

UNIVERSITI TEKNOLOGI MARA

**INTEGRATION OF SOFT SKILLS IN THE TEACHING
OF TECHNICAL COURSES: AN EXPLORATORY
STUDY OF A PRIVATE UNIVERSITY**

HAIRUZILA BINTI IDRUS

Thesis submitted in fulfillment
of the requirements for the degree of
Doctor of Philosophy

Faculty of Education

July 2013

ABSTRACT

Institutions of higher education have been pressed by the industry practitioners to produce quality graduates who are ready to compete in the competitive job market locally and globally. Graduates, especially in the technical field are perceived as strong in their technical skills but are lacking in non-technical or soft skills that would enable them to use their technical skills most effectively. Thus, it is vital to integrate the soft skills in the teaching and learning process especially in the realm of engineering in order to further enhance the students' ability in non-technical. The expected outcome would be the production of well-rounded engineering graduates with first class mentality as envisioned by the government. This empirical study attempts to craft a richer description and understanding of how soft skills are integrated into the teaching and learning of the formal curriculum focusing on technical courses at a private university in Malaysia. The study was based on both quantitative method, utilizing questionnaire survey and qualitative methods through document analysis and focus group interviews. Perspectives from both the educators and students were sought. The questionnaire survey was aimed at providing an overall pattern of the participants' approaches and views on the integration while document analysis and focus group interviews presented the complementary details behind their reasons. Data for this study was obtained from 90 engineering lecturers, 300 final year engineering undergraduates and document from 84 engineering courses. The results of the study indicate that the most pertinent teaching approaches to be employed in integrating soft skills for technical courses are the student-centered teaching methods. The study also reveals that the lecturers place a great deal of emphasis on critical thinking and problem solving skills as well as communication skills which are crucial skills for engineers. However, the efforts taken by the lecturers in integrating soft skills were not obvious to the students. The incongruence in the lecturers and students' perceptions was captured on the integration of critical thinking and problem solving skills (p-value = .000), leadership skills (p-value = .001), lifelong learning and information management (p-value = .021), communication skills (p-value = 0.011), and self-awareness and ethics (p-value = .001). The findings of the study have drawn attention to the importance of paying heed to how students' ability in soft skills are developed by the educators on their teaching since most of students' learning time is devoted to their core courses. The findings also acknowledge the contributions of educators with industry experience to the development of students' soft skills abilities. This research offers a novel perspective on soft skills development at higher education level. Pedagogical implications from this study focus on teaching approaches, staff and professional development, curriculum development, as well as soft skills development.

ACKNOWLEDGEMENTS

Alhamdulillah, I am grateful to Allah the Almighty for with His blessings I have finally managed to get through the thesis writing process. Throughout this process, many people stood by my side and supported me in the toughest moments.

First of all I would like to thank the management of University Teknologi PETRONAS for giving me the time off from teaching to concentrate on my studies on a full time basis. I am also grateful for the financial support the University has provided me. I am heartily thankful to my supervisor Datuk Prof. Dr. Hazadiah Mohd. Dahan, whose understanding, encouragement, supervision and support from the beginning to the end of my study have made it possible to produce this thesis. She has been a strong and supportive adviser to me and has always given me great freedom to pursue independent work. Her constructive criticism and personal guidance have provided a good basis for the present thesis. My sincere thanks are also due to my co-supervisor Associate Professor Dr. Normah Abdullah whose excellent advice, support and friendship has been invaluable on both academic and personal level, for which I am extremely grateful.

I wish to thank all the respondents for their kind assistance and cooperation during the data collection process. Without their participation this thesis would not have been materialized. Not forgetting this appreciation also goes to my colleagues from the Department of Management and Humanities for their valuable input, encouragement, motivation, moral support and most importantly their friendship which mean the world to me.

My parents Hj. Idrus Abdullah and [redacted] have always been my inspiration and supported me in all my pursuits. I am thankful that they are able to share this success with me even though my father does not understand the meaning of this success anymore. My special gratitude is also due to my brothers Mohd. Zabri and Mohd Zubir, my sisters Haliza and Harisoon, my in-laws and their families, for their love and unconditional support, especially my sister-in-law Zarina Abdul Karim and my niece Nur Afzalika Mohd Zubir.

And most of all my heartfelt gratitude goes to my husband and the love of my life, Talhah Hasan without whom this effort would have been worth nothing. He is my rock. To my beloved children Muhammad Haziq, Alya Tihani and Alya Tadwini, raising them and attending to their needs while at the same time working on my PhD, have added colours and tone to my life, which I will always treasure.

TABLE OF CONTENTS

	Page
AUTHOR'S DECLARATION	ii
ABSTRACT	iii
ACKNOWLEDGEMENTS	iv
TABLE OF CONTENTS	v
LIST OF TABLES	xii
LIST OF FIGURES	xvi
CHAPTER ONE: INTRODUCTION	
1.1 Introduction	2
1.2 Development of Soft Skills	2
1.3 Soft Skills in Engineering Education	5
1.4 The Malaysian Model of Engineering Education	7
1.5 Malaysian Private Higher Education Institutions	9
1.6 Background of Study	10
1.6.1 Attributes of Well-rounded Graduates	11
1.6.2 Curriculum	12
1.6.3 Programs	13
1.6.4 Industrial Internship	15
1.6.5 Credited Co-curriculum Activities	16
1.6.6 Employer Survey	17
1.6.7 Employability Rate of Graduates	18
1.6.8 My3S Study	19

CHAPTER ONE

INTRODUCTION

"Harvard strives to create knowledge, to open the minds of students to that knowledge and to enable students to take best advantage of their educational opportunities". In order to achieve this primary mission, Harvard University seeks to create a learning environment that promotes free thinking, exchange of ideas, innovation and critical reflection among students. Moreover, administrators and educators at the institution strive to eliminate obstacles and barriers that will prevent the students from realizing their full potential. Ultimately, through their exposure to the learning experience in Harvard, it is hoped that the students will acquire "self-reliance and habits of lifelong learning."

*(Harvard University, 2005, "What is Harvard University's Mission Statement?"
www.harvard.edu/faqs/mission-statement)*

The mission of the University of Cambridge is to contribute to society through the pursuit of education, learning, and research at the highest international levels of excellence. The University's core values are freedom of thought and expression and freedom from discrimination.

*(University of Cambridge, 2011, "The University's Mission and Core Values"
www.admin.cam.ac.uk/univ/mission.html)*

The mission of Massachusetts Institute of Technology (MIT) is to advance knowledge and educate students in science, technology and other areas of scholarship that will best serve the nation and in the world in the 21st century. MIT seeks to develop in each member of the MIT community the ability and passion to work wisely, creatively and effectively for the betterment of humankind.

*(MIT Facts 2012: Mission
web.mit.edu/facts/mission.html)*