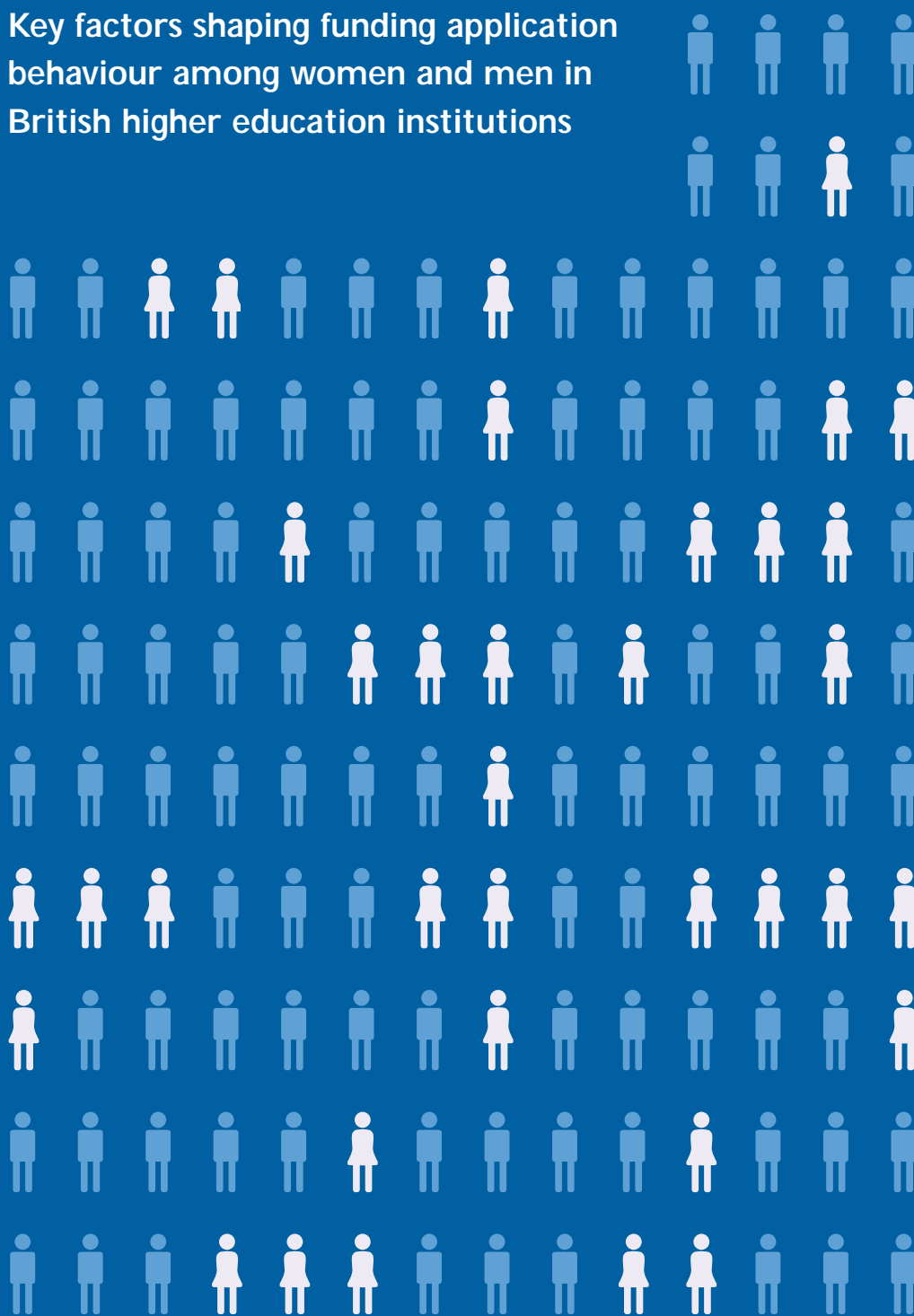


Who Applies for Research Funding?

Key factors shaping funding application behaviour among women and men in British higher education institutions



This report was written by
Margaret Blake and Ivana La Valle
from the National Centre for Social Research
based on a survey of British academics
which was conducted between
October 1999 and February 2000.

This research was commissioned by:

Biotechnology and Biological Sciences Research Council (BBSRC)

Economic and Social Research Council (ESRC)

Engineering and Physical Sciences Research Council (EPSRC)

Medical Research Council (MRC)

Natural Environment Research Council (NERC)

Particle Physics and Astronomy Research Council (PPARC)

The Wellcome Trust

The Wellcome Trust is a registered charity, no. 210183

Trustee: The Wellcome Trust Limited

Registered in England, no. 2711000

Registered office: 183 Euston Road, London NW1 2BE

ISBN 1 841290 29 7

Further copies of this publication are available from:

The Marketing Department

The Wellcome Trust

183 Euston Road

London NW1 2BE

Tel: +44 (0)20 7611 8651

Fax: +44 (0)20 7611 8416

E-mail: marketing@wellcome.ac.uk

Web: www.wellcome.ac.uk/publications

A full report of the findings is available from:

National Centre for Social Research

35 Northampton Square

London EC1V 0AX

Tel: +44 (0)20 7250 1866

Fax: +44 (0)20 7250 1524

E-mail: info@natcen.ac.uk

Web: www.natcen.ac.uk

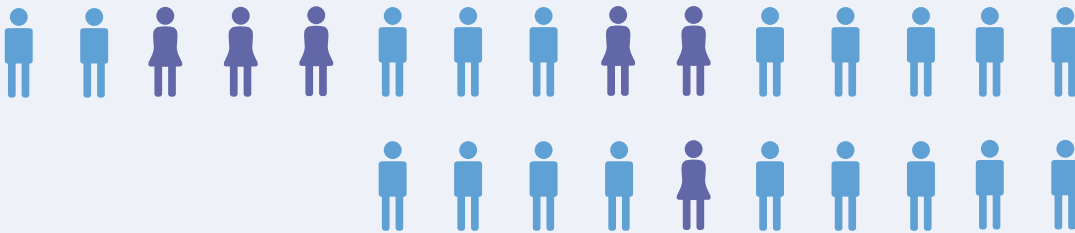
or at the Wellcome Trust website: www.wellcome.ac.uk

TR16-1977/3.5k/12-2000/SO

Contents

Foreword	4
Acknowledgements	7
Executive summary	10
Aims of the study	12
Are women in academia less active in research than men?	14
How does eligibility affect grant application behaviour?	16
Do variations in employment patterns explain differences in grant application behaviour?	20
Does the type of institution influence funding application behaviour?	24
Is there a link between professional profile and application activities?	26
Are women and men in academia successfully balancing work and family responsibilities?	28
Tinkering, tailoring or transforming?	30

Foreword



The awarding of research grants is at the very heart of the academic system. As research funders we know how many applications we receive a year and how many of those applications are successful. We also know that, in the UK, once an application is received there is no evidence of gender discrimination – men and women have similar award rates and this observation is consistent across a range of funding organizations. Yet, in reaching this conclusion it became apparent that gender may be a determinant of grant application behaviour – women, in general, were applying for fewer research grants than men¹.

The motivation for this study was to understand why and how researchers apply for grants. In particular, we wanted to know why men were more likely to apply for research funding than women. We wanted to see if there are any barriers that we – as funding agencies – have inadvertently established in the grant application process.

It is in recognition of the importance of these questions that the Wellcome Trust and all six of the Research Councils came together to commission this study. At the outset we were conscious that this was not a study on 'women in science', but it was a study of all research academics working across the breadth of science. To take the study forward, after a competitive tender, the National Centre for Social Research was commissioned on our behalf. This report presents a summary of that study. We have written this foreword to provide a commentary on the report and its findings from the perspective of major UK research funders.

¹ *Women and Peer Review: An audit of the Wellcome Trust's decision making on grants. The Wellcome Trust, 1997.*

The first task faced by the National Centre was to identify a sample which represented all research disciplines and included both academics who were ineligible to apply for grants and potential applicants. It had to represent the complex mix of universities and higher education colleges and it also had to represent the regional geography of the UK. This was achieved by approaching a randomly selected sample of higher education institutions (HEIs) and administering the survey to a randomly selected sample of academics. It is perhaps testament to the importance of this issue that 44 out of the 54 HEIs that the National Centre approached readily agreed to participate in the study. We very much hope that the findings described in this report will justify their undoubted commitment to the study and inform their organizational practices.

The findings from the study indicate that many factors influence grant application behaviour. The survey results show that women were as successful as men in getting the grants they applied for, but were less likely to apply for grants because of their status in the institution and the support they received. The main influences on grant application behaviour were: seniority, employment status, tenure, type of institution, professional profile, institutional support, career breaks and family circumstances. Whilst many factors affect both men and women, some disproportionately deter women from making applications. For example, criteria designed by research funders to help define who can apply for research funding can produce a gender bias at the application stage, because more women than men are employed on fixed-term contracts and are at lower academic grades.

The deep-rooted nature of the factors that affect gender differences in grant application behaviour suggests that a review of funding bodies' policies and strategies, as well as higher education employment practices, is required in order to ensure a more equitable distribution of research funding.

These findings come at the end of a year when we have seen:

- reports that women academics earn on average 18 per cent less than their male counterparts²;
- accusations that the Research Assessment Exercise (RAE) is biased against women³;
- little improvement in the number of women in senior academic posts⁴;
- a report prepared for the European Union⁵ showing a similar pattern across the whole of Europe.

It is depressing to reflect that six years since the publication of *The Rising Tide*⁶ – a report on women in science, engineering and technology (SET) that advised the government on ways to harness the potential, skills and expertise of women – there is still evidence of gender discrimination in higher education. Yet, we should acknowledge the new initiatives that have been established that aim to remove some of the barriers highlighted by this and other reports. A key initiative in this drive has been the Athena Project, launched in early 1999.

² *Gender and average pay for academic staff in the UK*. Association of University Teachers, May 2000.

³ *Unions renew attack on 'RAE sex discrimination'*. *Research Fortnight*, 7 June 2000.

⁴ *Women's barriers to success*. *Science and Public Affairs*, August 2000.

⁵ *Science Policies in the European Union. Promoting excellence through mainstreaming gender equality*. European Commission, 2000.

⁶ *The Rising Tide*. HMSO, 1994.



The Athena Project receives core funding from the UK higher education funding and representative bodies and the Department of Trade and Industry (DTI)/Office of Science and Technology (OST). The project's aim is the recruitment and advancement of women's careers in SET in the higher education sector. To achieve this, Athena works in partnership with higher education institutions, funding councils, the DTI's Promoting Women in SET Unit, professional institutions, and governments. Athena has launched two successful development programmes focusing on institutional culture and personal and career development for women in SET. From these, good practice is being disseminated across the higher education sector. The Athena Project's most recent initiative, Local Academic Women's Networks (LAWNS), will also help to facilitate this process. The important work undertaken by Athena will undoubtedly provide useful models for more widespread initiatives in the future.

Also, planned changes to the RAE, outlined in the Higher Education Funding Council for England's recent consultation⁷, which would allow personal statements from staff who fall outside the usual assessment criteria, may help those who are beginning academic careers or have taken career breaks. The proposed requirement for higher education institutions to have staff development plans and equal opportunities statements as a standard condition for receipt of funding is also welcomed. Funding bodies will need to consider how best they can encourage not only the development of these policies, but actual good practice.

We warmly welcome the publication of this report and believe it will make an extremely useful contribution both to shaping future research policies and to the broader debate on the equality of women in higher education. We look forward to working in partnerships with higher education institutions to help remove the barriers highlighted in this report.

⁷ *Review of Research, report 00/37. Higher Education Funding Council for England, 2000.*

Acknowledgements

This is an independent report prepared by the National Centre for Social Research. The authors accept responsibility for the contents of this report and have tried to ensure its accuracy. The views expressed in this publication are those of the authors and not necessarily those of the commissioning organizations.

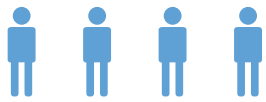
The authors of the report would like to thank their colleagues at the National Centre who have been involved in and offered their advice and guidance during the survey design, fieldwork and in the preparation of the report. We would like to thank Charles Hutchings, Kay Renwick and her team in the operations department, Erroll Harper, Roger Thomas, Kevin Pickering, Steven Finch and Dyanne Holder.

The study was conducted with the assistance of a steering group chaired by the Wellcome Trust and containing representatives of the seven sponsors as well as representatives from the OST and the Committee of Vice-Chancellors and Principals. Members of the steering group included Susan Bullivant, Jane Dale, Martin Dunn, Pat Fry, Philip Green, Jonathan Grant, Huw Jones-Jenkins, Sonya Kelly, Peter Linthwaite, Lawrence Low, Barbara McFarlane, Lucinda North, Jan Peters, Sarah Ruth and Helen Thorne.

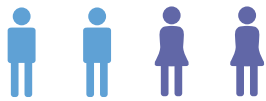
We also acknowledge the support of the Association of University Teachers and the National Association of Teachers in Further and Higher Education.

The survey would not have been possible without the cooperation of personnel departments and other staff at the participating institutions who supplied sample data and assisted with the distribution of questionnaires. Finally, we would like to thank all those individuals who responded to the survey.

Who Applies for Research Funding?

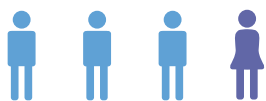


Key factors shaping funding application behaviour among women and men in British higher education institutions



An independent summary prepared by:

Margaret Blake and Ivana La Valle
National Centre for Social Research



Executive summary



The Wellcome Trust and the Research Councils commissioned the National Centre for Social Research to carry out a survey of academic staff. A total of 3090 academic staff drawn from 44 higher education (HE) institutions in Great Britain took part in the survey, which achieved a 40 per cent response rate.

The survey explores gender variations in research funding application activities and the possible reasons behind these differences, finding that:

- ▶ 50 per cent of women and 59 per cent of men in the sample had applied for responsive mode grants in the past five years;
- ▶ when women applied for funding, they were as successful as their male colleagues: 51 per cent of female and 50 per cent of male applicants had obtained half or more of the grants they had applied for;
- ▶ virtually no gender differences were found in applications for competitively awarded fellowships: 18 per cent of women and 16 per cent of men in the sample had applied for this type of funding.

The survey results also show that:

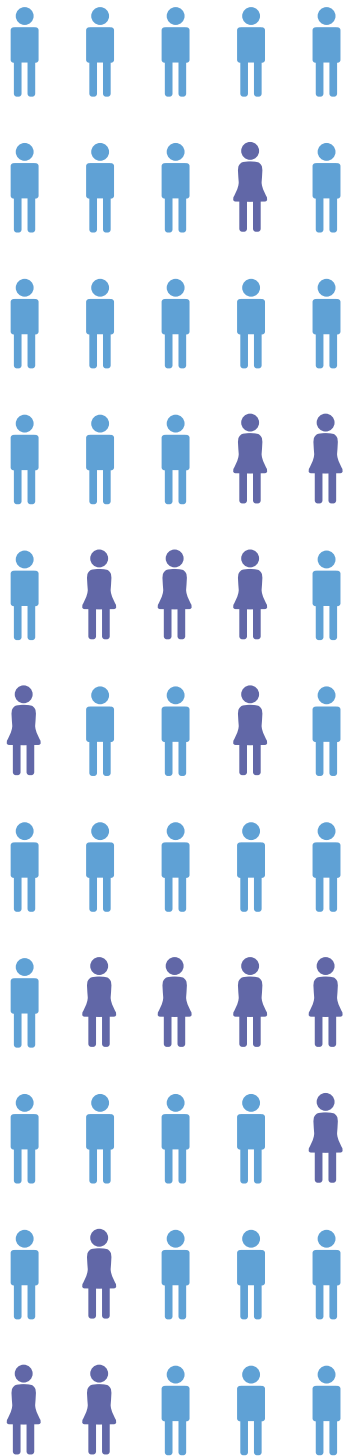
- ▶ women were less likely than men to be eligible to apply for grants provided by all Research Councils and the Wellcome Trust, except for the ESRC;
- ▶ gender variations in terms of eligibility partly reflect women's over-representation among lower grade academic staff and those with fixed-term contracts, as many of the grant schemes provided by the main funding bodies are not open to academic staff in these groups.

The main influences on grant application activities included:

- ▶ Seniority: 87 per cent of respondents in the most senior jobs (i.e. professor, reader and head of department) had applied for grants, compared with around half of other academics. Women were under-represented in these jobs (5 per cent compared with 19 per cent of men); when controlling for seniority, gender differences in grant application activities became much smaller or were reversed.
- ▶ Employment status: academics in a full-time post were considerably more likely to have applied for research funding than their part-time colleagues (58 and 37 per cent respectively); women were more likely than men to be found in a part-time job (the respective figures being 12 and 5 per cent).
- ▶ Tenure: those with a tenured academic position were also more likely than academics on a fixed-term contract to have applied for grants, with the respective figures being 59 and 52 per cent. Women were more likely than men to have a fixed-term contract (44 and 33 per cent respectively), but even when controlling for type of contract, gender differences in grant application activities persisted.
- ▶ Type of institution: 67 per cent of respondents from institutions that are the main recipients of research funding, 62 per cent from other old universities and 39 per cent from new universities and HE colleges had applied for grants. Within each type of institution, gender differences in grant application behaviour persisted.
- ▶ Professional profile: women were less likely than men to be involved in a range of high-profile academic activities, to have a high publication record and to hold a PhD. These were all important influences on grant application activities.
- ▶ Institutional support for funding applications: academics who reported a high level of support were considerably more likely to have applied for grants than those who said they had low support (89 and 54 per cent respectively). Academics in new universities and HE colleges and women were less likely than others to have reported a high level of support.
- ▶ Career break: a break from employment for family reasons in the previous ten years seems to have a considerable negative influence on grant application activities – just over a third of those who reported this (almost all women) had applied for grants.
- ▶ Family circumstances: grant application activities were lower than average among women with dependent children – 50 per cent had applied for grants compared with 62 per cent of men with children.

In conclusion, the survey found no evidence of direct gender discrimination in the allocation of research funding, indicating that the grant and fellowship allocation process is fair. However, the deep-rooted nature of some of the factors affecting gender differences in grant application behaviour suggests that a review of funding policies and strategies, as well as HE institutions' employment practices, would be required in order to ensure a more equitable distribution of research funding.





Aims of the study

Gender differences in the distribution of research funding have attracted attention recently, given the growing importance of research throughout the sector and concern about possible gender discrimination in the funding allocation process. In the past two decades a number of studies have highlighted the obstacles women face in trying to gain access to the highest and most prestigious academic positions. However, in the late 1990s a Swedish study on peer-review scores for postdoctoral fellowships provided evidence of direct gender discrimination in the research application process. The study showed that women in Sweden needed to be two and a half times more productive in terms of publications than their male counterparts to get the same rating for scientific competence¹.

This finding generated considerable interest in this country and led the academic community to consider the possibility of gender discrimination in the allocation of research funding. In response to these concerns, the government asked the Research Councils to monitor the success rates of female and male scientists applying for research grants and fellowships. The results of this monitoring exercise conducted by all Research Councils and further research carried out by the Wellcome Trust and the Medical Research Council showed that success rates for women and men were broadly comparable. However, evidence was found that women were considerably less likely than their male colleagues to apply for research funding, shifting the line of inquiry from the research awarding process to funding application behaviour².

These findings raised some important questions:

- ▶ Why are women in academia less likely to apply for research funding than their male colleagues?
- ▶ What are the key structural, organizational and cultural factors which influence propensity to apply for research funding and the ability to secure it?
- ▶ What action can funding bodies and HE institutions take to ensure that suitably qualified women and men in academia have equal access to funding opportunities?

¹ Wenneras C, Wold A, 'Nepotism and Sexism in Peer Review', *Nature*, 1997, **387**: 341-343.

² Success Rate for Women Scientists to be Monitored, DTI Press Notice, November 1997; *Women and Peer Review: An Audit of the Wellcome Trust's Decision Making on Grants*, PRISM Report, 1997; Grant J, Burden S, Breen G, 'No Evidence of Sexism in Peer Review', *Nature*, 1997, **390**: 438.

³ The Higher Education Statistical Agency (HESA) definition of academic staff was used, which includes occupational groups (e.g. research assistants) that are classified as academic-related staff in some institutions.

It was to address these crucial questions that the Wellcome Trust and the Research Councils commissioned the National Centre for Social Research to carry out a survey of academic staff³. A total of 3090 academic staff drawn from 44 HE institutions in Great Britain took part in the survey, which achieved a 40 per cent response rate. The survey was conducted between October 1999 and February 2000.

The study explored the main external sources of funding available to academics, that is: responsive mode grants, competitively awarded fellowships and research commissioned by government departments, the European Union and industry. However, the survey results focus mainly on responsive mode grants, as for most academics these represent the single most important source of research income.





Are women in academia less active in research than men?

The study explored academics' funding application activities and success in securing research income in order to answer some key questions about the extent and nature of gender differences in application behaviour.

Are women in academia less likely than men to apply for and secure research grants?

The survey shows that:

- ▶ 50 per cent of women in the sample had applied for grants in the past five years, compared with 59 per cent of men;
- ▶ when women applied for funding, they were as successful as their male colleagues: 51 per cent of women and 50 per cent of men who had submitted funding applications had obtained half or more of the grants they had applied for.

Are there any differences among women and men who apply for research grants?

Women made a smaller number of applications: 16 per cent had applied for more than four grants, compared with nearly a quarter (23 per cent) of their male colleagues. The results on the most recent grant application show that:

- ▶ women were less likely to have applied as the principal applicant: 43 per cent had done so, compared with 50 per cent of men;
- ▶ the grants women applied for were generally for shorter periods of time: less than half (46 per cent) had applied for grants lasting more than two years, the corresponding figure for men was 56 per cent;
- ▶ women also sought lower levels of funding than their male colleagues: 37 per cent of the former and 45 per cent of the latter had applied for grants worth £100 000 or more;
- ▶ women were less likely than men to have applied to the Wellcome Trust and the Research Councils for grants (46 and 65 per cent respectively), while they were more likely than men to have applied to other bodies;
- ▶ nearly a third (30 per cent) of women had applied for their salary to be paid, compared with 20 per cent of men.

While grants represent the main source of external research income for most academics, fellowships can play an important role at different stages of an academic's career. Another key question the study addressed was:

Do gender differences in grant application patterns also apply to fellowships?

A minority of respondents (17 per cent) had applied for competitively awarded fellowships in the past five years and the survey shows that:

- in contrast with the results on grants, virtually no gender differences were found in applications for fellowships: 18 per cent of women and 16 per cent of men in the sample had applied for this type of funding;
- a very small gender difference was found in terms of success rate, with 44 per cent of women and 41 per cent of men obtaining half or more of the fellowships they had applied for.

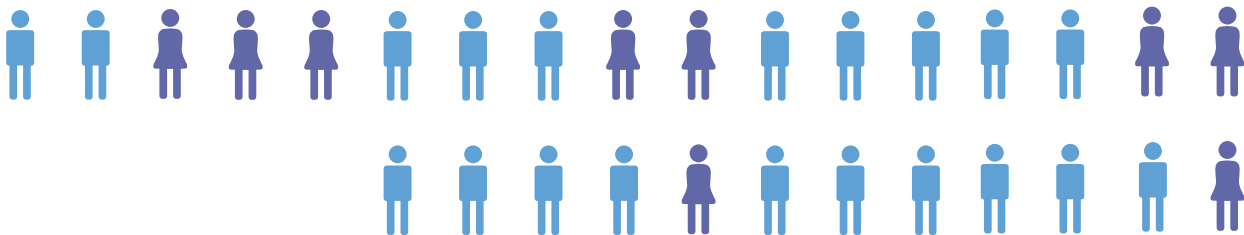
Given that a substantial minority of respondents had not applied for any research grants and fellowships in the past five years, another question explored by the survey was:

How many women and men in academia carry out research without any external financial support from the main funding sources?

The results show that :

- only 8 per cent of academics in the sample (9 per cent of women and 7 per cent of men) said they had not done any research in the past five years, yet 37 per cent had not applied for any of the types of external funding covered by the survey;
- a greater proportion of women than men had carried out research without any income from these external funding sources, with the respective figures being 43 and 34 per cent;
- among those who had not sought funding from any of the sources covered by the survey, 35 per cent of women and 32 per cent of men said they would have liked to have applied for grants or fellowships.

How does eligibility affect grant application behaviour?



Eligibility criteria vary by funding body and type of scheme. While discipline is a key eligibility criterion specified for the overwhelming majority of schemes, other widely used requirements relate to employment grade, tenure and length of contract among academics in fixed-term posts. Due to the variety and complexity of the criteria required by different funding schemes offered by the Wellcome Trust and Research Councils, the eligibility criteria used in this survey are inevitably simplifications.

The survey explored a number of questions related to eligibility, including any gender differences in eligibility, the match between perceived and actual eligibility, and whether eligible women are less likely than their male counterparts to apply for research grants.

Are women less likely than their male colleagues to be eligible to apply for research grants provided by the Wellcome Trust and Research Councils?

The survey results show that:

- women were less likely than men to be eligible to apply for grants provided by all Research Councils and the Wellcome Trust, except for the ESRC;
- gender variations in terms of eligibility to apply to each funding body (shown in Table 1) partly reflect women's representation in different disciplines, but also their over-representation among lower grade academic staff and those with a fixed-term contract, as many of the grant schemes provided by the main funding bodies are not open to academic staff in these groups;
- women were much more likely to be eligible to apply for grant schemes which have no requirements related to employment conditions, such as ESRC grants.

Table 1 Percentage actually eligible to apply to each funding body for a grant by gender

	Men %	Women %	Total %
BBSRC	28	20	26
MRC	48	35	44
NERC	24	13	20
EPSRC	24	14	21
ESRC	38	45	40
PPARC	19	11	16
Wellcome Trust	23	18	22
Base (unweighted)	1271	1819	3090

Base: all respondents

Percentages do not sum to 100 since respondents could be eligible to apply to more than one body

Do funding bodies have effective 'targeting strategies', resulting in a good match between perceived and actual eligibility?

A mismatch was found between perceived and actual eligibility, but this varied considerably among different funding bodies. Generally speaking, for funding bodies where a good match was found between perceived and actual eligibility among those eligible to apply for grants, a considerable mismatch was also found among ineligible academics, with a substantial minority wrongly believing they were eligible to apply. For example:

- 91 per cent of academics eligible to apply for EPSRC grants believed they were eligible; however, nearly a quarter (23 per cent) of ineligible respondents also thought they were eligible to apply for these grants;
- at the other extreme, only a quarter of academics eligible for PPARC grants were aware of this, but only 3 per cent of ineligibles thought they were eligible for these funding schemes.

Gender differences in relation to the mismatch between perceived and actual eligibility varied considerably by funding body, the largest ones were found for:

- ▶ BBSRC grants, with 33 per cent of eligible women and 52 per cent of eligible men being aware that they could apply for these funding schemes;
- ▶ PPARC grants, with 13 per cent of eligible women and 28 per cent of eligible men knowing that they could apply for these grants.

Gender differences were considerably smaller for:

- ▶ ESRC grants – among those eligible, 69 per cent of women and 72 per cent of men were aware that they could apply;
- ▶ Wellcome Trust grants – with 72 per cent of eligible women and 77 per cent of eligible men knowing they could apply for this funding;
- ▶ MRC grants – 44 per cent of women and 49 per cent of men eligible to apply for this funding were aware of it.

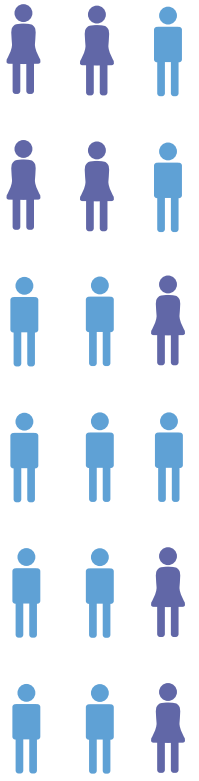
Does this mismatch partly reflect the inclusion in the sample of academics who are not interested in applying for research funding?

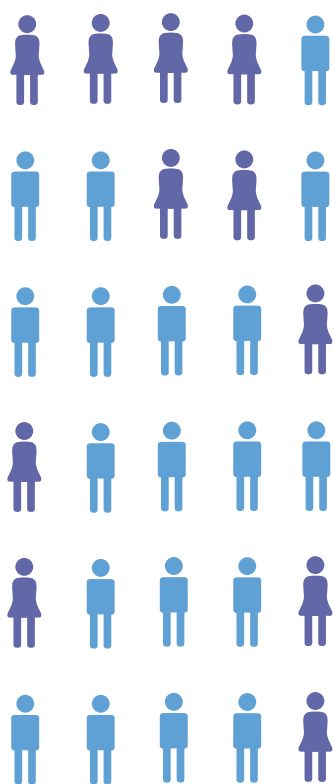
A very similar pattern was found when considering only those who had applied or would have liked to have applied for grants and fellowships. Therefore the mismatch between actual and perceived eligibility cannot be explained by the fact that those who were unaware of their eligibility would have not wished to have applied anyway.

What proportion of academics who are eligible to apply for the Wellcome Trust and the Research Councils grants do not apply for this funding?

The survey shows that:

- ▶ 36 per cent of respondents eligible to apply for grants to at least one of the Research Councils or the Wellcome Trust had not applied for any grants in the past five years;
- ▶ this varied from 44 per cent of eligible women to 33 per cent of eligible men;
- ▶ this gender difference could be partly explained by the fact that among those eligible for this funding, women were less likely than men to be aware of it.





Do variations in employment patterns explain differences in grant application behaviour?

The link between employment circumstances and grant application behaviour was explored to establish to what extent gender variations in application activities might reflect women's and men's different positions in terms of seniority, status, tenure and career history. The barriers reported by women and men in their academic or research career were also investigated.

Is seniority correlated with the likelihood of applying for and securing research income?

The survey found a strong link between respondents' positions in the academic hierarchy and research application activities:

- ▶ 87 per cent of respondents in the most senior jobs (i.e. professor, reader and head of department) had applied for research grants in the past five years, compared with around half of academics in senior lecturer/researcher and lecturer/researcher posts;
- ▶ 64 per cent of academics in most senior positions had been awarded half or more of the grants they had applied for; the corresponding figure for other staff was below 50 per cent.

Can gender differences in grant application behaviour largely be explained by women's under-representation at the top of the academic career ladder?

The survey results also show that women were under-represented at senior levels and when controlling for employment grade most gender differences in propensity to apply for grants became much smaller or were even reversed:

- ▶ only 5 per cent of women in the sample were found in the most senior jobs (i.e. professor, reader and head of department), compared with 19 per cent of men; a smaller but persistent gender gap was found among senior lecturers/researchers, with 8 per cent of women and 13 per cent of men employed at this grade;
- ▶ 84 per cent of women and 88 per cent of men in the most senior jobs (i.e. professor, reader and head of department) had applied for research grants in the past five years;
- ▶ 66 per cent of women in senior lecturer/researcher posts compared with 52 per cent of their male counterparts had applied for research funding;
- ▶ the corresponding figures for academics at lecturer/researcher grade were 48 per cent for women and 55 per cent for men.

Does a part-time job affect one's propensity to apply for research funding?

The survey shows that:

- ▶ only a small proportion of academics (7 per cent) were in a part-time post and women were more likely than men to be working part-time (12 and 5 per cent respectively);
- ▶ academics in a part-time post were considerably less likely to have applied for research funding than their full-time colleagues (37 and 58 per cent respectively);
- ▶ among those who were eligible to apply to at least one Research Council or the Wellcome Trust for grants, 41 per cent of part-time staff had done so, compared with 65 per cent of full-time academics.

Anecdotal evidence provided by respondents indicates that one of the disadvantages part-time staff face is that their part-time status is not taken into account for grant assessment purposes, as they are expected to be as 'productive', in terms of publication and research record, as their full-time colleagues.

Are women and men with a fixed-term contract as likely to apply for grants as their colleagues in a tenured post?

The survey shows that:

- ▶ 37 per cent of respondents had a fixed-term contract, with women more likely than men to report this (44 and 33 per cent respectively);
- ▶ academics on a fixed-term contract were less likely than those with a tenured academic position to have applied for grants, with respective figures being 52 and 59 per cent;
- ▶ gender differences persisted even when controlling for type of contract.

What are the features of a research career history that might negatively influence propensity to apply for research funding?

The survey explored respondents' employment circumstances in the previous ten years (i.e. from the academic year 1989/90 to 1998/99). The findings show that:

- ▶ a break for family reasons was the career history feature most likely to have had a negative influence on application activities: just over a third of respondents who had taken a break in the previous ten years had applied for a grant⁴; most of those who reported a career break to look after the family were women;
- ▶ a job outside academia or research in the past ten years was also associated with a lower than average application activity: 42 per cent of respondents who reported this had applied for a grant. Again women were more likely than men to be found in this group.

Are women in academia more likely than men to report having experienced barriers in their careers?

Looking at main differences in the proportion of women and men who reported some barriers in their academic or research career:

- ▶ 54 per cent of women said that lack of career guidance had been a problem for them, compared with 43 per cent of men;
- ▶ women were also more likely than men to believe that their career had suffered because they did not know the 'right people', with the respective figures being 46 and 40 per cent;
- ▶ lack of influential role models and mentors was reported by 42 per cent of women, compared with 32 per cent of their male colleagues;
- ▶ a similar difference was found in relation to lack of support from senior staff, with 40 per cent of women and 33 per cent of men mentioning this problem.

⁴ This result should be interpreted with caution as the sample only included 94 respondents who reported a career break.

Do these barriers influence the propensity to apply for research funding?

There was not a strong association between many of the barriers explored by the survey and application behaviour. However, differences were found between:

- ▶ academics who said they had not had access to influential role models and those who did not mention this as a problem: 51 per cent of the former and 60 per cent of the latter had applied for grants in the past five years;
- ▶ those who said they had lacked good career guidance and those who did not experience this problem: 54 per cent of the former and 59 per cent of the latter had submitted grant applications;
- ▶ those who said they had lacked good 'connections' and those who did not report this as a problem: 54 per cent of the former and 60 per cent of the latter had applied for grants.



Does the type of institution influence funding application behaviour?

The survey investigated whether academics in some types of institution are more likely to apply for research funding than others and whether institutional differences could explain gender variations in grant application activities. The extent to which institutional differences in grant application behaviour might be related to eligibility to apply for funding was also explored. Information was collected on the level of institutional support for funding activities reported by women and men in different parts of the HE sector and the link between the support available and application activities.

Are academics from some types of institution more likely than others to apply for and obtain research funding?

The survey shows that:

- ▶ academics from universities that are the main recipients of research funding from the Wellcome Trust and Research Councils⁵ were more likely than respondents in other institutions to have applied for grants: 67 per cent of the former had done so, compared with 62 per cent of respondents from other old universities and 39 per cent of academics from new universities and HE colleges;
- ▶ looking at the most recent grant application, academics from the main recipient universities had been awarded 63 per cent of the grants they had applied for, compared with 55 per cent of applicants from other old universities and 37 per cent of those from new universities and HE colleges.

Can gender differences in grant application behaviour be partly explained by women's representation in different types of institution?

Rather small differences were found in the representation of women and men in different parts of the HE sector, and gender differences in grant application behaviour persisted when controlling for type of institution:

- ▶ 47 per cent of women and 51 per cent of men were found in main funding recipient institutions; the corresponding figures in other old universities were 20 and 15 per cent, while virtually no difference was found in the proportion of women and men in new universities and HE colleges;

⁵ These include 25 institutions which receive the majority of the research funding provided by the Wellcome Trust and the Research Councils.

- ▶ 60 per cent of women and 70 per cent of men in main funding recipient institutions had applied for grants;
- ▶ the corresponding figures in other old universities were 57 per cent for women and 65 per cent for men;
- ▶ a slightly larger gap was found among respondents from new universities and HE colleges, with 29 per cent of women and 41 per cent of men having applied for grants.

Are institutional differences in grant application behaviour related to eligibility to apply for funding?

The survey shows that institutional differences in grant application activities do not appear to be related to eligibility:

- ▶ 69 per cent of respondents from universities which are the main recipients of research funding, 79 per cent from other old universities and 77 per cent from new universities and HE colleges were eligible to apply to at least one of the Research Councils or the Wellcome Trust for grants;
- ▶ in new universities and HE colleges, less than half (44 per cent) of academics who were eligible to apply to at least one of the funding bodies for a grant had done so, compared with 76 per cent of eligible respondents from institutions that are the main recipients of research funding and 69 per cent in other old universities.

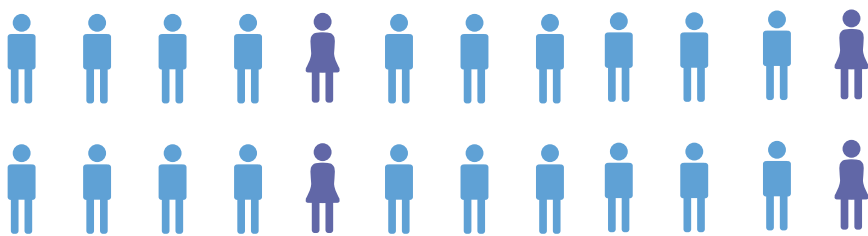
Are there any institutional and gender differences in the level of support for research funding applications academics have access to?

The survey explored a range of informal and formal types of support for funding applications academics might have access to. These include contact with established academics, support from the department, being given time to make applications, approval of an internal research review committee and constructive feedback from previous applications. Information about the different forms of support respondents said they had received was used to construct an indicator of support level.

The results show that:

- ▶ there was considerable institutional variation in the support available for funding activities: just over a third of respondents from main recipient institutions and other old universities reported a high level of support, compared with 20 per cent of those from new universities and HE colleges;
- ▶ overall, women reported lower levels of support than men: less than a quarter (24 per cent) said they had received a high level of support, compared with 34 per cent of their male colleagues;
- ▶ there is a strong association between the level of support academics reported and the propensity to apply for research funding: 89 per cent of respondents who reported a high level of support had made grant applications in the past five years, compared with 54 per cent of those who reported a low level of support.

Is there a link between professional profile and application activities?



The survey explored the link between application behaviour and the characteristics generally associated with a successful research career, such as a good publication record, visibility and reputation in a subject area and academic qualifications. The extent to which variations in the professional profiles of women and men might explain gender differences in application activities was investigated. Information was also collected on academics' application strategies and any gender differences in relation to these.

Are academics who do not possess the characteristics associated with a successful research career less likely than others to apply for grants?

Information provided by respondents on their publications and academic activities was used to establish their publication record and their level of professional 'visibility'⁶. These data, together with information on inclusion in the Research Assessment Exercise (RAE) and the highest academic qualification, were used to explore the link between professional profile and application activities. The results show that:

- only a third of academics classified as having a 'very low' publication record had applied for grants in the past five years, compared with 90 per cent of those in top publication categories (i.e. 'high' or 'very high');
- 29 per cent of respondents who were not included in the 1996 RAE and did not expect to be included in the 2001 exercise had applied for grants; the corresponding figure for those included in 1996 and 2001 RAEs was 81 per cent;
- 43 per cent of those classified as having a 'low visibility' (i.e. being involved in few and less 'prestigious' academic activities) had applied for research funding, compared with 92 per cent of academics classified as having a 'high visibility';
- a third of those without a PhD had applied for grants, compared with 69 per cent of academics with a PhD.

Are women less likely than men to possess the characteristics associated with a successful research career?

The survey found that:

- 7 per cent of women and 13 per cent of men were included in the top two publication categories;
- 27 per cent of women compared with 39 per cent of men had been included in the 1996 and 2001 RAEs;
- 2 per cent of women and 7 per cent of men were classified as having a 'high visibility';
- women were less likely to have a PhD than men (57 and 66 per cent respectively).

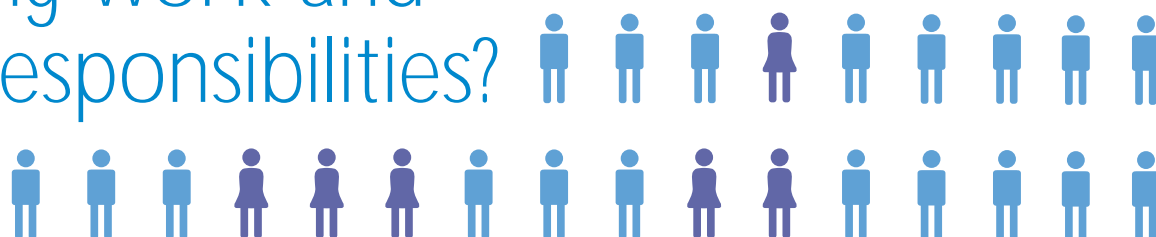
What are women's and men's application strategies?

Respondents' views on the most effective way of securing research funding show that:

- most academics seem to have a 'prudent' approach to funding application, with a majority (53 per cent) advocating a selective strategy and only a small group (15 per cent) believing that the most effective way of securing funding is to submit as many applications as possible;
- small differences were found between women's and men's strategies, with women being less likely to have expressed an opinion on the most effective application strategy.

⁶ Examples of academic activities used to assess respondents' visibility included: refereeing and peer reviewing, membership of external research/professional committees and boards, and presentation of papers and keynote speeches at conferences.

Are women and men in academia successfully balancing work and family responsibilities?



There is a large body of evidence on the numerous direct and indirect ways in which family circumstances influence women's careers. It was therefore important for this study to explore some key 'work-home balance' questions.

Do the family circumstances and responsibilities of women and men in academia differ?

The survey results show considerable differences between women's and men's family circumstances:

- ▶ women were less likely to be in a relationship than men: 71 per cent of the former and 82 per cent of the latter were married or living with a partner;
- ▶ women in all age groups were less likely than their male colleagues to have dependent children;
- ▶ among youngest respondents (aged 35 or under), 16 per cent women and 22 per cent of men had dependent children;
- ▶ 55 per cent of women and 72 per cent of men in the 36–50 age group had dependent children;
- ▶ among respondents over 50 the proportions of women and men with dependent children were 18 and 36 per cent respectively.

While women in the sample were less likely to be in a relationship and to have children, they were considerably more likely than their male colleagues to have domestic and caring responsibilities:

- ▶ 56 per cent of women were mainly responsible for household chores, compared with 21 per cent of men;
- ▶ among those with dependent children, 55 per cent of women and only 5 per cent of men had main responsibility for childcare;
- ▶ 10 per cent of women had responsibility for looking after a disabled, sick or elderly relative or friend; the corresponding figure for men was 5 per cent.

Is the work–home balance problematic for women and men in HE?

Some of the results show that the relation between work and private life was problematic for a large proportion of academics, with women more likely to find some aspects of it particularly difficult:

- ▶ over a third of respondents said the need to compromise and negotiate in a dual career household had been a problem in their career, but this was more likely to be reported by women (43 per cent) than men (29 per cent);
- ▶ nearly half of respondents (47 per cent) reported difficulties in combining work with family responsibilities: surprisingly, virtually no gender difference was found here.

What are HE institutions doing to help academics with caring responsibilities?

The institutional response to their employees' need to reconcile work with family responsibilities seemed mixed:

- ▶ a high proportion of academics were able to work from home (65 per cent) and had access to a workplace crèche (47 per cent);
- ▶ however, only a minority of academics (a fifth or less) had access to other family-friendly provision, such as parental leave and career breaks.

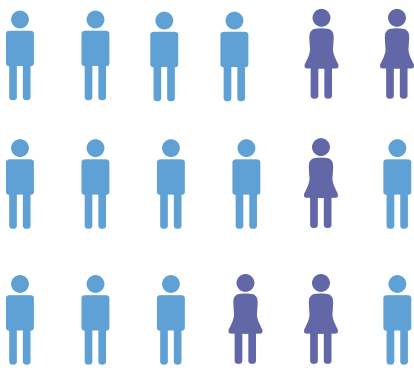
Using the information provided by respondents on the number and type of family-friendly arrangements available in their workplace, institutions were classified as providing 'good', 'moderate' or 'poor' access to these arrangements. The results show that:

- ▶ the most family-friendly employers were new universities and HE colleges, with 67 per cent providing moderate or good family-friendly arrangements; a quarter were classified as providing 'poor' access to such arrangements⁷;
- ▶ 54 per cent of universities that are the main recipients of funding from the Wellcome Trust and the Research Councils were classified as providing good or moderate access to family-friendly arrangements, while over a third (36 per cent) provided 'poor' access to these arrangements⁸.

⁷ 8 per cent of respondents did not provide an answer to the questions used to classify these institutions' level of access to family-friendly employment practices.

⁸ 10 per cent of respondents did not provide an answer to the questions used to classify these institutions' level of access to family-friendly employment practices.





Tinkering, tailoring or transforming?

One of the aims of the study was to draw some conclusions from the survey on the implications for changes in the policies and practices of funding bodies and HE institutions to tackle gender differences in funding application activities.

Equal opportunities policies and practices can be classified under three broad types, which have been described as 'tinkering', 'tailoring' and 'transforming' and represent approaches based on equal treatment, positive action and mainstreaming respectively⁹. These approaches were used as a framework to provide an indication of the extent and nature of changes likely to be required to deal with the gender differences in application activities identified by the survey.

What has been called 'tinkering' is the equal treatment approach, which argues that everybody should be treated the same and aims to remove any forms of direct gender discrimination leading to the unequal treatment of women and men. This study, as well as previous research carried out in this country, has found no evidence of gender discrimination in the grant and fellowship allocation process. The available evidence suggests that the funding allocation process is fair and therefore action beyond 'tinkering' would be required to tackle gender differences in funding application activities.

The starting point of the positive action approach to equal opportunities, described as 'tailoring', is the recognition that due to a range of social, economic and historical factors, there are some important differences between women and men. Positive action measures seek to address these differences by ensuring, as far as possible, a 'level playing field' in the competition for jobs and promotion. The results of this survey show that, as in many other professions, women in academia are disadvantaged for two main reasons: first, because of their family responsibilities; and second because they are under-represented at the top of the employment hierarchy. Creating a level playing field in research funding would therefore involve providing additional support for academics with caring responsibilities and junior academics who want to establish their research reputation.

⁹ Rees T, 1996, From Equal Opportunities to Mainstreaming Equality. Conference Paper, 14-15 Oct.

The third equal opportunity approach, 'transforming', or mainstreaming as it is more commonly known, originated from the European Commission. It is the approach recommended by the Equal Opportunities Commission (EOC) and it has been endorsed by the UK government. Underpinning this approach is the idea that existing structures and institutions are not gender-neutral, but favour one sex over another, usually men, in a variety of more or less subtle ways. Positive action might be part of a mainstreaming programme. However, mainstreaming goes beyond 'tailoring' and involves 'transformation' through the integration of the gender dimension into policy development, implementation and evaluation. The deep-rooted nature of some of the factors affecting gender differences in grant application activities suggests that this kind of intervention would be required in order to ensure a more equal distribution of research funding.

What are the implications of the survey results for research funding bodies?

Many of the survey findings have shown that gender differences in grant application activities, which result in an unequal distribution of research funding, would require a review of deeply rooted and indirect causes of this inequality, as well as more direct intervention to create a level playing field. Possible ways of redressing the gender imbalance are outlined below.

- ▶ **Funding for postgraduate students** – A review of funding opportunities for PhD students could be carried out to encourage more women to study at this academic level, particularly in disciplines where women represent a small minority.
- ▶ **Gender equality and funding allocation** – A review of research funding policies and strategies could be carried out to target specific groups that are currently disadvantaged due to their family and employment circumstances. Target groups could include:
 1. academics in part-time jobs;
 2. people on fixed-term contracts, particularly those on short-term contracts who are ineligible to apply for many grant schemes from the main funding bodies;
 3. people who need to establish themselves in academia, including new labour market entrants and those who enter academia after a career in another profession;
 4. returnees who want to re-establish their research reputation and activities after a career break for family reasons.
- ▶ **Dissemination of information on funding opportunities** – A review of the funding bodies' dissemination and publicity strategies would be required to identify ways of reaching academics who are less likely to have access to informal networks and influential people. Particular attention would need to be given to the dissemination of information about schemes targeted at people in specific circumstances (discussed above).

- Influencing HE institutions employment practices** – Many of the gender differences identified by the survey are rooted in employment practices. As major providers of research funding, the Wellcome Trust and Research Councils could play a part in influencing the employment policies and practices of HE institutions. Many examples exist of indirect attempts to encourage good practice in a range of policy areas, such as ethical standards in research, health and safety, quality assurance, as well as equal opportunities.
- Monitoring the gender distribution of funding income** – A key element of mainstreaming is the monitoring and review of the 'gender' effects of policy decisions. In the case of funding bodies, there would be a need to monitor and evaluate the effects of any changes in funding policies and strategies on the application and allocation of funding to women and men. It would therefore be advisable for funding bodies to ensure that the necessary information is collected at the application stage to monitor any 'gender effects', including the impact of specific measures aimed at tackling gender inequalities. It would be particularly valuable if funding bodies could coordinate their monitoring strategies, as much could be learnt by sharing this information, particularly information on the most effective policies and practices.

What are the implications of the survey results for HE institutions?

In response to recent concerns raised by the Bett Report¹⁰ and other studies on gender inequalities in academia, HE institutions are being asked to review their equal opportunities policies and practices. As part of these equal opportunities audits, it would seem appropriate to consider how gender differences in application activities could be addressed, given that research plays such a crucial part in shaping academics' careers. Below we outline some well known examples of good equal opportunity practices and suggest how these could be used to tackle gender differences in funding application activities.

- Career development opportunities** – Making promotion criteria explicit, promotion processes transparent, and developing formal career and development mechanisms (e.g. appraisals) are widely recognized ways of minimizing the chances of direct and indirect discrimination. The importance of research and funding application activities as promotion criteria would need to be clearly spelled out by institutions and support for these activities would need to be integrated into development and training programmes.
- Mentoring schemes** – In some HE institutions mentoring schemes are available for junior staff and under-represented groups (such as women). These schemes would seem a good way of providing advice and support for research activities, including seeking research funding. Encouraging HE institutions to provide (more) mentoring schemes might help women to overcome some of the problems identified by the survey (lack of 'influential' contacts, role models, support from senior staff).

¹⁰The Bett Report, published in 1999, was the outcome of an independent inquiry into academic pay and working conditions.

- ▶ **Information on and support for funding applications** – HE institutions can also play an important role in ensuring that information about funding opportunities is accessible to staff who are eligible to apply for different schemes. For example, a research coordinator at the departmental level could ensure that staff in different circumstances are aware of the funding opportunities open to them. This would help to ensure that the appropriate information reaches all staff, rather than mainly those who happen to be in the right place at the right time and who know the ‘right people’.
- ▶ **Addressing the work–home balance question** – The introduction of the Employment Relations Act and the government Work–Life Balance campaign provide an ideal framework for HE institutions to review their working arrangements and provide more support to staff with family responsibilities. The difficulties faced by the groups highlighted earlier (e.g. part-time workers, those who have had a career break for family reasons) are not unique to academia; they are experienced by employees in most professions. There are many examples of good practice which aim to remove the barriers faced by these groups, such as schemes to facilitate the re-entry of those who return to work after a career break and job-share opportunities. These schemes would need to pay particular attention to the support these groups require in order to facilitate their funding application and research activities.

