	5A	5A	5A	0
London Guildhall University	1F	1F	3bF	+
Loughborough University	4B	3aB	4C	0

Luton, University	1F	2F	3aE	+
Manchester, University of	3a	4B	5C	+
UMIST	5A	5*A	5A	0
Manchester Metropolitan University	2E	3bE	3aE	+
Middlesex University	2D	2E	3aE	+
Napier University	1F	-	3bE	+
Newcastle upon Tyne, University of	2B	2D	3aC	+
Northampton, University College	1F	1E	2E	+
North London, University of	1D	2E	3bE	+
Northumbria, University of	1F	2F	3bF	+
Nottingham, University of	3A	4B	5B	+
Nottingham Trent University	1E	3aF	3bD	+
Open University		3aE	3aD	0
Oxford, University of	3a	4B	5A	+
Oxford Brookes University	1E	1E	2F	+
Paisley, University of	1E	2E	2E	+
Plymouth, University of	1D	2D	3bE	+
Portsmouth, University of	2E	3bE	4C	+
Queen Margaret College	1E	1E	2C	+
Queen's University of Belfast	-	-	4B	+
Reading, University	-	5B	5C	0
Robert Gordon University	1E	3bF	2F	+
Royal Holloway, University of London		3aA	4B	+
St Andrews, University of	3B	4B	4A	+
Salford, University of	2C	-	3aB	+
Sheffield, University of	3A	4B	4B	+
Sheffield Hallam University	3F	3bF	3bF	0
Southampton, University of	4B	5B	4B	0
Southampton Institute	1E	1E	2D	+
South Bank University		3bE	3aE	+
Stirling, University of	2C	3aC	4B	+
Staffordshire University		2E	3bE	+
Strathclyde, University of	5B	5C	4C	-
Sunderland, University of			2F	+
Surrey, University of	3C	3aD	4C	+
Teeside, University of	1E	1E	-	W
Thames Valley University	1F	1F	-	W
Trinity and All Saints		1E	1F	0
Ulster, University of	3E	3aE	3aD	0
Wales, University of, Aberystwyth			3bC	+
Wales, University of, Bangor	3A	3bB	-	W
Wales, University of, Cardiff	4A	5B	5B	+
Wales, University of, Swansea	3C	3aC	3aD	0
Warwick, University of	5A	5A	5*B	+
West of England, University of	1F	2F	3aD	+
Westminster, University of	2F	3bE	3bE	+
Wolverhampton, University of		2F	3bF	+

N = 97

Source: Figures compiled from the RAE outcomes of 1992, 1996 and 2001.

The final letter indicates the proportion of staff submitted to the RAE as research-active as follows:

- A 95-100 per cent of staff submitted
- B 80-94.9 per cent
- C 60-79.9 per cent
- D 40-59.9 per cent

- E 20-39.9 per cent
- F below 20 per cent

Key + Improvement in terms of numerical RAE ranking

- A fall in the numerical ranking

- W withdrew from entering under Business and Management for the 2001 exercise.

This could not be a precise exercise. There had been some changes in grade definitions over the period. Furthermore, as already indicated, institutions could submit researchers to any panel of their choice. Some institutions switched either part or all of their submissions in to or out of this Unit of Assessment over the period 1992-2001. It is not known how far such changes were for tactical reasons to maximise the institutions' overall funding return across all RAE units of assessment rather than to expand or contract their actual presence in Business and Management. It is therefore not possible to tell from the RAE results alone what had happened to the overall quality of research undertaken in these institutions. Furthermore the figures are complicated by the fact that institutions could submit more than one return to a single panel and three chose to do so in the case of Business and Management. In such cases the main submission is the one shown in Table 5.

The calculation in the final column on the right of Table 4 indicates that the overwhelming majority – 73 - improved their research rating over the period from 1992 to 2001. Some (17) maintained their position. For example the London School of Economics was ranked a 5A in 1992, 1996 and 2001. Only three received a lower grade. No statistical testing is needed to see that there has been a considerable improvement in scores over the period but it is not clear how much this is due to an increase in the quality of research, increased expertise in meeting RAE criteria or grade inflation. What is indisputable is that institutions have put a great deal more effort into meeting these criteria.

## 4. The Quality Assurance Agency

The QAA was established to provide public assurance that the standards and quality in higher education are being safeguarded and enhanced (QAA, 2004). The process of the teaching quality assessment (TQA) varied between the parts of the UK. However, during the period 2000/2001 they all included the preparation of a Self-Assessment Document (which became known as a SAD and the name of this document was subsequently changed!). There was also a visit by a panel of specialist subject reviewers chaired by a person who was not a specialist in the subject under review. The reviewers were mainly nominated by universities themselves but also included some industrialists and practitioners.

From the first round of TQAs in 1993/94 the older established universities achieved the largest proportion of the best results with the newer universities doing noticeably less well. This was attributed, among other things, to preconceptions of assessors drawn from the more established universities and to the much lower level of resources available to the new universities (Drennan and Beck, 2001). For the reviews covered in this paper and conducted from 1999 to 2001 the panels examined six aspects of provision:

Curriculum Design, Content and Organisation  
Teaching, Learning and Assessment  
Student Progression and Achievement  
Student Support and Guidance  
Learning Resources  
Quality Management and Enhancement

The tests to be applied by the QAA teams were:

- a) To what extent do the student learning experience and student achievement, within this aspect of provision, contribute to meeting the objectives set by the subject provider?
- b) Do the objectives set, and the level of attainment of those objectives, allow the aims set by the subject provider to be met?

The scale points 1-4 were then awarded according to the following criteria:

1. The aims and/or objectives set by the subject provider are not met; there are major shortcomings that must be rectified.
2. This aspect makes an acceptable contribution to the attainment of the stated objectives, but significant improvement could be made. The aims set by the subject provider are broadly met.
3. This aspect makes a substantial contribution to the attainment of the stated objectives; however, there is scope for improvement. The aims set by the subject provider are substantially met.

4. This aspect makes a full contribution to the attainment of the stated objectives. The aims set by the subject provider are met.

Business and Management departments were reviewed in 1999-2001 and the general outcomes described in the subject overview report (QAA, 2001a). Economics departments were reviewed over the period 2000-2001 and that process was reported in the same way (QAA, 2001b). These reviews covered institutions in England and Northern Ireland. Separate reviews were conducted for Scotland and Wales so this paper will deal only with the institutions reviewed in England and Northern Ireland.

## **5. Relationships Relating to RAE and QAA scores.**

### *Limitations of the Data*

As indicated above there are limitations to the reliance that can be put on calculations based on data such as that generated by the RAE and the QAA – even though both produced a great deal of detailed information painstakingly collected about UK university departments. It must be very likely that both teaching and research are enhanced by greater resources and not all UK universities are resourced to the same level. As described in Section 2, the ‘pre-1992’ or ‘old’ universities have been resourced for research at higher levels than the ‘new’ universities. The staff in the old universities have normally had lower teaching loads and therefore might not only be able to produce more research but also higher quality teaching. Another matter is the quality of research. The RAE deliberately sets out to award higher ratings to higher quality research. If there are benefits to teaching from research it might not be restricted to highly regarded research. Many of the benefits of research to teaching listed in Table 1 will be generated, at least to some extent, by research whether it is ‘internationally excellent’ or not. Furthermore, the RAE only considered a maximum of four published outputs per academic which meant that research output as a whole was not considered. The people involved are also important. The quality of students and the calibre of the staff vary between institutions. Some of the relevant variables – such as the students’ recorded level of academic achievement on entering university – can be measured but many others can not. Some of these limitations can be addressed by further research. However a preliminary examination of the RAE and QAA is a useful place to start.

### *Possible Relationships between Research and Teaching.*

The RAE was conducted in the same way throughout the UK but the QAA reviews differed for Scotland and Wales. Therefore departments of Economics and Business and Management in English universities and Northern Ireland are included in these calculations but not those from Scotland or Wales.

For the purposes of statistical testing, the QAA results were divided into two groups. The higher-scoring group consisted of those achieving the 24 point maximum together with those just below at 23. Those who scored 22 or fewer overall points were included in the second group.

For the RAE those scoring 4 or 5 with virtually all their submitted output deemed to be of national or international excellence were put in the higher category and the rest - those scoring 2 or 3 – in the lower category.

The results for Business and Management are shown in Table 5 and for Economics in Table 6.

**Table 5 Teaching Quality and Research Output in Departments of Business and Management in Universities in England and N. Ireland**

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		RAE 4 or 5	RAE 2 or 3
QAA Result	23 or 24	7	8
	20 to 22	7	15

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N = 37,  $\chi^2 = 0.836$ , correlation = 0.149, p = 0.361

**Table 6 Teaching Quality and Research Output in Departments of Economics in Universities in England and N. Ireland**

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		RAE 4 or 5	RAE 2 or 3
QAA Result	23 or 24	18	4
	20 to 22	6	5

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N = 33,  $\chi^2 = 2.75$ , correlation = 0.277, p = 0.097

The pattern of results is consistent with high quality research being linked to teaching quality. Chi-square analysis generates no statistically significant association between higher scores in the RAE and higher scores in the QAA reviews for Business and Management. However, the results for Economics are significant at the 10 per cent level but not at the 5 per cent level. This result is discussed further below.

One interesting dimension is the comparative performance of ‘pre-1992’ or ‘research-led’ and new ‘post-1992’ or ‘teaching-led’ universities as described in Section 2. It is to be expected that the research led universities would score better than the new universities at high quality research and that is true both for Economics and for Business and Management.

There is no similar dominance of either sector in the QAA teaching scores. Table 7 presents the QAA results for Business and Management and for Economics. More departments are included in this calculation as many were covered by the QAA but did not submit to the RAE under the same subject headings. The results indicate that there is no significant difference in the QAA scores between the two categories of university. Even taking account of the serious limitations involved in using such data, it does not seem that high quality research is necessary for high quality teaching.

**Table 7 Teaching Quality in research-led and teaching-led Universities in Economics and Business and Management in England and N. Ireland**

		Universities	
		Pre-1992	Post-1992
QAA	23 or 24	15	32
Result	20 to 22	21	33

N = 101,  $\chi^2 = 0.532$ , correlation = 0.072, p = 0.465

## 6. Discussion and Further Research

As already indicated, there are limitations to analysing quantitative data of the sort considered here. It is very difficult to isolate the effects of research on teaching from the effects of the resources available to the institution, the staff and the students and other factors. There is scope for some further analysis of this kind on the basis of other information. Drennan and Beck (2001) have presented some such work for earlier data and it seems very worthwhile to do so with more recent information. However, on the basis of the evidence so far, it does not seem that high quality research as defined by the RAE has a very large and measurable benefit on the quality of teaching in Business and Management.

Nevertheless, within that general overall conclusion, while in Business and Management there is no statistically significant association between higher scores in the RAE and higher scores in the QAA reviews, the analysis indicates that for Economics the results are significant at the 10 per cent level though not at the 5 per cent level.

Such a result may have arisen for one or more of a range of reasons, not least of which is that there are a relatively small number of observations. However there are other possibilities. For example Business and Management departments often find students to be a more lucrative source of revenue than do Economics departments. Therefore the best Economics departments might spend more time and have come to be more effective in tapping the RAE source of research revenue than less successful Economics departments and Business and Management departments as a whole. For such reasons a good RAE score might also be personally more important for successful academics in Economics than it is for successful academics in Business and Management.

However, there is still the central question of the relationship between research and teaching and, in this case, high quality research as defined by the RAE and high

quality teaching as defined by the QAA. One possibility is that the type of research that counts the most in the RAE, as described above, is more important for high-quality teaching in Economics than it is in Business and Management, though research in general might be just as important in both. This possibility would seem to be supported by the different range and type of subject matter taught in the two subject areas and, possibly, the most likely career paths of their graduates. In its most recent report on the RAE, the UK Parliamentary Science and Technology Committee stated:

The RAE should recognise that excellent research may not be internationally significant but it may transform the fortunes of a local business or the provision of public services. We recommend that quality criteria concentrate more on the impact of research rather than the place where it has been published (House of Commons, 2004, para. 43).

Possibly if that had happened in the previous RAE there might have been a stronger relationship between excellent research and excellent teaching quality in Business and Management departments.

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