



**ENHANCING MALAYSIAN GRADUATES'  
EMPLOYABILITY SKILLS: AN APPLICATION OF  
MODIFIED QUALITY FUNCTION DEPLOYMENT**

**BY**

**MOHAMAD SHUKRI BIN ABDUL HAMID**

**A dissertation submitted in fulfilment of the  
requirement for the degree of Doctor of Philosophy in  
Business Administration**

**Kulliyyah of Economics and Management Sciences  
International Islamic University  
Malaysia**

**JANUARY 2013**

## **ABSTRACT**

Globalization has resulted in a highly competitive work environment and employers are looking for versatile graduates who are able to drive their organizations to compete successfully in the world market. Obtaining a good degree is no longer sufficient to get a job. Graduates must equip themselves not only with technical skills but, more importantly, with soft skills as well. The main objectives of this study are to identify the employability skills of Malaysian graduates; to assign priority to each skill; and to identify and evaluate the effectiveness of various approaches that endow the graduates with relevant employability skills. This research employs a modified version of the Quality Function Deployment (QFD) model, consisting of two methods, namely Extreme Pairwise Comparison with Median Rank (EPCMR) and Analytic Network Process (ANP). A total of 942 questionnaires were distributed among companies in Malaysia and 233 questionnaires were useable for the purposes of this study. In general, the gap analysis showed that employers perceive graduates' employability skills performance is lower than they desired. The highest gap between skill level and desired ability was found in communication skills, especially regarding English language usage. Using the Importance-Performance Analysis (IPA), 13 attributes were further analysed. The QFD application revealed that work integrated learning is the most effective approach in equipping graduates with employability skills. The implication of this study underscores the importance of universities striving to improve the employability skills of graduates by exposing them to more real world applications, such as practical training and hands-on learning. Universities need to continuously improve curriculum to suit the demands of the current job market.

## ملخص البحث

لقد أدت العولمة إلى بيئة العمل تتصف بالتنافسية الشديدة وأصحاب العمل يبحثون عن خريجي الجامعة ممن يملك الكفاؤة المتنوعة، والقادرين على قيادة منظماتهم على المنافسة بنجاح في السوق العالمية، والحصول على درجة جيدة فقط لم يعد كافيا للحصول على العمل، فيجب على خريجي الجامعة تجهيز أنفسهم ليس فقط بالمهارات التقنية، ولكن الأهم من ذلك، المهارات الإنسانية أيضا، والأهداف الرئيسية لهذه الدراسة هي تحديد مهارات توظيف الخريجين الماليزية، لإعطاء الأولوية لكل مهارة، وإلى تحديد وتقييم فعالية النهج المختلفة التي تمنح للخريجين من ذوي المهارات ذات الصلة بالتوظيف، وهذا البحث يستخدم نسخة معدلة من طراز تفعيل جودة النشر (QFD)، تتكون من طريقتين، مع المقارنة المتوازية المتطرفة وهي رتبة المتوسط (EPCMR)، وعملية تحليلية شبكية (ANP)، وتم توزيع مجموعة من 942 الاستبيانات بين الشركات في ماليزيا، و 233 الاستبيانات كانت صالحة للاستخدام لأغراض هذه الدراسة، وبشكل عام، وأظهرت تحليل فجوات البحث، أن أرباب العمل يرون أن أداء الخريجين في مهارات التوظيف على مستوى أدنى من المطلوب، تم العثور على أعلى مستوى الفجوة بين المهارات المطلوبة والقدرة في مهارات الاتصال، وخاصة فيما يتعلق باستخدام اللغة الإنجليزية، وباستخدام تحليل أهمية الأداء (IPA)، تم تحليل عن 13 الصفات، كشفت تطبيق QFD أن التعلم هو عمل متكامل النهج الأكثر فعالية في تجهيز الخريجين بالمهارات القابلة للتوظيف، والآثار المترتبة على هذه الدراسة تؤكد على أهمية سعي الجامعات لتحسين مهارات توظيف الخريجين عن طريق تعريضها لتطبيقات عالمية أكثر واقعية، مثل التدريب العملي والتدريب على التعلم المباشر، و ضروري للجامعات التحسين المستمر لمناهج لتتناسب مع متطلبات سوق العمل الحالي.

## **APPROVAL PAGE**

The dissertation of Mohamad Shukri Abdul Hamid has been approved by the following:

---

Rafikul Islam  
Supervisor

---

Noor Hazilah Abd Manaf  
Co-supervisor

---

Moussa Larbani  
Internal Examiner

---

Mohamad Nasir Saludin  
External Examiner

---

Najibah Mohd Zin  
Chairman

## DECLARATION

I hereby declare that this dissertation is the result of my own investigations, except where otherwise stated. I also declare that it has not been previously or concurrently submitted as a whole for any other degrees at IIUM or other institutions.

Mohamad Shukri Abdul Hamid

Signature .....

Date .....

INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA

**DECLARATION OF COPYRIGHT AND AFFIRMATION OF  
FAIR USE OF UNPUBLISHED RESEARCH**

Copyright © 2013 by Mohamad Shukri Abdul Hamid. All rights reserved.

**ENHANCING MALAYSIAN GRADUATES' EMPLOYABILITY SKILLS:  
AN APPLICATION OF MODIFIED QUALITY FUNCTION  
DEPLOYMENT**

No part of this unpublished research may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise without prior written permission of the copyright holder except as provided below.

1. Any material contained in or derived from this unpublished research may only be used by others in their writing with due acknowledgement.
2. IIUM or its library will have the right to make and transmit copies (print or electronic) for institutional and academic purposes.
3. The IIUM library will have the right to make, store in a retrieval system and supply copies of this unpublished research if requested by other universities and research libraries.

Affirmed by Mohamad Shukri Abdul Hamid

.....  
Signature

.....  
Date

## **DEDICATION**

*This thesis is specially dedicated to my loved one, my wife Fatimah Mohamed Lana,  
My parents Abdul Hamid Hussin and Siti Ashah Md Noh, and my beloved children,  
Mohd Faris Hakim, Luqman Nur Hakim and Mohd Danial Hakim.  
Thank you for the unconditional support.*

## ACKNOWLEDGEMENTS

Allamdulillah, all the thanks and praises be to Allah (Swt.), by Whose blessing, I successfully completed this study. I would like to express my deepest gratitude and appreciation to my main supervisor, Prof. Dr. Rafikul Islam, for all his assistance, guidance and patience in supervising me. His insightful comments and suggestions are very helpful in completing this study. I also would like to thank my second supervisor, Assoc. Prof. Dr. Noor Hazilah Abd Manaf, for her genuine help and advice, despite her busy schedule as being the Deputy Dean of post graduate unit of the Kulliyah of Economics and Management Sciences, International Islamic University Malaysia.

My very special gratitude is due to my beloved wife, Fatimah Mohamed Lana, who had been so understanding and supporting throughout my PhD studies. Thanks are also to my loving sons, Mohd Faris Hakim, Luqman Nur Hakim and Mohd Danial Hakim. I would like to extend my immense gratefulness to Universiti Utara Malaysia that has funded my study. Not forgotten, a special thank to all lecturers at the Kulliyah of Economics and Management Sciences and post graduate unit staff. And last but not least, a special thank to my friends, colleagues and others who have directly and indirectly contributed and supported my study. Thank you very much.



## TABLE OF CONTENTS

|                                                                        |           |
|------------------------------------------------------------------------|-----------|
| Abstract.....                                                          | ii        |
| Abstract in Arabic.....                                                | iii       |
| Approval Page .....                                                    | iv        |
| Declaration Page .....                                                 | v         |
| Copyright Page .....                                                   | vi        |
| Dedication .....                                                       | vii       |
| Acknowledgements .....                                                 | viii      |
| List of Tables .....                                                   | xii       |
| List of Figures .....                                                  | xv        |
| List of Abbreviations .....                                            | xvi       |
| <br>                                                                   |           |
| <b>CHAPTER ONE: INTRODUCTION .....</b>                                 | <b>1</b>  |
| 1.1 Background of the Study .....                                      | 1         |
| 1.2 Research Problem .....                                             | 2         |
| 1.3 The Objective of the Research .....                                | 5         |
| 1.4 Research Questions .....                                           | 5         |
| 1.5 Significance of the Research.....                                  | 6         |
| 1.6 Scope of the Study .....                                           | 6         |
| 1.7 Contribution of the Study .....                                    | 7         |
| 1.8 Organization of the Thesis.....                                    | 8         |
| <br>                                                                   |           |
| <b>CHAPTER TWO: LITERATURE REVIEW .....</b>                            | <b>10</b> |
| 2.1 Introduction to Employability .....                                | 10        |
| 2.1.1 Employability Skills .....                                       | 11        |
| 2.1.2 Graduate’s Employability Skills .....                            | 13        |
| 2.1.3 Employer’s Views of Graduates Employability Skills .....         | 18        |
| 2.1.4 Summary .....                                                    | 29        |
| 2.2 Malaysian Higher Education .....                                   | 29        |
| 2.2.1 Background of the Malaysian Higher Education .....               | 29        |
| 2.2.2 The Vision and Mission of Malaysian Higher Education .....       | 32        |
| 2.2.3 The Vision for Malaysian Higher Education .....                  | 32        |
| 2.2.4 The Mission for Malaysian Higher Education .....                 | 33        |
| 2.3 Total Quality Management (TQM) .....                               | 40        |
| 2.3.1 Quality and Total Quality Management (TQM) .....                 | 40        |
| 2.3.2 Total Quality Management in Higher Education .....               | 55        |
| 2.3.3 Total Quality Management (TQM) in Malaysian Higher Education.... | 56        |
| <br>                                                                   |           |
| <b>CHAPTER THREE: RESEARCH METHODOLOGY.....</b>                        | <b>61</b> |
| 3.1 Approaches to the Study .....                                      | 61        |
| 3.2 Theoretical Framework .....                                        | 61        |
| 3.3 The Tool: Quality Function Deployment (QFD) .....                  | 63        |
| 3.3.1 The Concept of Quality Function Deployment (QFD).....            | 63        |
| 3.3.2 Application of QFD in Higher Education.....                      | 70        |

|                                                                                                                                 |            |
|---------------------------------------------------------------------------------------------------------------------------------|------------|
| 3.4 Data Analysis Procedure.....                                                                                                | 80         |
| 3.4.1 Extreme Pairwise Comparison with Median Rank (EPCMR).....                                                                 | 80         |
| 3.4.2 Extreme Pairwise Comparison .....                                                                                         | 80         |
| 3.4.3 Importance-Performance Analysis (IPA) .....                                                                               | 81         |
| 3.4.4 Proposed Model .....                                                                                                      | 84         |
| 3.4.5 QFD Development Process .....                                                                                             | 85         |
| 3.5 Sampling Design .....                                                                                                       | 90         |
| 3.5.1 Sampling Method.....                                                                                                      | 90         |
| 3.5.2 Sample Size Determination .....                                                                                           | 90         |
| 3.6 Data Collection Process and Procedure .....                                                                                 | 92         |
| 3.6.1 Instrument .....                                                                                                          | 92         |
| 3.7 Pilot Test of the Survey Questionnaire .....                                                                                | 96         |
| 3.7.1 Validity Test .....                                                                                                       | 96         |
| 3.7.2 Reliability .....                                                                                                         | 97         |
| <br>                                                                                                                            |            |
| <b>CHAPTER FOUR: DATA ANALYSIS.....</b>                                                                                         | <b>100</b> |
| 4.1 Introduction .....                                                                                                          | 100        |
| 4.2 The Sample of the Study.....                                                                                                | 100        |
| 4.3 Test of Non-Response Bias.....                                                                                              | 101        |
| 4.4 Data Screening and Cleaning.....                                                                                            | 103        |
| 4.5 Respondents' Demographic Information.....                                                                                   | 103        |
| 4.6 Respondents' Company Demographic Information.....                                                                           | 105        |
| 4.7 The Importance of a Graduate's Employability Skills.....                                                                    | 106        |
| 4.7.1. The Importance of Interpersonal Skills.....                                                                              | 106        |
| 4.7.2 The Importance of Computing Skills.....                                                                                   | 108        |
| 4.7.3 The Importance of Enterprise and Entrepreneurial Skill.....                                                               | 108        |
| 4.7.4 The Importance of Communication Skills.....                                                                               | 109        |
| 4.7.5 The Importance of Thinking Skills.....                                                                                    | 111        |
| 4.7.6 The Importance of Management Skills.....                                                                                  | 112        |
| 4.8 Employer Satisfaction on a Graduate's Employability Skills.....                                                             | 113        |
| 4.8.1 Employer Satisfaction on Interpersonal Skills.....                                                                        | 113        |
| 4.8.2 Employer Satisfaction on Computing Skills.....                                                                            | 114        |
| 4.8.3 Employer Satisfaction on Enterprise and Entrepreneurial Skills.....                                                       | 114        |
| 4.8.4 Employer Satisfaction on Communication Skills .....                                                                       | 115        |
| 4.8.5 Employer Satisfaction on Thinking Skills.....                                                                             | 116        |
| 4.8.6 Employer Satisfaction on Management Skills.....                                                                           | 117        |
| 4.8.7 Summary .....                                                                                                             | 118        |
| 4.9 Gap Analysis.....                                                                                                           | 119        |
| 4.10 Importance Performance Analysis (IPA).....                                                                                 | 123        |
| 4.11 Quality Function Deployment.....                                                                                           | 126        |
| 4.11.1 The Analytic Network Process for Achieving Employability Skills<br>Development Effectiveness.....                        | 126        |
| 4.11.2 Deriving a Graduate's Employability Skills Important Using<br>EPCMR .....                                                | 128        |
| 4.11.3 The Correlation Matrix between Employability Skills Development<br>Approaches and a Graduate's Employability Skills..... | 131        |
| 4.11.4 The Correlation among Employability Skills Development<br>Approaches.....                                                | 134        |
| 4.12 Ranking of the Graduate's Employability Skills.....                                                                        | 140        |

|                                                                                     |            |
|-------------------------------------------------------------------------------------|------------|
| 4.13 Spearman’s Rank Correlation.....                                               | 145        |
| 4.13.1 Respondent Demographic.....                                                  | 145        |
| 4.14 Assessment of the Employability Skills.....                                    | 147        |
| 4.15 Analysis of Employers’ Suggestions.....                                        | 153        |
| <br>                                                                                |            |
| <b>CHAPTER FIVE: SUMMARY, RECOMMENDATIONS, LIMITATION<br/>AND CONCLUSIONS .....</b> | <b>156</b> |
| 5.0 Introduction.....                                                               | 156        |
| 5.1 Research Summary.....                                                           | 156        |
| 5.2 Recommendations for Practical Implementation .....                              | 160        |
| 5.3 Limitation of the Study and Future Research Areas .....                         | 162        |
| 5.4 Conclusions.....                                                                | 163        |
| <br>                                                                                |            |
| <b>BIBLIOGRAPHY.....</b>                                                            | <b>165</b> |
| <br>                                                                                |            |
| APPENDIX I:.....                                                                    | 182        |
| APPENDIX II:.....                                                                   | 192        |
| APPENDIX III:.....                                                                  | 204        |
| APPENDIX IV:.....                                                                   | 215        |
| APPENDIX V:.....                                                                    | 221        |
| APPENDIX VI:.....                                                                   | 231        |
| APPENDIX VII:.....                                                                  | 233        |
| APPENDIX VIII:.....                                                                 | 235        |
| APPENDIX IX:.....                                                                   | 237        |
| APPENDIX X:.....                                                                    | 249        |

## LIST OF TABLES

| <u>Table No</u> |                                                                                                                                                  | <u>Page No.</u> |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| 2.1             | Dimension and attributes of a graduate's soft skills proposed by MOHE                                                                            | 14              |
| 2.2             | Comparative table of employability skills by country                                                                                             | 17              |
| 2.3             | Dimensions and attributes of the employability skills used in the study                                                                          | 26              |
| 2.4             | Local student enrollment at public and private higher education institutions (HEIs), KTAR, polytechnics and community colleges from 2003 to 2007 | 37              |
| 2.5             | International student enrollment at public and private higher education institutions (HEIs) from 2003 to 2007                                    | 37              |
| 2.6             | Number of graduates from institutions of higher education from 2005-2009                                                                         | 39              |
| 2.7             | Graduates working status (graduated in 2008 and 2009)                                                                                            | 39              |
| 2.8             | Reasons for unemployment of graduates in 2009                                                                                                    | 40              |
| 3.1             | Tangible and intangible benefits of QFD                                                                                                          | 69              |
| 3.2             | Selected literature review on applications of QFD in higher education                                                                            | 79              |
| 3.3             | Employability skills development approaches                                                                                                      | 87              |
| 3.4             | The minimum required sample size                                                                                                                 | 92              |
| 3.5             | Panellist of expert for content validity                                                                                                         | 97              |
| 3.6             | Reliability test of pilot survey                                                                                                                 | 99              |
| 4.1             | Chi-square test of non-response bias                                                                                                             | 102             |
| 4.2             | T-test of non-response bias                                                                                                                      | 102             |
| 4.3             | Respondents' demographic information                                                                                                             | 104             |
| 4.4             | Respondents' company demographic information                                                                                                     | 106             |
| 4.5             | The importance of interpersonal skills at the respondents' firms                                                                                 | 107             |

|      |                                                                                        |     |
|------|----------------------------------------------------------------------------------------|-----|
| 4.6  | The importance of computing skills at the respondents' firms                           | 108 |
| 4.7  | The importance of enterprise and entrepreneurial skills at the respondents' firms      | 109 |
| 4.8  | The importance of communication skills at the respondents' firms                       | 110 |
| 4.9  | The importance of thinking skills at the respondents' firms                            | 111 |
| 4.10 | The importance of management skills at the respondents' firms                          | 112 |
| 4.11 | Employer satisfaction on interpersonal skills                                          | 113 |
| 4.12 | Employer satisfaction on computing skills                                              | 114 |
| 4.13 | Employer satisfaction on enterprise and entrepreneurial skills                         | 115 |
| 4.14 | Employer satisfaction on communication skills                                          | 116 |
| 4.15 | Employer satisfaction on thinking skills                                               | 117 |
| 4.16 | Employer satisfaction on management skills                                             | 118 |
| 4.17 | Importance of a graduate's employability skills and satisfaction level on those skills | 119 |
| 4.18 | Paired-sample T-test for mean importance and satisfaction of employability skills      | 123 |
| 4.19 | List of graduates' employability skills                                                | 128 |
| 4.20 | Extreme pairwise comparison of graduates' employability skills                         | 129 |
| 4.21 | Absolute and normalize weights of employability skills                                 | 130 |
| 4.22 | Respondents' demographic information                                                   | 131 |
| 4.23 | The QFD matrix                                                                         | 133 |
| 4.24 | The ranking in term of effectiveness of employability skills development approaches    | 134 |
| 4.25 | Weighted supermatrix                                                                   | 136 |
| 4.26 | Limit supermatrix                                                                      | 136 |
| 4.27 | Final house of quality                                                                 | 139 |
| 4.28 | Ranking of graduates' employability skills                                             | 140 |

|      |                                                                                                                                                             |     |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| 4.29 | Ranking of graduates' employability skills by respondents' demography                                                                                       | 143 |
| 4.30 | Spearman's rank correlation coefficient for respondents' demographic factors                                                                                | 146 |
| 4.31 | Employer perceptions between current and past graduate qualifications in meeting job requirements by company background                                     | 150 |
| 4.32 | Employer perceptions on university level of performance in preparing graduates in employability skills by company background                                | 150 |
| 4.33 | Employer perceptions on overall graduate performance by company background                                                                                  | 151 |
| 4.34 | Chi-square test for employer perceptions between current and past graduate qualifications in meeting job requirements by company background                 | 152 |
| 4.35 | The Chi-square test for employers' perceptions on university's levels of performance in preparing graduates with employability skills by company background | 153 |
| 4.36 | The Chi-square test for employer perceptions on overall graduate performance by company background                                                          | 153 |
| 4.37 | Employer suggestions on how to improve a graduate's employability skills                                                                                    | 154 |

## **LIST OF FIGURES**

| <u>Figure No.</u> |                                                                                                                      | <u>Page No.</u> |
|-------------------|----------------------------------------------------------------------------------------------------------------------|-----------------|
| 1.0               | Organization of the thesis                                                                                           | 9               |
| 3.1               | Product development cycle in QFD                                                                                     | 64              |
| 3.2               | General Framework of A House of quality                                                                              | 66              |
| 3.3               | A QFD diagram showing computation of TIR                                                                             | 70              |
| 3.4               | House of Quality                                                                                                     | 75              |
| 3.5               | Highly consistency case                                                                                              | 76              |
| 3.6               | Highly inconsistency case                                                                                            | 76              |
| 3.7               | Importance-Performance Map                                                                                           | 82              |
| 3.8               | Modified QFD model                                                                                                   | 85              |
| 3.9               | Flow chart of QFD development process                                                                                | 89              |
| 4.1               | IPA map of employability skills attributes                                                                           | 124             |
| 4.2               | The analytic network model for achieving employability skills development effectiveness                              | 127             |
| 4.3               | QFD diagram of computation of OIR                                                                                    | 137             |
| 4.4               | Snapshot of ANP analysis using the Super Decision software                                                           | 138             |
| 4.5               | Ranking of graduates' employability skills                                                                           | 141             |
| 4.6               | Ranking of graduates' employability skills by respondents' background                                                | 144             |
| 4.7               | Employer perceptions regarding present and past graduates' qualification in meeting job requirement                  | 148             |
| 4.8               | Employer perceptions on universities' level of performance in preparing graduates with relevant employability skills | 148             |
| 4.9               | Employer perceptions on the extent a graduate's skills meet company requirements                                     | 148             |

## ABBREVIATIONS

|        |                                                                     |
|--------|---------------------------------------------------------------------|
| ANP    | Analytic Network Process                                            |
| AHP    | Analytic Hierarchy Process                                          |
| EPCMR  | Extreme Pairwise Comparison with Median Rank                        |
| HEI    | Higher Education Institution                                        |
| HOQ    | House of Quality                                                    |
| IPA    | Importance-Performance Analysis                                     |
| MOHE   | Ministry of Higher Education                                        |
| My3S   | Malaysian Soft Skills Scale                                         |
| QFD    | Quality Function Deployment                                         |
| TQM    | Total Quality Management                                            |
| QCC    | Quality Control Circle                                              |
| MAMPU  | Malaysian Administrative Modernisation and Management Planning Unit |
| NAC    | National Accreditation Commission                                   |
| MQF    | Malaysian Qualification Framework                                   |
| MQA    | Malaysian Qualification Agency                                      |
| NAHERI | National Higher Education Research Institute                        |
| AKEPT  | Higher Education Leadership Academy                                 |



# CHAPTER ONE

## INTRODUCTION

### 1.1 BACKGROUND OF THE STUDY

The rapid growth in the number of Higher Education Institutions (HEIs) in Malaysia aligns with the government's agenda to prepare a skilled and professional workforce to achieve the status of a developed country by the year 2020. Presently, there are 20 full-fledged public universities and 48 private universities in Malaysia. In the challenging economy, the role of HEIs is not only to produce graduates with specific areas of specialization, but more importantly to develop graduate employability skills that are in increasing demand in the 21<sup>st</sup> century (Lee and Tan, 2003).

If the increasing number of graduates is not aligned with the number of jobs created, then it can create a serious unemployment problem for the country. According to Wong (2011), the number of jobless graduates in Malaysia in 2009 was high as 60,000. A few factors have been identified that lead to the increasing amount of unemployment among graduates. Firstly, the supply of the graduates from HEIs has exceeded the number of job vacancies available in the market. This situation has created an imbalance between supply and demand in the workforce. As a result, some graduate employees have settled for jobs below their qualification (Salina *et al.*, 2011) and others fail to get jobs entirely. Another factor that contributes to the high unemployment among graduates is the skills and abilities of the graduates. Employers are complaining about the lack of various skills among graduates. According to Rahmah *et al.* (2011), graduates are found to be lacking in employability skills and are exhibiting low performance in the work place. Zabeda (2009) revealed that there are

various job vacancies for graduates. However, employers are finding that candidates are not equipped with relevant skills and knowledge needed by companies. Shukran *et al.* (2006) supported these findings, revealing in his work that students lack the relevant skills, abilities, knowledge and other characteristics required by employers. Salina *et al.* (2011) revealed as many as 30,000 graduates have only managed to get casual or temporary work, below their qualifications, mainly attributed to poor English skills.

This study first aims to identify a list of employability skills. In addition, it aims to analyse the gap between importance ratings assigned to graduate employability skills by employers and their reported satisfaction of those skills among the workforce. The modified quality function deployment (QFD) was applied to identify the most effective employability skills development approaches among graduates.

## **1.2 RESEARCH PROBLEM**

Every year, the number of graduates entering the labour market grows (Rahmah *et al.* (2011). A question arises as do the graduates possessing the relevant employability skills needed by the employers, subject to much debate. Some critics contend that higher education institutions are falling behind the times in meeting the relevant job requirements of organizations (Parry *et al.*, 1996; Astin, 1991). According to Salina *et al.* (2011), employers are complaining that the graduates are unable to fulfil employers' needs in the uncertain market environment. This is supported by Harvey *et al.* (1997), who found a skills gap between employer requirements and the output from the education system. Sahney *et al.* (2004) revealed that higher education institutions often fall behind in meeting employer requirements because changes in

industry occur faster than the evolution of programmes offered by education institutions. Higher education simply does not always keep pace. Industry is becoming more flexible, technology is changing, and there are demands for new skills and expertise. Also, Willis and Taylor (1999) stated that universities have been criticized as providing inadequate education. Shukran *et al.* (2006) supported this finding, revealing that fresh graduates are not equipped with up-to-date knowledge and technology. As a result, this deficiency has affected graduates' competencies, their ability to join the workforce, and also contributes to unemployment among graduates. According to statistics from the Ministry of Higher Education, the number of jobless graduates rose from 65,500 in 2010 to 71,600 in the first quarter of 2011.

These facts should be taken into consideration by HEIs. Efforts should be taken to produce employable graduates who are equipped with the relevant skills and knowledge to meet the demands of the employment market in not only Malaysia, but the global market as well. According to Schmidh (1991), in order to improve, an organization needs to seek feedback from its customers and constituencies regarding the product and/or services it provides. This information is important as a primary source for the strategic planning process. Employers of a university's graduates are one of its stakeholders, and, according to Gomes *et al.* (1992), the quality of the university's graduates can be improved by identifying the needs of those employers. That is, higher education institutions should always keep pace with employer requirements. As a result, the mismatch between graduate abilities and the job market can be minimized. To achieve this objective, the higher education institutions need to identify who their customers are, what their needs are, and strategies to fulfil their needs. Feedback from customers is necessary for the continual improvement of the educational process (Spanbauer, 1995).

One of the Total Quality Management (TQM) methods used widely to identify and analyze feedback from the customer is Quality Function Deployment (QFD). The QFD concept was introduced in Japan about 40 years ago, and is regarded as an important quality management tool in the design process (Akao, 1990a; Mazur, 1996). QFD is a management tool that provides a visual cause and effect relationship starting from the customer needs all the way down to the entire development cycle for the product or process. QFD also provides a means for translating a customer's needs into appropriate technical requirements at each stage of the development life cycle (Bouchereau & Rowlands, 2000). The QFD tool has been primarily applied in the area of marketing research during the last 40 years. However, during the last few decades, QFD has also been introduced in higher education and in the development of curriculum design (Seow & Moody, 1996).

QFD can lead to a wide variety of benefits, such as customer satisfaction improvement, the promotion of teamwork, the provision of documentation, the reduction in the number of design changes, and reduction of design cycle time and warranty claims. As a result, more and more companies are now adopting QFD for part or all of their product or service development (Zairi & Youssef, 1995; Davis *et al.*, 2001). However, some studies have reported that one-third of all the products developed through the QFD process fail to give any profit due to customer dissatisfaction. This may be due to the failure in calculating the true overall importance rating (OIR) in the QFD framework (Wasserman, 1993). As a result, the QFD programmes that have been conducted could not provide reliable results to improve customer satisfaction. Considering the above deficiency, a modified QFD was proposed and applied in this study to identify the most effective employability skills development approaches.

### **1.3 THE OBJECTIVES OF THE RESEARCH**

The purpose of this research is to modification quality function deployment (QFD) and to apply this modified method in identifying the most effective employability skills development approaches hoping to better equipping university graduates with necessary employability skills, as required by the employers. The main objectives of this research are:

1. To identify the employability skills required by prospective employers;
2. To determine the importance of the employability skills to employers;
3. To measure employer satisfaction of present graduates' employability skills;
4. To identify employability skills development approaches and to derive the priorities of each;
5. To introduce an alternative method to calculate the “customer importance rating,” the “weight of relationship between a graduate’s employability skills and employability skills development approaches” and “technical importance ratings” in QFD;
6. To identify the most effective employability skills development approaches to best satisfy employer requirements (or a graduate’s employability skills) by using the modified QFD.

### **1.4 RESEARCH QUESTIONS**

The research questions addressed in the present work are:

1. What employability skills do prospective employers require?
2. How important are each of the employability skills to the employer?

3. To what extent do the present graduates' employability skills meet employer requirements?
4. What are the most effective approaches in enhancing a graduate's employability skills to fulfil employer requirements?

### **1.5 SIGNIFICANCE OF THE RESEARCH**

This study is hoped will give benefits to those parties involved directly or indirectly. Firstly, for graduates, the results of this study will provide them with useful information regarding the important employability skills. Therefore, they can prepare themselves with relevant employability skills that align with employer requirements, before they enter the job market. Secondly, it also can be as guidance for employers to determine the capability of graduates, in term of employability skills, prior to hiring them. Lastly, the findings of this study is hoped will give benefit to universities, the Ministry of Higher Education (MOHE) and other relevant parties in determining policies for strategic planning pertaining to curriculum development, the methods of delivery and assessment of the curriculum, and post-graduate careers. With the application of the proposed modified QFD model in the present research, it is hoped that the most effective employability skills development approaches are able to minimize the gaps between the importance of the skills and the competence of graduates in those skills, resulting in a reduced unemployment rate among graduates.

### **1.6 SCOPE OF THE STUDY**

The focus of this study is to identify and evaluate the perception of employers towards the employability skills of graduates who have completed their degrees in business-related fields from a school/faculty of business in Malaysian public universities

(Business, Economics, Accounting, Finance, Banking, etc.). This study focuses on the management level of perception on a graduate's employability skills. Therefore, the respondents of this study are limited to the human resource managers/executives, general managers and directors of the companies. The scope of this study is limited to the manufacturing and service companies listed in the Federation of Malaysian Manufacturers (FMM) Directory 2009, government agencies and semi government agencies.

### **1.7 CONTRIBUTION OF THE STUDY**

This study contributes to the investigation of the gaps between importance and satisfaction of graduate's employability skills from the point of view of employers and presents a methodology to determine the most effective employability skills development approaches. According to the job matching theory, a mismatch between skills required by employers and skills possessed by graduates affects the graduates' productivity, salary and chances of getting jobs (Rahmah *et al.*, 2011). Therefore, it is important to identify the gaps between required skills and the skills possessed, and to find a solution to minimize these gaps. The second contribution of this study is the introduction of the modified quality function deployment (QFD) method which integrates the extreme pairwise comparison with median rank (EPCMR) and analytic network process (ANP) methods to improve the traditional QFD method. In the traditional QFD approach, the correlations among technical requirements at the roof HOQ are usually determined using positive (+) or negative (-) symbols, and don't take into account the overall importance rating (OIR). This deficiency has been alleviated in the present work by using Analytic Network Process (ANP) method. Then, the most effective employability skills development approaches were identified using the

modified QFD method. As a result, universities can exert efforts to concentrate on the most effective development approaches; consequently leading to less time and resources utilization on redesign and modifications of employability development programmes. Lastly, the application of quality function deployment method in Malaysian higher education is new and therefore deserves further exploration.

## **1.8 ORGANIZATION OF THE THESIS**

This thesis is organized into five chapters as shown in Figure 1. The first chapter outlines the introduction of the study, whereby background, research problems, research questions and research objectives are discussed. This is followed by the discussion of the significance, scope, gaps and contributions of the study. Chapter two reviews the literature of the past research relating to the present study. It focuses on literature related to Malaysian higher education, employability skills, total quality management (TQM) and quality function deployment (QFD). Chapter three describes the research methodology employed in the study. It outlines the sampling design, data collection processes and data analysis procedures. Chapter four presents the analysis and discussion of empirical results. It outlines the results of respondents' demography information, the importance of a graduate's employability skills, the results of the importance performance analysis (IPA) and QFD results. Chapter five discusses and concludes of the present research. Recommendations for future research are also included. Finally, a list of references is provided and appendices are attached at the end of the thesis.