

# VALUING THE DIFFERENCE



## AN UPDATE ON THE PROGRESS OF WOMEN IN THE ENGINEERING PROFESSION



**ENGINEERS  
AUSTRALIA**  
Women in Engineering  
National Committee

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# AN UPDATE ON THE PROGRESS OF WOMEN IN THE ENGINEERING PROFESSION

**Engineers Australia declared 2007 the Year of Women in Engineering as part of its commitment to the inclusive professional team. The key objectives of the Year were to increase awareness amongst the profession, industry and wider community of the role and contribution of women to engineering, to celebrate their achievements and to demonstrate that engineering is a sought after profession that offers a sustainable and fulfilling career for women. The Year was very successful and was recognised by being awarded the President's Prize at the Australian Engineering Excellence Awards in November 2007.**

As part of the activities for the Year, the National Committee for Women in Engineering supported a survey of women engineers which was undertaken by a team of researchers at the University of South Australia. The objectives of the survey were to investigate the retention, satisfaction and progression of women engineers. The results of the survey are being used to shape the future policies and programs of the National Committee and of Engineers Australia as a whole.

Engineers Australia supported the project both financially and by providing access to members. An on-line survey was conducted of a sample of women and men. A total of 8214 members of Engineers Australia were surveyed – 3214 female members (representing all females at graduate or higher levels of membership at the time), and 5000 male members, matched with the female sample in terms of age, College affiliation and geographical distribution by Division. Responses were received from 1,187 female engineers (36.9% response rate) and 605 male engineers (12.1% response rate).

This document presents some of the results and the conclusions reached by Engineers Australia on reviewing the survey report. More detailed information is available from the full report <sup>(1)</sup>.

This is the second survey to be undertaken, the first survey was done in 1999. The original survey showed that the cultures of many engineering workplaces were female and family unfriendly and that women were more dissatisfied with workplace culture and conditions than their male counterparts.

Since the first survey was published many engineering employers have taken significant steps to try to improve this situation. However, both Engineers Australia membership statistics and this survey still indicate that women are leaving the profession at a high rate. In addition, the numbers and percentage of women enrolling in engineering degrees has declined each year since 2002, and this trend is also evident in the UK, USA and Canada.

The most significant result of the current survey is the increased availability of family friendly workplaces. Family friendly practices are intended to assist employees to balance work and family commitments, and as a consequence to enhance their productivity. As women are still more frequently the primary caregivers for children, family friendly practices should assist their retention and career progression. The table below shows that 79.0% of women and 78.3% of men reported the availability of flexible work hours within their organisations.

## Availability and use of family friendly employment practices

	% reporting the availability of these practices		% reporting having used these practices	
	% Women	% Men	% Women	% Men
<b>Family friendly employment practices</b>				
Flexible work hours available	79.0	78.3	75.5	79.4
Job sharing **	29.6	30.4	18.0	28.7
Part-time work **	67.7	55.5	21.2	10.1
Leave without pay **	91.4	89.1	35.8	26.3
Carer's leave	79.1	77.3	18.1	19.1
Paid maternity leave	72.4	70.0	11.7	NA
Paid paternity leave	67.7	68.6	NA	9.9

\*\* Indicates a significant difference in "having used these practices" using the Pearson Chi-squared test with a p-value of <0.05 signifying a 95% confidence in the results

Leave without pay was reported as being available in more than 90% of workplaces and women and men similarly reported the availability of carer's leave in more than 77% of workplaces. Job sharing was available in approximately 30% of workplaces. Women reported that part-time work was available in 67.7% or two-thirds of work places, men reported the availability of part-time work in 55.5% of workplaces. Paid paternity leave was available in more than 67.7% or two-thirds of workplaces and paid maternity leave was in more than 70% of workplaces.

*"the increased availability of family friendly practices represents the greatest shift in engineering workplaces"*

## Work satisfaction and employment conditions

	% dissatisfied and very dissatisfied		% satisfied and very satisfied	
	Women	Men	Women	Men
<b>Workplace Conditions</b>				
The way your workplace is/was managed	22.2	20.0	52.3	55.0
Your rate of pay	22.0	19.1	56.6	57.3
Your chances of promotion **	21.6	17.0	47.0	54.9
Communication and dissemination of information	21.2	16.2	55.3	61.4
Opportunities (with pay) for staff development/training	17.9	21.9	63.4	60.7
Your opportunities to use your abilities	17.7	15.0	66.4	67.1
Your hours of work	15.6	14.1	68.9	67.1
Recognition you get/got for good work	15.3	12.6	56.9	63.6
The attention paid to suggestions you make/made **	13.4	9.1	65.1	68.5
Your immediate boss	12.4	12.3	71.4	75.6
Industrial relations between management and employees **	12.3	10.9	57.6	65.7
The amount of variety in your job	12.1	8.7	74.0	74.8
The amount of responsibility given	11.3	8.0	76.0	78.0
Freedom to choose your own method of working	6.6	5.0	78.5	82.4
Satisfaction with your colleagues	5.9	4.2	81.4	84.6
The physical work conditions	5.4	7.1	85.0	67.4
Your job security	5.3	3.2	84.8	86.2
Feelings about the job as a whole	11.6	7.7	74.3	78.7

\*\* Indicates a significant difference using the Pearson Chi-squared test with a p-value of <0.05 signifying a 95% confidence in the results

The increased availability of family friendly practices between 1999 and 2007 represents the greatest shift in engineering workplaces. The largest change, as reported by women, was the availability of carer's leave (up 31 percentage points from 48% to 79%), paid maternity leave (up 28 percentage points), part-time work (up 19 percentage points), flexible work hours (up 13 percentage points) and job sharing (up 11 percentage points). These findings are very encouraging and indicate that many employers have taken on board the messages about family-friendly workplace practices being critically important to attract and retain engineers and have put appropriate policies into place.

The utilisation of these family friendly workplace provisions has also significantly improved since 1999. More than 75% of women and 79% of men reported that they had made use of flexible working hours, indicating that this practice is highly utilised. It is interesting to note that more men (28.7%) than women (18.0%) reported making use of flexible work hours and job sharing. Two-thirds of the men who reported that they had made use of job-sharing were in the 20-29 year age group. It is apparent that workplace flexibility is being sought by both male and female engineers and employers are accommodating these needs in significant proportions. Utilisation rates of flexible work practices by respondents not directly responsible for children are similar or higher than by

those respondents who are responsible for children, particularly in the case of flexible work hours and leave without pay.

This indicates that these provisions are valued and utilised by a range of employees, male and female, not just women with children. Overall utilisation of all flexible work practices has not increased by as much as the availability, so there is still potential for employers to encourage and support their use more widely.

*“workplace flexibility is being sought by both male and female engineers and employers are accommodating these needs in significant proportions”*

The 2007 survey also shows that workplace satisfaction of both female and male engineers had improved considerably. The table above shows that 74.3% of all women reported that they were satisfied or very satisfied, compared with 78.7% of men. These results indicate a positive change for both men and women when compared with the previous study, in which the equivalent figures were 60% of all women, compared with 70% of all men.

84.7% of women and 83% of men described their workplace culture as comfortable, supportive or team-centred (up from 57% for women and 68% for men in 1999). However some aspects of the engineering workplace culture could be improved. 28.2% of women and 18.6% of men reported that they had experienced bullying by their boss or co-workers. Bullying was the prevailing workplace problem reported by men and was reported by all age groups. The prevalent comment from both women and men across the age groups beyond 20-29 years was their recognition that the bullying they experienced was not related to them specifically but instead arose from the person displaying the bullying behaviour. The issue of bullying was not covered in the first survey, the current survey is the first investigation into bullying experienced by members of Engineers Australia. The results indicate that it is a serious issue, experienced by both men and women, and needs close ongoing monitoring. Female engineers also reported unacceptably high rates of discrimination (42.3% in 2007 compared with 36% in 1999), which was predominantly gender based. Sexual harassment continues to be a concern although there was a decrease in the levels reported (22% in 2007 compared with 27% in 1999).

It is apparent that employers need to address work practices to modify these behaviours just as considerable work has been done to achieve safe work practices in the past decade. The current survey shows that some engineering organisations now provide training in equity and diversity management for their employees and have developed equity and diversity policies and organisational practices to assess their equity performance and set targets for improvement. Such training needs to be more widespread across the industry.

*“Both men and women indicated high levels of satisfaction with their careers.”*

#### **Would you choose to study engineering again?**

	% Women		% Men	
	1999	2007	1999	2007
Yes	54	75.8	64	77.2
No	26	19.0	24	16.4
No response	20	5.2	12	6.4

Both men and women indicated high levels of satisfaction with their careers. 75.8% of women and 77.2% of men indicated that they would choose engineering as a career and there were no statistically significant differences in the male and female responses to this question. This is a significant improvement over the results of the previous survey possibly in response to improvements in employment practices as well as the buoyant employment situation for engineers in 2007.

It is anticipated that the progress made in providing flexible and supportive engineering workplaces will assist in attracting and retaining women engineers in the profession. For example, statistics on membership of Engineers Australia shows that, despite the continuing low overall proportion of women engineers in Australia, retention of female members has improved over the last few years, with more women progressing from graduate to full membership. Nevertheless, females in the profession remain overwhelmingly at low levels of responsibility.

The survey reports that 77.8% of female engineers were in lower responsibility level positions (Levels 1 to 3 on a scale of 5) which is also reflected in their remuneration levels. 30% of females reported earning less than \$60,000 compared with 24% of men. At the higher end, only 10% of female engineers compared to 15% of males reported earning more than \$121,000.

The current survey shows that while many organisations have put policies into place to assist all engineers in balancing work and family commitments, further work is needed to address the engineering workplace culture. The first survey in 1999 made several recommendations that have been fully or partially implemented in some organisations. Engineers Australia has also made significant progress with many of the recommendations and recognises the importance of attracting and retaining female engineers. The National Committee for Women in Engineering has a vision that engineering becomes an inclusive profession which values, supports and celebrates the contributions of women in the engineering team.

*“the vision is ... engineering becomes an inclusive profession which values, supports and celebrates the contributions of women in the engineering team.”*

The National Committee has ongoing strategies for attracting and retaining women in engineering over the entire life cycle of a professional career – from attracting girls to engineering, encouraging and supporting these students at university and providing further support as they enter the profession. It runs professional development programs to assist and support female engineers in developing skills for dealing with a male dominated workplace and in preparing them for future leadership roles.

For further information on the programs and activities of the National Committee for Women in Engineering and to access the full survey report please visit:

**[www.engineersaustralia.org.au/wie/](http://www.engineersaustralia.org.au/wie/)**

<sup>(1)</sup> Statistics presented in this document are from the full survey: Mills, J., Mehrtens, V., Smith, E., Adams, V., CREW Revisited in 2007 The Year of Women in Engineering, An Update on Women’s Progress in the Australian Engineering Workforce“.

