

**2nd Regional Conference on Tutoring & Mentoring
Perth, Western Australia
Sept 30th – Oct 2, 1999**

Changing the Culture: Student Mentoring in Engineering

by

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Introduction

The Engineering Mentor Scheme was established by the Women in Science and Engineering (WISE) Programme in 1997, funded through an internal UWA Equity Initiatives Fund grant. It is currently in its third year of operation. The scheme matches volunteer student mentors in second year or above with first year students (mentees). The mentors provide advice and support to their mentees on an informal basis. The scheme is open to all students in the Faculty of Engineering and Mathematical Sciences, both men and women.

Objectives of the Engineering Mentor Scheme

The scheme assists new students in settling into the first year of university life. It eases the often-difficult transition from school into university. Many students have experienced a major change in their cultural environment on entering higher education, in particular, women in non-traditional areas, overseas students and rural students. The Scheme aims to assist these and other students in adapting to a new and often challenging environment.

In addition, the Scheme aims to facilitate cultural change within the Faculty of Engineering and Mathematical Sciences, by fostering tolerance, respect and ethical behaviour.

Cultural issues in Engineering

Intervention programmes are crucial in facilitating change in student behaviour. According to recent research by Copeland and Lewis: "Engineering students place a great deal of importance on staff setting an appropriate model of behaviour as soon as students enter engineering. We have often heard how the unacceptable behaviour of the dominant group becomes worse each year because of the lack of intervention aimed at stopping this behaviour."¹

The Engineering Mentor Scheme is an intervention programme which provides students a model of appropriate ethical behaviour and a forum in which students can analyse and discuss the cultural morés within the Faculty. Like many engineering faculties, the dominant (though not majority) culture is made up of young, anglo-saxon males whose social interactions are often centred around beer drinking and other particularly masculinist types of behaviour. The Engineering Mentor Scheme exists alongside, and as an alternative to, the dominant mainstream culture of engineering.

It is an inclusive scheme, which rejects the deficit model and its focus on minority groups. The deficit model sees the dominant group as 'normal' and minorities as 'outsiders'. The Engineering Mentor Scheme, is a totally inclusive programme, across boundaries of gender, ethnicity and socio-economic status.

¹ Copeland, J. and Lewis, S., "Where a Woman's Work is Never Done", Engineering and Technology Review, August 1998

It therefore expects ethical behaviour by all participants and fosters values of cooperation, communication and courtesy across the entire student body.

Student - centred model

The success of the Engineering Mentor Scheme is based on student participation at all levels. The scheme harnesses the willingness, professionalism and skills of the student mentors who are able to reach out to a large number of first year students and to create invaluable student networks across the Faculty.

The coordinator runs the scheme in association with a Mentor Steering Group, which is a representative group of students who assist in the planning and operation of the scheme and are responsible for the social events throughout the year.

Mentor Training

The training of the mentors is a critical component of the scheme. All mentors are required to attend a half-day training programme where a number of issues are explored, including: the aims and structure of the scheme; mentor and mentee expectations; practical and ethical aspects; timing and conduct of the meetings; communication skills, including active listening; and information about the University's facilities.

Participation of students

The level of participation of both mentors and first years has increased dramatically over the three years of operation. The number of first years has increased from 154 to 376 and the number of mentors has increased three-fold. Mentoring has now become an important facet of the Faculty's activities.

	1997	1998	1999
First years	154	295	376
Mentors	80	266	243

Student evaluation

The scheme is evaluated annually, with questionnaires being completed by mentors and mentees. One of the questions asked is: "Would you recommend joining the scheme to future first years?" In 1997, 89% of first years and 93% of mentors responded positively to this question. The following year, 88% of first years and 96% of mentors responded positively to the same question.

Student responses

Students were asked why they would recommend the Engineering Mentor Scheme to future students. Typical responses were:

Just to have someone to talk to, if needed. Also, to see a familiar face in the first few weeks. As a backup should things begin to go wrong, but more importantly as an information source whom the student can feel comfortable with.

So they can know someone and not be afraid to talk to them.

Gain tips and help from those who have been through it before.

Good to have people to talk to on a regular basis who have gone through what you are going through.

However, not all responses were positive. The following response has been used in training mentors, to give them an appreciation of the important responsibility they are taking on:

I jumped at the opportunity to have a mentor because I knew that this year would be tough. I ... hoped that a mentor might be able to give me some helpful advice ... I was disappointed when my mentor never actually contacted me after her initial phone call. I tried to approach her whenever I saw her to say 'Hi' and maybe have a quick chat, but more often than not I didn't even get a hello back. This makes you feel even more snowed under than you already were. It made me wonder if there was much point in even having a mentor .

Benefits to student mentors

Both the mentor training and the process of mentoring develop mentors' communication skills, interpersonal skills, leadership skills and networking skills. These generic skills all greatly enhance mentors' employability as graduates.

The scheme provides mentors with the opportunity to share with their fellow students some of the valuable insights and experiences they have collected over their time at university and to give something back to the University and its community. In addition, mentor training refreshes and updates the mentors' knowledge of the University support services.

Benefits to first year students

The Engineering Mentor Scheme eases the transition from school to university. At university, rules of conduct are often difficult for a newcomer to identify, and a mentor can assist with this process. First years struggle with a range of issues, including managing autonomy, time management, workload issues and cultural and gender issues. All of these are daunting to first years and a mentor can assist by sharing their own experiences and insight in dealing with these issues. By taking an interest, a mentor can make a new student feel welcome, secure and part of a group.

Benefits to the University

The Engineering Mentor Scheme increases the well-being and (hopefully) the retention of the students. (It is not possible to accurately measure the effect of the scheme on retention rates, as there are many other uncontrollable variables which affect student performance).

Through their participation in the Scheme, students are like to identify more strongly with the Faculty and the University after graduation. This strengthens the links between the University and its Alumni.

In addition, the University develops a pool of talented, committed students who can then be approached for other projects, such as orientation leaders, student ambassadors in schools, campus guides and so on.

Finally, the Engineering Mentor Scheme contributes to cultural change within the Faculty of Engineering and Mathematical Sciences, by fostering and requiring ethical behaviour from all participants.

Other WISE mentoring schemes

Other Mentor Schemes run by WISE are:

- WISE.Options - women in their honours year in Engineering are mentored by academic women in engineering;
- WISEmail - secondary school students are mentored by current university students through email.

Where to from here?

The University of Western Australia has decided to extend student mentoring across the University over the next two years. In 2000 it will be offered in the Faculties of Economics, Commerce, Medicine, Dentistry, Agriculture and Engineering and Mathematical Sciences.

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