

Establishing Women - only Positions in Engineering to Increase Gender Diversity – the Process and Results

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Abstract: The Faculty of Engineering at the University of Melbourne has put in place a series of initiatives to increase the representation of women academics in Engineering. This paper describes one of these strategies, that is, the establishment of Research Fellow positions, eligible only for women, to be taken up in any one of six Departments of the Faculty of Engineering. The justification for this strategy is three-fold. Firstly, it will increase the number of women academics working in the Faculty and in the long term lead to more women in senior positions. Secondly, it will contribute to creating an academic environment that is inclusive of women, and provide role models for undergraduate and postgraduate female students. Thirdly, it will contribute to attracting more females into engineering, and in the long term increase the number of women practising as engineers who will more adequately fulfil the ‘engineering’ requirements of today’s society. In order to advertise these special positions for only women, the Faculty of Engineering was required to apply for an exemption under the State of Victoria (Australia) Equal Opportunity Act. The process of establishing these positions, the justification for the exemption, the selection of candidates, and the positive outcomes of this initiative will be explored.

Introduction and background

The University of Melbourne is committed to Cultural Diversity and Equal Opportunity^b. The University has recognized that it has a responsibility to develop programs in employment, which redress where appropriate, the effects of past discriminatory practices within the community and that it has a responsibility to take positive steps to overcome inequality of opportunity. In line with these objectives, the University has also set specific performance targets for increasing the number of women in non-traditional areas. The Australian Equal Opportunity for Women in the Workplace (EOWW) Act (1999) and the Victorian Equal Opportunity (EO) Act (1995) have also been in existence for a number of years. Despite these affirmative action and equal opportunity policies and laws the number of women academics in Engineering remains low as shown in Table 1, which depicts the gender diversity of the Faculty spanning the years 2000 to 2004.

In 2001 the Faculty of Engineering set up a Staff Diversity Committee (SDC), with the objective of exploring the benefits of diversity and (in particular) defining ways to increase the gender diversity of Faculty academic staff. The Committee comprised of six women and three men representing the six departments of the Faculty. As the proportion of women academics (12%) within the Engineering Faculty was the lowest of any faculty at the University, the Committee attempted to understand and explain the various attitudes that the

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^b See <http://www.unimelb.edu.au/diversity>

different Engineering departments were taking towards the presence of the low numbers of academic women. Using a framework based on “The Absence Argument” developed by Sinclair¹, the Committee recommended several strategies to help identify the issues leading to low participation of women, with the hope that departments and in particular, Heads of Departments, would be persuaded to take affirmative action leading to an increase in the number of women academics. These recommendations, described in Brown & Thomas², were:

1. Inclusion of ‘diversity’ as an agenda item at department meetings
2. Dissemination of data on women in engineering
3. Circulation of a diversity awareness checklist (including gender diversity) to all staff in the Faculty
4. Circulation of a paper on part-time employment for academics to encourage sensitivity and support for flexible working arrangements
5. Establishment of three Faculty-funded postdoctoral research fellowships for women

Category	Female					Male					% Female				
	2000	2001	2002	2003	2004	2000	2001	2002	2003	2004	2000	2001	2002	2003	2004
T & R and RO	18	22	23	32	37	169	161	169	174	186	9.6	12	12	15.5	16.6
RO	7	10	10	17	23	67	59	59	74	83	9.5	14.5	14.5	18.7	21.7
T & R (Level C & above)	3	5	5	7	8	79	76	83	77	84	3.7	6.2	5.7	8.3	8.7
T & R	11	12	13	15	14	102	102	110	100	103	9.7	10.5	10.6	13	12

Table 1. Gender Diversity of the Faculty of Engineering, University of Melbourne (T & R = Teaching and Research academics, RO = Research Only academics. Data extracted from The University of Melbourne Equal Opportunity Unit publications)

The recommendation for establishing the fellowships for women was further justified by the general lack of good female applicants for advertised tenured academic positions in the past. The Committee therefore suggested that the Faculty should ‘cultivate their own applicants’. Although this was a radical approach, it was thought to be necessary to significantly increase the pool of women academics in engineering. This initiative, if successful, was also expected to have flow-on effects such as, providing more female role models for undergraduate and postgraduate students. Other outcomes expected from this initiative will be discussed later.

In late 2002 the Management and Resources Committee of the Faculty met to decide on the 2003 Faculty budget and considered these recommendations. The sole female Head of Department spoke strongly for the three female academic appointments and was supported by the Dean. After some debate, a decision was made to “recruit three full-time (or equivalent part-time) women candidates with excellent research/industry track records into three 3-year faculty-funded post-doctoral fellowships” (Jayasuriya & Thomas³), and as described in

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Jayasuriya & Thomas³, this was incorporated into the Faculty Diversity Plan as well as the Faculty Operational Plan for 2003.

Independently (at about the same time), and in spite of positive discrimination being illegal in The Netherlands, five positions for women were established at the University of Groningen. The fellowships, which were named in honour of Rosalind Franklin were sponsored by the Faculty of Mathematics and Natural Sciences at Groningen (Nosengo⁴). There had also been a fellowship scheme named after Dorothy Hodgkin launched by the Royal Society in the UK in 1995, targeting junior postdoctoral researchers with all (47) but one having been awarded to women (Higgins⁵).

Advertising for women-only positions

In the State of Victoria to advertise and recruit only women into these positions it was necessary either to seek an exemption from the EO Act or justify these positions under the Australian Federal government's affirmative action initiatives specified by the EOWW Act. On the advice from the University Equal Opportunity Unit, the former path was chosen as it was thought to be less open to legal challenges, particularly from male candidates wishing to apply for the positions. Therefore, an exemption to the EO Act was sought from the Victorian Civil and Administrative Tribunal (VCAT), which had the power to grant exemptions (under Section 83 of the Act). This request was thought to be in accordance with the broad objectives of the Act, which was to create equality of opportunity for various groups, in this instance, engineering women in academia.

The case for justifying an exemption to advertise and recruit only women into these Postdoctoral Research positions was developed by the Assistant Dean (for Transition and Diversity) in the Faculty in 2003. The application for exemption was given Faculty and University-wide support under affirmative action and equal opportunity initiatives coordinated centrally.

Justification for the application to VCAT

The following points summarise the reasons put forward in the exemption application to VCAT:

1. The Faculty is guided by the Faculty Diversity Plan, and EOWW and Cultural Diversity Policies
2. University of Melbourne performance targets (for Equity & Access) specify: "to significantly improve the percentage of women at all academic levels, where women are currently under-represented"
3. Fewer women (than men) are enrolled in either undergraduate and postgraduate degrees in engineering
4. Participation level diminishes even further in academia
5. 26% women in engineering is not high enough (at a time when 57% of students entering the University are female)
6. Proportion of women academics in engineering is low and has not changed very much for a number of years
7. Numbers in one department suggest higher (than average) academic women can be correlated with high numbers of women students (for example Dept of Chemical Engineering)
8. The Faculty is interested in equity for women engineers, who are as good as the men

9. Due to historical factors, fewer women (than men) have over 5 years experience in research
10. Candidates are to be selected on merit as well as their potential to work in one of the strategic research areas of Faculty

The process

The exemption process, which began with the filing of application, took approximately 3 months. The hearing took place at the end of the 3 months. The University was represented at the hearing by three academic members of Faculty including, the Dean of Engineering, Assistant Dean (Transition & Diversity), Head of one Department and the University EO Officer.

The ruling

The exemption was granted on 1st August 2003 and remains effective for three years. In granting the exemption, the Victorian Civil and Administrative Tribunal noted the University of Melbourne's "clear commitment to affirmative action to increase the number of female academics in traditionally male dominated areas". The Tribunal also noted that, "while progress towards gender balance in the Faculty has been made, historic and current barriers continue to affect the advancement of women to higher positions".

The positions were advertised nationally following this successful application to VCAT. The advertisement called for applications only from women and the VCAT exemption to the EO Act was also specified in the advertisement. Every attempt was also made to target suitable candidates in both Australia and overseas and encourage them to apply for these positions.

The postdoctoral research fellow positions

As described previously (Jayasuriya & Thomas³) these positions were expected to provide a career path for women to become tenured or continuing academic staff, with applications sought from candidates from any engineering discipline. The positions were to be taken up either on a full-time or part-time basis and at least three were to be offered to provide peer support.

The criteria for selecting candidates were developed with the intention of attracting the best women candidates into the positions. Candidates were required to address the following selection criteria in their applications.

Essential selection criteria:

1. A PhD in a relevant discipline of engineering, geomatics or computer science.
2. A demonstrated research record of excellence in a relevant area as evidenced by publications in refereed journals, conference proceedings, patents or other documents.
3. Ability to work in one of the strategic research areas of a Department and/or Research Centre in the Faculty of Engineering.
4. A clear vision of immediate future research that you want to pursue.
5. Ability to foster the research interests of the Department and/or Research Centre within the University and promote the work at appropriate research and educational forums, to industry and the community in general.

6. Demonstrated ability to work co-operatively in a team environment with researchers and postgraduate students from diverse backgrounds.
7. Demonstrated ability to teach undergraduate and postgraduate students.
8. Excellent oral and written communication skills.
9. A commitment to Equal Employment Opportunity (EEO) principles.

Desirable selection criteria:

1. Experience in working on goal-oriented industry funded research projects or in close collaboration with industry.
2. Experience in research staff and postgraduate student supervision.
3. Project management skills.
4. Experience in preparation of grant applications.

The outcome of the selection process

The advertisement for the Research Fellow positions attracted 48 applications from Australia and overseas. The breakdown of applicants by discipline are given below. The number of successful applicants, ie., numbers of Fellowships awarded under each discipline are given within brackets.

- Civil & Environmental Engineering: 5 (1 awarded)
- Chemical & Biomolecular Engineering: 13 (1 awarded)
- Geomatics: 6
- Mechanical & Manufacturing Engineering: 7
- Electrical & Electronic Engineering: 11 (2 awarded)
- Computer Science & Software Engineering: 4

Two applications were not considered as these didn't meet the selection criteria (including one from a male applicant).

Eight candidates were shortlisted for a rigorous interview process. The selection/interview panel consisted of the Dean of Engineering, Assistant Dean (Transition & Diversity), a Senior academic staff member from each Department of the Faculty (usually Head of Department) and a Human Resources Officer.

Due to the high standard of applicants, the Faculty decided to award 4 Fellowships (one more than originally planned). The Faculty will actively encourage the career progression and development of the successful candidates, and provide opportunities for articulation into the more sought after Teaching and Research positions. The expectation is that, in the long term, this will lead to more women academics in senior positions and contribute to attracting more women into engineering.

Expected benefits for the Faculty

It is expected that the appointment of 4 Postdoctoral Research Fellows will positively impact on the gender imbalance in the Faculty of Engineering (as well as on underlying causes) by:

1. Increasing the number of female academics working in the Faculty of Engineering
2. Creating an academic environment that is inclusive of women – have an immediate impact on the culture of the Faculty (existing culture in the engineering fraternity tends to alienate women)
3. Developing further role models for undergraduates and postgraduates, both female and male

Other expected benefits include:

1. Encouraging current female postgraduate students to consider an academic career
2. In the long term, having more women in senior academic positions
3. Encouraging more women to apply for academic positions in the Faculty through the normal recruitment channels
4. In the long term, contributing to attracting more females entering engineering at the undergraduate level
5. Increasing the 'diversity of experiences' of academics - increasing the diversity of the engineering workforce – giving better/more innovative solutions to specific problems
6. Improving the public/community perception of the Faculty
7. More accurately reflecting the gender and cultural profile prevailing outside the University environment

Conclusions

The Faculty of Engineering at the University of Melbourne has followed affirmative action policy to create new women-only positions. An exemption was granted by VCAT to enable the Faculty to advertise these positions only for women. The advertisement attracted 48 applications from candidates, many of whom had excellent research track records. Following the selection process four appointments were made, which was one more than originally planned.

As Table 1 indicates, this initiative has contributed to a dramatic increase in the number of Research only women academics in 2004 (compared to 2002). However, this table also shows that the number of Teaching & Research academics is not increasing. This suggests that initiatives such as these are critical to increase the available number of women academics in engineering that might be promoted to Teaching & Research tenured positions. Therefore, it is paramount that programs such as these are continued. The expectation is that this program will be continued with a further three female research fellows appointed in the near future. The present incumbents would be ready for consideration for tenured appointments in three years. The hope is that, in the long term, increasing the number of women academics will enhance diversity in the Faculty of Engineering, as well as result in positive flow on effects to the discipline of engineering.

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