

Panel No 33: Built Environment

Overview report on 2001 Research Assessment Exercise

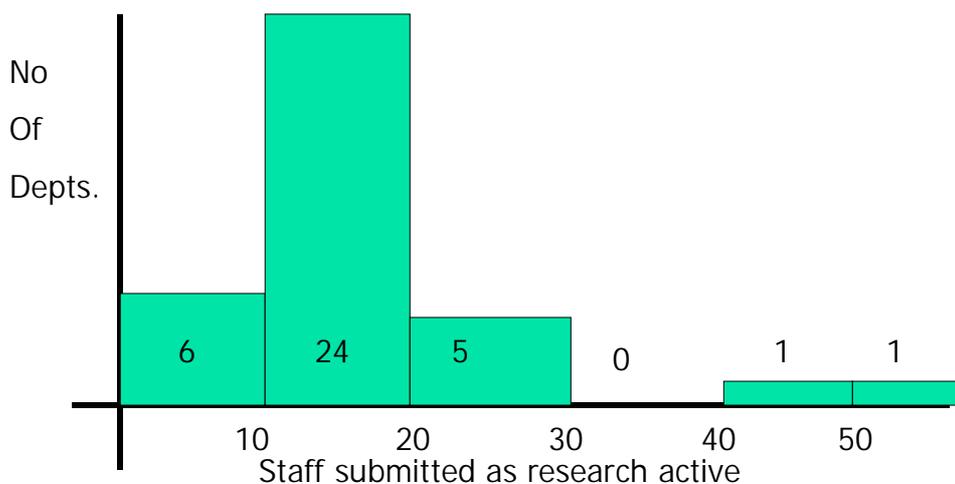
Introduction

This report has been prepared by the Chair and panel members of Unit of assessment 33 and has their full support. The aim is to provide general information on the performance of the research community within the Built Environment and identify areas which the community might like to address in future years.

Firstly we congratulate all those who submitted in 2001 for an excellent performance across the board. There has been a general increase in quality of research and an improvement in the submissions. The improved quality of the presentation has assisted the panel in assessing the submissions.

The number of submissions fell from 55 in 1996 to 37 in 2001. Nearly all those who did not submit this time were graded 1 or 2 on the previous occasion. We are aware that many of those who did not submit to Unit 33 did submit to other panels. The size of each submission by number of staff can be seen in the distribution below.

Spread of University Depts



For record purposes a total of 601 academics submitted as Category 'A' or 'A*' on this occasion, there were 4021 annual research student registrations across all four years (but the total number of students would be around a quarter of that figure) and the total income for all submissions was over £67 million over the five year period. This income does not include HEFCE QR income, or payments in kind from sponsors or other monies not allowed under the terms of the RAE rules. It would be reasonable to assume that the income would be more than doubled if these were included.

Since the 1996 exercise 17 Institutions have improved their ratings, 15 have remained stable and 4 have achieved slightly lower gradings. The number of 5 and 5* submissions increased by one and the number of grade 4 submissions increased by two.

Modus Operandi

The panel followed the methodology within the overall guidelines for the RAE as specified in Document RAE 5/99. Every member of the panel was asked to judge all submissions independently (except where the panel member had a major interest) before panel discussions of each submission took place. There was strong correlation in gradings using this approach. Where there was a difference of opinion and where the advice of other panels had been sought then these were the focus of particular discussion and debate. Each submission was presented to the panel by a lead assessor and up to four supporting assessors depending on the number of subject specialisms within a single submission. Every submission had an industrial member of the panel who reviewed the content. These lead and supporting assessors read a substantial number of the papers and reviewed other outputs. The methodology required us to review at least 25% of the outputs but our spot-checking revealed that more than 50% were reviewed and sometimes this could rise to well over 70%. This provided the panel with additional confidence in their judgement. Where submissions were sent to other panels a similar reading took place and in some cases 100% were read.

A range of outputs was considered by the panel, including design work, and these were judged according to criteria laid down in the methodology.

The panel discussed every submission individually and also made comparisons across the submissions to ensure fairness. In this RAE, six international referees were invited to comment on the panel's provisional findings for those Departments judged to be five or five star with those at the borderline between four and five also being included. In some instances an international referee suggested further consideration be given to one or two submissions and this was undertaken by the full panel.

Findings

The panel were pleased to note that preparation of the documentation showed an improvement on 1996 although there were still some submissions where the referencing was unsatisfactory and in some cases this made it difficult to find the document concerned.

The panel were pleased to note the following in particular: -

- Evidence of positive engagement with industry where this was appropriate.
- The emergence of Institutions with a broad range of excellence able to address a wide range of problems.
- Clear multi-disciplinary working on a number of projects where a complete understanding of the component disciplines was necessary in order to tackle complex problems.
- International agenda setting in a large number of submissions, which is disproportionately high for the size of the international research community. This bodes well for the UK research base in the future.
- A growing understanding of the regional and national agendas for research but without diluting national and international quality.
- Good academic leadership in a number of submissions which appears to be managing and developing staff well although some concerns were expressed that there may be insufficient future leaders coming through the system.
- All quantitative measures expressed per active member have risen since 1996.
- A developing research culture in a number of Institutions as reflected in facilities, staff development, and the student environment.

UK Strengths

It is clear from the outputs reviewed that the UK research community is in good health, particularly for a group of disciplines some of which are

relatively new to research and encompass a vast range of research methodologies and research problems. The built environment is naturally multi-disciplinary and is built around specific problems and issues rather than a set of research methodologies. It includes historical analysis, engineering problem solving, management and design, building science and environment assessment. To its credit the community has been able to bring these disparate subject areas together and produce world-leading research.

In particular the panel would like to commend the strengths of the community in several aspects of the following fields where there is exceptional quality: -

- Construction management and economics
- Architectural history and theory
- Architectural Science
- Design theory
- Landscape architecture
- Building services and environmental engineering
- Information technology applied to construction
- Sustainable built environment

In each of the above the UK can claim to compete at an international level without fear of contradiction.

Concerns

It is inevitable in an exercise such as this that the panel will find some areas for concern. These are included to encourage individuals, departments and institutions to address them for the benefit of all who work, study and have influence upon the UK built environment. Some are of a general nature and some are related specifically to the RAE.

Issues of a general nature are: -

- We are beginning to see some evidence of an ageing profile in staff submitted which will be to the detriment of the community in the long term. The panel encouraged new researchers to be submitted but overall the average age appears to have increased since 1996.
- There appears to be evidence that some technical areas are being neglected as departments follow policy initiatives by government and other funding agencies. This may ultimately make research activity in these technical areas fall below a critical mass, which

could mean that the UK would no longer be able to contribute in these markets.

- In the drive to make research more applicable it may be that the theoretical base of built environment research is being neglected. The panel is of the view that much good practice comes from good theory and that departments should ensure that this important aspect is not neglected. We would also ask the funding agencies to encourage theoretical work where this is appropriate.
- New research areas are emerging and it is difficult for a new group to establish itself at the international level within five years. The panel was sensitive to this but wishes to bring this to the attention of any future RAE process to forestall the danger of fossilisation of the research community.
- The importance of the built environment and construction industry to the national economy is well established and it is vital that industry is sharing a common journey with the academic research community for mutual benefit through real partnership. There is evidence that this is improving but it needs to be encouraged at all levels, from policy makers to small firms in order that the UK industry becomes more competitive.
- We are concerned that the Built Environment area may be under-funded by the University Funding Councils compared with other subject areas such as Civil Engineering. Much of the work now involves expensive computing power and laboratories and a review should be undertaken to ensure the built environment does not lose out in its future requirements.

Issues of concern related to the RAE are as follows: -

- Some submissions required better proof reading and quality control particularly on referencing. Some publications were difficult or impossible to locate (even from the submitting university) and in the latter case had to be treated as a non-submission for that item.
- Too often there was a discrepancy between what was being claimed in the R5 and R6 documents and the remainder of the submission, particularly in terms of earned income. Often no explanation was available and the panel had to rely on what appeared in R2, R3 and R4.
- Sometimes outputs appeared to be based on unsubstantiated assertions rather than evidence based research or well developed arguments. The panel expected the outputs to reflect an appropriately rigorous research methodology.

- It is the overall quality of the research environment and the outputs, which derive from it, which is important, and in some cases weaker areas had a detrimental effect on the whole submission.
- Multi-disciplinary research should not be used to hide or obscure weak researchers. The researcher should be strong in his or her discipline to be able to make the appropriate contribution to the research effort. The research output however is judged according to its contribution to knowledge in the research problem or issue it is trying to solve or enlighten.
- The more extensive reading of the outputs revealed a wide variation in standard in some submissions and the community should ask whether some outputs are appropriate for a research assessment exercise.
- Investment in research leadership is required if the community is to remain at the leading edge and the future strategies were sometimes weak on this and other issues.

Conclusion

The 2001 research assessment exercise has seen a major step forward in the development of the Built Environment research community. It has seen a growth in all the major indicators and a growing proportion of institutions undertaking work at the national and international level. We trust that this report will provide food for thought and encouragement for any future exercises that may be undertaken.

Signed: Professor Peter Brandon

....on behalf of the panel members of Unit of Assessment No 33 (Built Environment)