

## COMPLETION REPORT

A Study on Learning Experiences Satisfaction and Socio-Cultural Aspects that Influence Learning Engineering and Intent to Pursue Engineering as a Career among Japanese and Malaysian Female Engineering Students

Dr. Balamuralithara Balakrishnan  
Assistant Professor  
Faculty of Engineering & Science  
Universiti Tunku Abdul Rahman  
Malaysia

This research investigated the Malaysian and Japanese female engineering students' perception on engineering programme and profession. As developed and developing countries move towards greater technological development in the 21<sup>st</sup> century, the need for engineers has increased substantially. Japan and Malaysia is facing the dilemma of insufficient engineers and therefore the country has to rely on foreign workers. This problem can be solved if there is a continuous effort to increase the number of women engineers. In this study, the satisfaction level of the learning experience of Japanese and Malaysian female engineering students was measured to determine its relationship with academic attainment in engineering courses. Socio-cultural influences on the respondents' intention to pursue careers in the engineering field were also studied.

The findings of this research have showed that the collegiate experience among Japanese and Malaysian female engineering students has had a huge impact on their academic attainment in engineering degree programmes. It is found that Malaysian female engineering students have more positive perception on their learning experience in engineering programme compared to Japanese female engineering students. The main aspects of learning experience that affect female engineering students' perception on their learning experience are the existence of communication with peers and lecturers and female role models in faculty. Learning experience in terms of quality of teaching, respect and care from lecturers, and good communication and interaction with peers, especially male students, have elicited a positive response from the respondents. Lack of female engineering educators in the respondents' faculties; overcoming this will require proper effort from university administrators. Furthermore, it was found that students' satisfaction in their learning experience has considerable effects on their overall learning process in their engineering course. From this investigation, it is found that Malaysian female students were more confident in gaining good engineering degree compared to Japanese female students where it is clear that a positive learning experience in a proper learning environment is pivotal in producing competent female engineers committed to pursuing a long term career in engineering.

Responses to the student survey showed that the socio-cultural aspects among Japanese and Malaysian female engineering students play a major role in determining their future career choices. This investigation has revealed that both Malaysian and Japanese female engineering students are bound with socio-cultural values that highly influence their motivation to pursue their career path in engineering field. Malaysian respondents were responded more positively on the socio status of women among society and gender stereotype compared to Japanese respondents. Gender stereotyping which regards engineering as a male profession, and housekeeping as a role for

women were significantly related to the Japanese respondents' intent to choose a career in engineering after graduation and also after having children. Although the values and characteristics of society shape the mindset of female engineering students, from this study, support from parents and family members has been identified as being paramount in determining these both Japanese and Malaysian female engineering students' future in the engineering field. Encouragement and motivation from parents and family members can drive the student to excel in the field of engineering and progress to a career in engineering, and this provides a solution to the declining number of women engineers in Japan and Malaysia.

In conclusion, it is found that to create a conducive learning environment for female engineering students; the existence of female engineering students and good communications among peers and lecturers are the paramount elements that need to be considered in order to create interest in engineering and choose engineering as a long term career. It is also revealed that the socio-cultural issues which are gender stereotype on engineering career and family support determine the academic attainment in engineering programme and the perception on engineering profession as career path among both Japanese and Malaysian students.

Publication of the Results of Research Project:

<p>Verbal Presentation (Date, Venue, Name of Conference, Title of Presentation, Presenter, etc.)  Date: 10-12 March 2014  Name of Conference: 8<sup>th</sup> International Conference of Technology, Education and Development, INTED 2014  Venue: Valencia, SPAIN  Title of Presentation: Female Engineering Students' Perception on Engineering Programme and Profession: A case study in Malaysia and Japan.  Presenter: Balamuralithara Balakrishnan</p>
<p>Thesis (Name of Journal and its Date, Title and Author of Thesis, etc.)  <b>Under Review</b>  Title : Perspective on Engineering Courses and Profession: A Study on Japanese Female Engineering Students  Journal : Journal of Women and Minorities in Science and Engineering</p>
<p>Book (Publisher and Date of the Book, Title and Author of the Book, etc.)  NA</p>