Introduction

National bodies responsible for allocating funds for basic research differ in the manner in which they employ peer review (see Chibnall & Hackett, 1990). Some funding agencies, such as the Research Councils in the United Kingdom and the National Institute of Health in the United States, establish expert panels for each of a large number of narrowly defined research specializations. Applications for funding within each specialization are reviewed only by panel members. Other agencies also employ a panel system, but decisions as to whether an application will be funded typically are made only after the panel has considered evaluations provided by reviewers who are not members of the panel. The National Science Foundation in the United States and the Australian Research Council employ this latter approach, although in different ways.

The present discussion is concerned with the place of peer review in the process by which the Australian Research Council (ARC) allocates funds under the Large Grants Scheme. Awards under the Australian Research Council Grants Scheme constitute the primary source of funding for basic research in Australia in disciplines other than medicine and dentistry (where the National Health and Medical Research Council is the responsible body). Policy directions for higher education are issued by the Australian Government in 1988 (see Dawkins, 1988), including centralizing control through a process known as "clawback" over funds once distributed by universities.

In 1992 the ARC had a research funding budget of $255.5 million, of which $106.1 million were committed to research grants, $55 million to postgraduate awards, $51.4 million to research infrastructure, $20.2 million to special research centres and key centres, and $17.7 million to research fellowships. Although universities are responsible for undertaking research, funds under the Small Grant Scheme ($15.7 million) were distributed in 1992 to 414 applicants, with a success rate of 35%, the primary allocation of the $98.1 million is undertaken by ARC through the Large Grants Scheme. Only 19% of all applications for a successful Large Research Grant are commenced in 1993 were successful, in comparison to success rates of 20% for 1992 and 31% for 1991. This circumstance arose because the number of applications for initial support increased sharply at a time when funding overall remained stable and the ARC was committed to providing continued support for projects funded in earlier years.

The present discussion is concerned with the Large Research Grants system and the way the funding is allocated. The ARC receives applications for project funding under the Large Grants Scheme, which it is responsible for funding. The ARC also provides the necessary funding and allocates the funding to the successful candidates. The process is a highly competitive one, with only a small percentage of applications being successful.

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Projects of lesser merit would be funded. There would be a substantial
chance component in whether an application is funded. As noted
above, the level of impact factor of a journal may provide a coarse
criterion for the quality of the research, but it is unlikely that a journal
under circumstances where there is a low overall success rate, limited
guarantee, and decisions reflect the average expectations. This raises
the question of whether a strong institution or one another, which
assessors cannot do because they see one or, at least, a few proposals.
So Panel ratings often differ from the assessors’ actual Panel ratings
higher, or, higher, than any of the assessors’ (ARC News, 1993, p.4).

The decision making process

The processes underlying ‘funding decisions by National Science
Foundation panels have been the subject of independent scrutiny.
Coles and Cole (1992) found that although for some disciplines
there was a closely associated with whether a project was funded
and the average of the ratings provided for the project by assessors,
funding decisions in other disciplines were not strongly related
to the evaluations given by assessors. Panels thus decided to fund
some projects by relatively small differences in the ratings
provided by assessors, while other projects were evaluated in
favorable terms by the assessors.

Klahr (1985) examined the relative influence of evaluations
provided by panel members and assessors on outcome through
studies of applications to the National Science Foundation. The
criteria by which panel members and assessors evaluating the same
application (the same investigator) agree in the ratings they provide.
Although such statistics have been calculated, the consensus
among assessors of ARC applications is higher than the mean of
ratings provided by the assessors only (see Ciccielli, 1991). Since
assessors of research applications and manuscripts submitted to
journals generally demonstrate higher consistency in providing
reproducible results, it is probable that some reviewers are more
accurate than others. Consistency in ratings provided by assessors
is high and in consequence the reliability of the rating process
provides a basis for selecting among applications that are not
necessarily of the same standard that is, the quality of individual
assessors. Since assessment in range is consensus in evaluation (see
Hargens & Hilgart, 1990), it is significant that there may be some
moderate agreement among the 40% or so of ARC applications
that remain following the initial and mid-year review.

These presumably all were applications that are perceived by
at least some assessors. The task of panel is to rate the non-
called applications so that these applications can be ranked in the
order of merit, which they are subsequently funded. A high correlation
indicate that funding decisions closely follow ratings provided by
assessors, with panel members having limited independent influence
on the final decision. In the majority of cases, it was the top
highly accessible (see Ciccielli, 1991) ratings provided by the assessors
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that the assessors appointed by the panel would have produced a different outcome, cannot be raised. On the grounds of accountability, the ARC should provide more explicit guidelines on grounds and procedures for appointment.

It is only recently that the ARC has made serious efforts to evaluate the impact of funding decisions made on research and scholarship. However, within the limits imposed by the five-yearly cycle, it is being undertaken by experts within the discipline who will be drawn from the wider academic community. Reviews have been completed in economics, British and European history, Australian history, genealogy and immigration, environmental and environmental science, and environmental and environmental science. The ARC is continuing to debate the extent that interviews were not influential in affecting funding decisions, and the extent to which expectations and interview information can bias impression management. These are not issues for disciplinary ARC support.

Conclusions

Although ARC panel members who decide which applications would receive the larger Grants Scheme fund will have access to peer review, the extent to which funding by the ARC reflects peer review is uncertain. It is difficult to find information on how ARC panels operate to limit access to information. My primary objective in preparing this article is to urge the ARC to publish a detailed outline of how ARC panels operate at different stages in the decision-making process (e.g., selection of assessors, calls, use of assessors' reports, ranking of applications). Further, the data are routinely used for computer entry and analysis, it would be a simple matter for the ARC to publish each year statistics showing on peer review (e.g., level of congruence between assessors in different disciplines) and decisions made by panels (e.g., level of agreement with peer review).

If funding of the above kind within the public domain (the past it has been collected, but distributed only within the ARC) would allow informed debate about the processes adopted by the ARC. Further, the ARC should be subject to demands for accountability that do not apply at present. For example, if it turns out that funding decisions correspond with evaluations provided by assessors, issues such as the selection of assessors and the criteria assessors employ in evaluating applications are of vital importance. Attention would include how assessors are selected, how they are trained and the criteria by which they operate it is shown through statistical analysis that members of ARC panels have substantial independent influence on funding decisions. The processes employed by the ARC have not been open to external scrutiny, and the ARC has never been required to justify the procedures it follows. In the spirit of accountability, the ARC should accept responsibility for providing the information needed to permit informed evaluation of its processes and effectiveness.

Further comments

As well as being valid, the procedures followed by the ARC in evaluating applications are subjective. To reduce administrative costs, in 1992, the ARC is 1990 required each applicant to nominate two assessors, who provided reports directly to the ARC. This system operated for only one year, presumably because the evaluations (that came from applicant-nominated assessors were generally too favourable and did not prove useful. Although assessors are now asked to provide a list of potential assessors, all persons requested to evaluate an application are selected by ARC panels. As a further experimental approach, the ARC in 1993 requested assessors not only to provide global evaluations, but also to rate the project and the applicant in terms of specific criteria. Since there has been disagreement (see Gottfried, 1978; Mars & Bell, 1980) as to whether ratings of specific attributes offer a more effective basis for evaluation than global ratings, it is to be hoped that the ARC will analyse and publish the data it collected on this issue.

Other ARC procedures have changed over time. For several years all applications in plant molecular biology, gene regulation, animal hemornges, and ecology were evaluated by small sub-panels without applicants being invited to attend the external review. Since a system of specialist sub-panels is a feasible alternative to multi-disciplinary panels (where many applications may lie outside the expertise of any panel member), it would be interesting to know whether the ARC has evaluated (or an evaluation as well as cost-benefit) of the use of specialist rather than across panels. Related questions, particularly when generalist panels are used, are whether it is preferable to rely on few assessors with many applications rather than many assessors each rating few applications. The assessors should be given some training in order to foster standardisation in evaluation and to limit the demands the ARC can place on assessors, who serve without payment (they once received in honorarium).

The ARC's predecessor, the Australian Research Grants Council, employed for many years a costly system of interviews. In 1992, for example, almost 1000 ARC applicants were interviewed in nine cities. Although the seeming objective was to allow ARC panel members to explore issues raised by assessors, applicants could not respond directly to comments made by assessors, since it was only after funding decisions had been made that assessor reports were released. At the time of the interviews, interviewees indeed seemed like "a fishing expedition." In view of reasons on the extent to which expectations and interview information can bias impressions, and the potential for other interviewers to influence the ARC's mistakes, the ARC is now changing its practice to ensure that interviewers are not influential in affecting the interview outcomes. This change, however, does not extend the review period and is much more convenient since it does not extend the interview period and it is much more convenient since it does not extend the review period. Further, the data are routinely collected by computer entry and analysis, and it would be a simple matter for the ARC to publish each year statistics showing on peer review (e.g., level of congruence between assessors in different disciplines) and decisions made by panels (e.g., level of agreement with peer review).

References


