THE INFLUENCE OF INDIVIDUAL AND ORGANISATIONAL FACTORS ON
UNIVERSITY STUDENTS’ GENERIC SKILLS

SHAZAITUL AZREEN BINTI RODZALAN

A thesis submitted in fulfilment of the
requirements for the award of the degree of
Doctor of Philosophy (Management)

Faculty of Management
Universiti Teknologi Malaysia

JUNE 2016
DEDICATION

To my beloved mom and dad

Sarifah Abdul Ghani & Rodzalan Nayan

To my beloved brothers and sisters

Shahrill Azran
Norazila
Shafezza Azwa
Syawal Aznuddin

To my beloved niece and nephew

Iman Nur Damia
Iqbal Danish
ACKNOWLEDGEMENTS

In the name of Allah S.W.T, the Most Gracious and the Most Merciful Peace be upon the Holy Prophet Muhammad S.A.W. Alhamdulillah I humbly thank to Almighty Allah S.W.T who gave me strength, perseverance, health, thoughts and supportive people to finally complete my PhD thesis. First and foremost, I would like to express my deepest gratitude to my supervisors Dr. Maisarah Mohamed Saat and Dr. Lily Suriani Mohd Arif for their continuous encouragement, guidance and advice throughout this doctoral research journey. Throughout their outstanding supervision, I was able to overcome all the obstacles that I encountered during my study. In fact, I am very thankful for both of them as they have gone beyond their duties as supervisors by assisting me in any kind of non-academic matters.

My heartfelt gratitude to my beloved parents for their unconditional support, patience and care all these while. Many thanks to my brothers, sister and sister-in-law for their assistance in the time I need. My loving thanks to my niece and nephew for keeping my life’s wonderful and never quiet. Without them besides me, I would not get this far in completing my PhD journey. Thank you for all your prayers.

I would like to extend my gratitude to Universiti Teknologi Malaysia (UTM), mainly Zamalah scholarship for funding my PhD study. I also wish to extend my warmest thanks to all those who have helped me in both phases of data collection and made the thesis possible. I am particularly indebted to all industrial training coordinators for the permission to conduct this study in their respective universities. Also, thank you to all who has directly and indirectly helped me with this challenging path. May Allah bless you all.
ABSTRACT

It is reported that the generic skills of Malaysian university graduates do not meet the employers’ expectation and worse, the issue has led to increase in unemployment rate. Undergoing industrial training is a good platform to improve generic skills. Thus, the objective of this study is to examine students’ generic skills (communication, teamwork, critical thinking and problem solving, and moral and professional ethics) improvement after undergoing industrial training. It also seeks to examine the differences in students’ generic skills based on the demographic of students, supervisors and organisation. This study also investigates the relationship between students’ motivation, supervisors’ leadership styles, job scope and organisational culture on students’ generic skills. The study further examines the influence of individual (students’ demographic and motivation) and organisational (supervisors’ demographic, organisational demographic, supervisors’ leadership styles, job scope and organisational culture) factors on students’ generic skills. It engages pre- and post training surveys by distributing questionnaires to social science, science and engineering students at six public universities in Malaysia. A series of interviews with nine employers and twelve students were also conducted. Statistical Package for the Social Sciences (SPSS) software was used to analyze the data using paired sample t-test, independent sample t-test, analysis of variance (ANOVA), correlation and multiple regressions analyses. Results indicate that all four generic skills were improved significantly after students have undergone the industrial training. There are differences between all demographic factors with regards to students’ teamwork, critical thinking and problem solving, and moral and professional ethics skills. There are also relationships between students’ motivation, supervisors’ leadership styles, job scope and organisational culture on students’ communication and teamwork skills. The results show that both individual and organisational factors have influenced students’ communication, teamwork, and moral and professional ethics skills. Results from qualitative data demonstrate that employers and students agreed that there is an improvement in communication and critical thinking and problem solving skills after completing the industrial training. Interview responses highlight that factors such as motivation, supervisors and job scope have influenced students’ generic skills. This study contributes to the industrial training programmes mainly to public universities in Malaysia by examining generic skills improvement using two phases of data collection and identifying factors that influence skill improvement. The results recommend that the industrial training should be made compulsory in private higher learning institutions. Among recommendations to improve the programme is through inclusion of experiential components during learning process at university and emphasis on mutual understanding between higher learning institutions and host organisations. The results also implicate industrial training stakeholders as they are able to identify individual and organisational factors that influence students’ generic skills. Thus, among recommendations are the stakeholders need to consider both factors in selecting training placement and achieving the training effectiveness by increasing students’ motivation, knowing appropriate leadership styles, giving the relevant job and implementing suitable work culture in the organisation as these factors are proven to improve students’ generic skills.
**ABSTRAK**

TABLE OF CONTENTS

CHAPTER       TITLE                               PAGE

DECLARATION   ii
DEDICATION    iii
ACKNOWLEDGEMENTS iv
ABSTRACT      v
ABSTRAK       vi
TABLE OF CONTENTS vii
LIST OF TABLES xvi
LIST OF FIGURES xxii
LIST OF ABBREVIATIONS xxiii
LIST OF APPENDICES xxiv

1       INTRODUCTION                               1
  1.1 Introduction                               1
  1.2 Research Background                        2
  1.3 An Overview of Malaysian Education Background 5
  1.4 Problem Statement                           6
  1.5 Research Questions                          13
  1.6 Research Objectives                         16
  1.7 MOHE Initiatives in Improving Students’ Generic Skills 19
  1.8 Foundation of Industrial Training and Generic Skills 22
    1.8.1 Objectives of industrial training         23
    1.8.2 Benefits of industrial training to stakeholders 25
  1.9 Conceptual Framework                        27
  1.10 Significance of Research                   29
# THEORETICAL REVIEW

2.1 Introduction 37
2.2 Behaviourism Learning Theory 38
2.3 Cognitivism Learning Theory: Social Cognitive Theory 40
2.4 Constructivism Learning Theory 43
2.5 The Integration of Learning Theories 45
2.6 Training Evaluation Model: Kirkpatrick’s Four-Level Model 48
   2.6.1 Reactions (Level 1) 50
   2.6.2 Learning (Level 2) 53
   2.6.3 Behaviour (Level 3) 57
   2.6.4 Results (Level 4) 58
2.7 Communication Skill 59
   2.7.1 Communication skill improvement 60
   2.7.2 Influence of individual and organisational factors on students’ communication skill 66
2.8 Teamwork Skill 70
   2.8.1 Teamwork skill improvement 70
   2.8.2 Influence of individual and organisational factors on students’ teamwork skill 78
2.9 Critical Thinking and Problem Solving Skill 82
   2.9.1 Critical thinking and problem solving skill improvement 82
   2.9.2 Influence of individual and organisational factors on students’ critical thinking and problem solving skill 90
2.10 Moral and Professional Ethics Skill 94
2.10.1 Moral and professional ethics skill improvement

2.10.2 Influence of individual and organisational factors on students’ moral and professional ethics skill

2.11 Research Gaps

2.12 Summary

3 METHODOLOGY

3.1 Introduction

3.2 Research Philosophy and Research Approach

3.3 Research Design

3.4 Research Instrument

3.4.1 Questionnaire

3.4.2 Interview

3.5 Population and Sample

3.6 Pilot Study

3.7 Data Collection Process of Actual Study

3.7.1 Pre-training data collection

3.7.2 Post-training data collection

3.8 Reliability

3.8.1 Reliability analysis of pilot study

3.8.2 Reliability analysis of actual study

3.9 Validity

3.9.1 Factor analysis of communication skill

3.9.2 Factor analysis of teamwork skill

3.9.3 Factor analysis of critical thinking and problem solving skill

3.9.4 Factor analysis of moral and professional ethics skill

3.9.5 Factor analysis of students’ motivation

3.9.6 Factor analysis of supervisors’ leadership styles
### 3.10 Testing the Assumptions of Multivariate Analysis

134

### 3.11 Data Analysis

136

3.11.1 Quantitative data analysis  
137

3.11.2 Qualitative data analysis  
142

### 3.12 Summary

143

---

### 4 ANALYSES AND FINDINGS

144

#### 4.1 Introduction  
144

#### 4.2 Demographic Profiles  
145

4.2.1 Students’ demographic profile (pre- and post-training surveys)  
145

4.2.2 Supervisors’ demographic profile  
146

4.2.3 Organisational demographic profile  
147

4.2.4 Employers’ demographic profile  
148

4.2.5 Students’ demographic profile (interview)  
149

#### 4.3 Descriptive Statistics  
149

4.3.1 Students’ motivation  
150

4.3.2 Supervisors’ leadership styles  
151

4.3.3 Job scope  
152

4.3.4 Organisational culture  
153

#### 4.4 Findings on Communication Skill  
154

4.4.1 Communication skill improvement  
155

4.4.2 Differences between students’ demographic on students’ communication skill  
157

4.4.3 Relationship between students’ motivation and students’ communication skill  
160

4.4.4 Differences between supervisors’ demographic on students’ communication skill  
161

4.4.5 Differences between organisational demographic on students’ communication skill  
163
4.4.6 Relationship between supervisors’ leadership styles and students’ communication skill 165
4.4.7 Relationship between job scope and students’ communication skill 166
4.4.8 Relationship between organisational culture and students’ communication skill 167
4.4.9 Influences of individual and organisational factors on students’ communication skill 168
4.4.10 Employers’ interview feedback on students’ communication skill 170
4.4.11 Students’ interview feedback on communication skill 173

4.5 Findings on Teamwork Skill 175
4.5.1 Teamwork skill improvement 177
4.5.2 Differences between students’ demographic on students’ teamwork skill 178
4.5.3 Relationship between students’ motivation and students’ teamwork skill 180
4.5.4 Differences between supervisors’ demographic on students’ teamwork skill 181
4.5.5 Differences between organisational demographic on students’ teamwork skill 182
4.5.6 Relationship between supervisors’ leadership styles and students’ teamwork skill 184
4.5.7 Relationship between job scope and students’ teamwork skill 184
4.5.8 Relationship between organisational culture and students’ teamwork skill 185
4.5.9 Influences of individual and organisational factors on students’ teamwork skill 186
4.5.10 Employers’ interview feedback on students’ teamwork skill 188
4.5.11 Students’ interview feedback on teamwork skill

4.6 Findings on Critical Thinking and Problem Solving Skill

4.6.1 Critical thinking and problem solving skill improvement

4.6.2 Differences between students’ demographic on students’ critical thinking and problem solving skill

4.6.3 Relationship between students’ motivation and students’ critical thinking and problem solving skill

4.6.4 Differences between supervisors’ demographic on students’ critical thinking and problem solving skill

4.6.5 Differences between organisational demographic on students’ critical thinking on problem solving skill

4.6.6 Relationship between supervisors’ leadership styles and students’ critical thinking and problem solving skill

4.6.7 Relationship between job scope and students’ critical thinking and problem solving skill

4.6.8 Relationship between organisational culture and students’ critical thinking and problem solving skill

4.6.9 Influences of individual and organisational factors on students’ critical thinking and problem solving skill

4.6.10 Employers’ interview feedback on students’ critical thinking and problem solving skill

4.6.11 Students’ interview feedback on critical thinking and problem solving skill
4.7 Findings on Moral and Professional Ethics Skill

4.7.1 Moral and professional ethics skill improvement

4.7.2 Differences between students’ demographic on students’ moral and professional ethics skill

4.7.3 Relationship between students’ motivation and students’ moral and professional ethics skill

4.7.4 Differences between supervisors’ demographic on students’ moral and professional ethics skill

4.7.5 Differences between organisational demographic on students’ moral and professional ethics skill

4.7.6 Relationship between supervisors’ leadership styles and students’ moral and professional ethics skill

4.7.7 Relationship between job scope and students’ moral and professional ethics skill

4.7.8 Relationship between organisational culture and students’ moral and professional ethics skill

4.7.9 Influences of individual and organisational factors on students’ moral and professional ethics skill

4.7.10 Employers’ interview feedback on students’ moral and professional ethics skill

4.7.11 Students’ interview feedback on moral and professional ethics skill

4.8 Summary

5 DISCUSSION AND CONCLUSIONS

5.1 Introduction

5.2 Overview of study
5.3 Discussion and Conclusions on Students’ Communication Skill
   5.3.1 Communication skill improvement 239
   5.3.2 Influence of individual and organisational factors on students’ communication skill 241
   5.3.3 Discussion of interviews’ output on students’ communication skill 245

5.4 Discussion and Conclusions on Students’ Teamwork Skill
   5.4.1 Teamwork skill improvement 247
   5.4.2 Influence of individual and organisational factors on students’ teamwork skill 249
   5.4.3 Discussion of interviews’ output on students’ teamwork skill 253

5.5 Discussion and Conclusions on Students’ Critical Thinking and Problem Solving Skill
   5.5.1 Critical thinking and problem solving skill improvement 255
   5.5.2 Influence of individual and organisational factors on students’ critical thinking and problem solving skill 256
   5.5.3 Discussion of interviews’ output on students’ critical thinking and problem solving skill 261

5.6 Discussion and Conclusions on Students’ Moral and Professional Ethics Skill
   5.6.1 Moral and professional ethics skill improvement 263
   5.6.2 Influence of individual and organisational factors on students’ moral and professional ethics skill 265
   5.6.3 Discussion of interviews’ output on students’ moral and professional ethics skill 270

5.7 Research Implications and Recommendations 272
5.7.1 Theoretical implications 272
5.7.2 Practical implications 275
5.7.3 Empirical implications 279

5.8 Limitations and Recommendations for Future Research 281

5.9 Concluding Remarks 283

**REFERENCES** 285

Appendices A1 – D 339 – 350
## LIST OF TABLES

<table>
<thead>
<tr>
<th>TABLE NO.</th>
<th>TITLE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>List of public universities based on the categories</td>
<td>5</td>
</tr>
<tr>
<td>2.1</td>
<td>Summary of studies on communication skill</td>
<td>64</td>
</tr>
<tr>
<td>2.2</td>
<td>Summary of studies on teamwork skill</td>
<td>76</td>
</tr>
<tr>
<td>2.3</td>
<td>Summary of studies on critical thinking and problem solving skill</td>
<td>87</td>
</tr>
<tr>
<td>2.4</td>
<td>Summary of studies on moral and professional ethics skill</td>
<td>100</td>
</tr>
<tr>
<td>2.5</td>
<td>Overall summary of studies on generic skills within industrial training context</td>
<td>107</td>
</tr>
<tr>
<td>3.1</td>
<td>Research designs commonly used in training evaluation</td>
<td>112</td>
</tr>
<tr>
<td>3.2</td>
<td>Collection of data over two intervals of time</td>
<td>116</td>
</tr>
<tr>
<td>3.3</td>
<td>Levels of agreement</td>
<td>116</td>
</tr>
<tr>
<td>3.4</td>
<td>Statistics of respondents by university and field of study</td>
<td>123</td>
</tr>
<tr>
<td>3.5</td>
<td>Cronbach’s alpha coefficient of pilot study</td>
<td>126</td>
</tr>
<tr>
<td>3.6</td>
<td>Cronbach’s alpha coefficient of actual study</td>
<td>126</td>
</tr>
<tr>
<td>3.7</td>
<td>Factor analysis of communication skill items</td>
<td>128</td>
</tr>
<tr>
<td>3.8</td>
<td>Factor analysis of moral and professional ethics skill items</td>
<td>129</td>
</tr>
<tr>
<td>3.9</td>
<td>Factor analysis of motivation items</td>
<td>130</td>
</tr>
<tr>
<td>3.10</td>
<td>Factor analysis of supervisors’ leadership styles items</td>
<td>132</td>
</tr>
<tr>
<td>3.11</td>
<td>Factor analysis of job scope items</td>
<td>133</td>
</tr>
<tr>
<td>3.12</td>
<td>Factor analysis of organisational culture items</td>
<td>134</td>
</tr>
<tr>
<td>Section</td>
<td>Title</td>
<td></td>
</tr>
<tr>
<td>---------</td>
<td>-------</td>
<td></td>
</tr>
<tr>
<td>3.13</td>
<td>Multicollinearity of the variables</td>
<td></td>
</tr>
<tr>
<td>3.14</td>
<td>Analysis of variables</td>
<td></td>
</tr>
<tr>
<td>4.1</td>
<td>Students’ demographic profile (pre- and post-training surveys)</td>
<td></td>
</tr>
<tr>
<td>4.2</td>
<td>Supervisors’ demographic profile</td>
<td></td>
</tr>
<tr>
<td>4.3</td>
<td>Organisational demographic profile</td>
<td></td>
</tr>
<tr>
<td>4.4</td>
<td>Employers’ demographic profile</td>
<td></td>
</tr>
<tr>
<td>4.5</td>
<td>Students’ demographic profile (interview)</td>
<td></td>
</tr>
<tr>
<td>4.6</td>
<td>Responses on students’ motivation</td>
<td></td>
</tr>
<tr>
<td>4.7</td>
<td>Responses on supervisors’ leadership styles</td>
<td></td>
</tr>
<tr>
<td>4.8</td>
<td>Responses on job scope</td>
<td></td>
</tr>
<tr>
<td>4.9</td>
<td>Responses on organisational culture</td>
<td></td>
</tr>
<tr>
<td>4.10</td>
<td>Paired samples t-test of students’ communication skill</td>
<td></td>
</tr>
<tr>
<td>4.11</td>
<td>t-test of differences in students’ gender and ethnicity on students’ communication skill</td>
<td></td>
</tr>
<tr>
<td>4.12</td>
<td>ANOVA of differences in field of study and academic performance on students’ communication skill</td>
<td></td>
</tr>
<tr>
<td>4.13</td>
<td><em>Bonferroni post-hoc test</em> of differences in field of study and students’ communication skill</td>
<td></td>
</tr>
<tr>
<td>4.14</td>
<td>Correlation between academic performance and students’ communication skill</td>
<td></td>
</tr>
<tr>
<td>4.15</td>
<td>Correlation between motivation factors and students’ communication skill</td>
<td></td>
</tr>
<tr>
<td>4.16</td>
<td>t-test of differences in supervisors’ gender and ethnicity on students’ communication skill</td>
<td></td>
</tr>
<tr>
<td>4.17</td>
<td>ANOVA of differences in working position and working experience on students’ communication skill</td>
<td></td>
</tr>
<tr>
<td>4.18</td>
<td><em>Bonferroni post-hoc test</em> of differences in working experience and students’ communication skill</td>
<td></td>
</tr>
</tbody>
</table>
4.19 t-test of differences in types of sectors and types of companies on students’ communication skill 164

4.20 ANOVA of differences in organisational size on students’ communication skill 164

4.21 Bonferroni post-hoc test of differences in organisational size and students’ communication skill 165

4.22 Correlation between supervisors’ leadership styles and students’ communication skill 166

4.23 Correlation between job scope and students’ communication skill 167

4.24 Correlation between organisational culture and students’ communication skill 167

4.25 Regression model (students’ communication skill) 169

4.26 Multiple regressions analysis (stepwise) for predicting students’ communication skill 169

4.27 Paired samples t-test of students’ teamwork skill 177

4.28 t-test of differences in students’ gender and ethnicity on students’ teamwork skill 178

4.29 ANOVA of differences in field of study and academic performance on students’ teamwork skill 179

4.30 Bonferroni post-hoc test of differences in field of study and students’ teamwork skill 179

4.31 Correlation between academic performance and students’ teamwork skill 179

4.32 Correlation between motivation factors and students’ teamwork skill 180

4.33 t-test of differences in supervisors’ gender and ethnicity on students’ teamwork skill 181

4.34 ANOVA of differences in working position and working experience on students’ teamwork skill 181

4.35 t-test of differences in types of sectors and types of companies on students’ teamwork skill 183
<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.36</td>
<td>ANOVA of differences in organisational size on students’ teamwork skill</td>
</tr>
<tr>
<td>4.37</td>
<td><em>Bonferroni post-hoc test</em> of differences in organisational size and students’ teamwork skill</td>
</tr>
<tr>
<td>4.38</td>
<td>Correlation between supervisors’ leadership styles and students’ teamwork skill</td>
</tr>
<tr>
<td>4.39</td>
<td>Correlation between job scope and students’ teamwork skill</td>
</tr>
<tr>
<td>4.40</td>
<td>Correlation between organisational culture and students’ teamwork skill</td>
</tr>
<tr>
<td>4.41</td>
<td>Regression model (students’ teamwork skill)</td>
</tr>
<tr>
<td>4.42</td>
<td>Multiple regressions analysis (stepwise) for predicting students’ teamwork skill</td>
</tr>
<tr>
<td>4.43</td>
<td>Paired samples t-test of students’ critical thinking and problem solving skill</td>
</tr>
<tr>
<td>4.44</td>
<td>t-test of differences in students’ gender and ethnicity on students’ critical thinking and problem solving skill</td>
</tr>
<tr>
<td>4.45</td>
<td>ANOVA of differences in field of study and academic performance on students’ critical thinking and problem solving skill</td>
</tr>
<tr>
<td>4.46</td>
<td><em>Bonferroni post-hoc test</em> of differences in field of study and students’ critical thinking and problem solving skill</td>
</tr>
<tr>
<td>4.47</td>
<td><em>Bonferroni post-hoc test</em> of differences in academic performance and students’ critical thinking and problem solving skill</td>
</tr>
<tr>
<td>4.48</td>
<td>Correlation between academic performance and students’ critical thinking and problem solving skill</td>
</tr>
<tr>
<td>4.49</td>
<td>Correlation between motivation factors and students’ critical thinking and problem solving skill</td>
</tr>
<tr>
<td>4.50</td>
<td>t-test of differences in supervisors’ gender and ethnicity on students’ critical thinking and problem solving skill</td>
</tr>
<tr>
<td>4.51</td>
<td>ANOVA of differences in working position and working experience on students’ critical thinking and problem solving skill</td>
</tr>
</tbody>
</table>
4.52 Bonferroni post-hoc test of differences in working position and students’ critical thinking and problem solving skill

4.53 Bonferroni post-hoc test of differences in working experience and students’ critical thinking and problem solving skill

4.54 t-test of differences in types of sectors and types of companies on students’ critical thinking and problem solving skill

4.55 ANOVA of differences in organisational size on students’ critical thinking and problem solving skill

4.56 Correlation between supervisors’ leadership styles and students’ critical thinking and problem solving skill

4.57 Correlation between job scope and students’ critical thinking and problem solving skill

4.58 Correlation between organisational culture and students’ critical thinking and problem solving skill

4.59 Regression model (students’ critical thinking and problem solving skill)

4.60 Multiple regressions analysis (stepwise) for predicting students’ critical thinking and problem solving skill

4.61 Paired samples t-test of students’ moral and professional ethics skill

4.62 t-test of differences in students’ gender and ethnicity on students’ moral and professional ethics skill

4.63 ANOVA of differences in field of study and academic performance on students’ moral and professional ethics skill

4.64 Bonferroni post-hoc test of differences in field of study and students’ moral and professional ethics skill

4.65 Correlation between academic performance and students’ moral and professional ethics skill

4.66 Correlation between motivation factors and students’ moral and professional ethics skill

4.67 t-test of differences in supervisors’ gender and ethnicity on students’ moral and professional ethics skill
4.68 **ANOVA of differences in working position and working experience on students’ moral and professional ethics skill**  

218

4.69 **Bonferroni post-hoc test of differences in working position and students’ moral and professional ethics skill**  

219

4.70 **Bonferroni post-hoc test of differences in working experience and students’ moral and professional ethics skill**  

219

4.71 t-test of differences in types of sectors and types of companies on students’ moral and professional ethics skill  

221

4.72 **ANOVA of differences in organisational size on students’ moral and professional ethics skill**  

221

4.73 **Bonferroni post-hoc test of differences in organisational size and students’ moral and professional ethics skill**  

222

4.74 Correlation between supervisors’ leadership styles and students’ moral and professional ethics skill  

223

4.75 Correlation between job scope and students’ moral and students’ professional ethics skill  

224

4.76 Correlation between organisational culture and students’ moral and professional ethics skill  

225

4.77 Regression model (students’ moral and professional ethics skill)  

226

4.78 Multiple regressions analysis (stepwise) for predicting students’ moral and professional ethics skill  

226

5.1 Results of hypotheses  

237
<table>
<thead>
<tr>
<th>FIGURE NO.</th>
<th>TITLE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Global employability skills deficiencies (Soft Skills)</td>
<td>7</td>
</tr>
<tr>
<td>1.2</td>
<td>Model for implementation of soft skills in Higher Learning Institutions</td>
<td>20</td>
</tr>
<tr>
<td>1.3</td>
<td>Employability Attributes Framework</td>
<td>21</td>
</tr>
<tr>
<td>1.4</td>
<td>Conceptual framework</td>
<td>28</td>
</tr>
<tr>
<td>2.1</td>
<td>Venn diagram of learning theories</td>
<td>46</td>
</tr>
<tr>
<td>2.2</td>
<td>The Evaluation View of Kirkpatrick Model</td>
<td>49</td>
</tr>
<tr>
<td>2.3</td>
<td>Conceptual framework</td>
<td>108</td>
</tr>
<tr>
<td>3.1</td>
<td>Retrospective survey design (one-group pretest-posttest design)</td>
<td>113</td>
</tr>
<tr>
<td>3.2</td>
<td>Research design process</td>
<td>114</td>
</tr>
<tr>
<td>3.3</td>
<td>Proportionate stratified random sampling</td>
<td>120</td>
</tr>
<tr>
<td>4.1</td>
<td>Conceptual framework connecting variables (communication skill)</td>
<td>155</td>
</tr>
<tr>
<td>4.2</td>
<td>Conceptual framework connecting variables (teamwork skill)</td>
<td>176</td>
</tr>
<tr>
<td>4.3</td>
<td>Conceptual framework connecting variables (critical thinking and problem solving skill)</td>
<td>192</td>
</tr>
<tr>
<td>4.4</td>
<td>Conceptual framework connecting variables (moral and professional ethics skill)</td>
<td>211</td>
</tr>
</tbody>
</table>
**LIST OF ABBREVIATIONS**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMMS</td>
<td>Communication skill</td>
</tr>
<tr>
<td>CTPS</td>
<td>Critical thinking and problem solving skill</td>
</tr>
<tr>
<td>FRLM</td>
<td>Full Range Leadership Model</td>
</tr>
<tr>
<td>MOE</td>
<td>Ministry of Education</td>
</tr>
<tr>
<td>MOHE</td>
<td>Ministry of Higher Education</td>
</tr>
<tr>
<td>MPES</td>
<td>Moral and professional ethics skill</td>
</tr>
<tr>
<td>TWS</td>
<td>Teamwork skill</td>
</tr>
</tbody>
</table>
# LIST OF APPENDICES

<table>
<thead>
<tr>
<th>APPENDIX</th>
<th>TITLE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>Pre-training questionnaire</td>
<td>339</td>
</tr>
<tr>
<td>A2</td>
<td>Post-training questionnaire</td>
<td>342</td>
</tr>
<tr>
<td>B1</td>
<td>Employers’ interview protocol</td>
<td>347</td>
</tr>
<tr>
<td>B2</td>
<td>Students’ interview protocol</td>
<td>348</td>
</tr>
<tr>
<td>C</td>
<td>Results of normality tests (using Shapiro-Wilk tests)</td>
<td>349</td>
</tr>
<tr>
<td>D</td>
<td>Dummy variable coding</td>
<td>350</td>
</tr>
</tbody>
</table>
CHAPTER 1

INTRODUCTION

1.1 Introduction

Generic skills have been globally recognised as among required attributes for fresh graduates to be recruited in the job market. Generic skills are important in enhancing graduates’ employability as to assure that they are capable in coping with the advancement in work context (Possa, 2006; Roselina, 2009). Hence, the importance of generic skills had prompted higher learning institutions to play a more significant role in producing a higher quality graduates who are better equipped, not only with the hard skills but with the soft skills or generic skills as well (Andrews and Russell, 2012; Mohd Lazim, 2009). One of the efforts taken by higher learning institutions in improving students’ generic skills is by insisting the university students to undergo industrial training. The industrial training has been argued to provide students an opportunity to apply what they have learnt in the classroom to real life workplace environment (Katajavuori et al., 2006; Lai et al., 2011; Sariwati and Mazanah, 2010; Siti Aminah et al., 2009).

The focus of this study was to examine generic skills improvement among students who had undergone industrial training. In addition, this study attempts to examine the influence of individual (students’ demographic and motivation) and organisational (supervisors’ demographic, organisational demographic, supervisors’ leadership styles, job scope and organisational culture) factors on students’ generic skills (communication, teamwork, critical thinking and problem solving, and moral and professional ethics). In the context of this study, industrial training is a
component of the social science, science and engineering programmes in all public universities in Malaysia. Students either return to their respective universities to complete the education programme or graduate upon the completion of the industrial training.

This chapter introduces the background of generic skills, in Section 1.2 and follows by overview of Malaysian education background in Section 1.3. The chapter continues with discussion on problems regarding the improvement of students’ generic skills in Section 1.4. These problems raise a number of questions (Section 1.5) in relation to the focus of this study and thus form the basis of the development of the research objectives which are outlined in Section 1.6. Then, this chapter highlights initiatives taken by Ministry of Higher Education (MOHE) in improving students’ generic skills (Section 1.7) and briefly discusses foundation of industrial training and generic skills (Section 1.8). A conceptual framework is proposed in Section 1.9 and further signified the contribution of study in Section 1.10. The chapter then continues with the scope used in this study (Section 1.11) and highlights some key terms (Section 1.12). The chapter finally designs the overall structure of the thesis (Section 1.13) and conclude with summary of the chapter (Section 1.14).

1.2 Research Background

There has been a global consensus on the importance of generic skills in graduates’ employability (Crossman and Clarke, 2010; Devadason et al., 2010; Mohd Sahandri Gani and Saifuddin Kumar, 2009a). The evolution of generic skills has begin in the early 70’s as Streumer and Bjorkquist (1998) had traced the use of the term ‘key skills’ in Mertens’s study (1974) of educational system at that time. The factors of labour market requirements and increasing in unemployment rate among youth have growing attention from other scholars and researchers to establish appropriate generic skills that need to be mastered by university students (Caleb and Udofia, 2013; Mohd Sahandri Gani and Saifuddin Kumar, 2009a; Roselina, 2009). When looking into this generic skills evolution, among well-known researches on generic skills are performed by The Secretary’s Commission on Achieving
Necessary Skills or SCANS (1991) which come out with report on workplace know-how skills, while in 1999, the Conference Board of Canada has introduced employability skills 2000++ as stated in the report of understanding employability skills (Bloom and Kitagawa, 1999). In modern era, the generic skills evolution has expanded and gets worldwide attention, in conjunction with high technology advancement and highly competitive labour market (Bowman, 2010; MOHE, 2006). Thus, sets of skills that required to be strengthen by university students has been improved to suit with today’s work environment. Similar to other countries, Malaysia also has introduced Soft Skills Module in 2006, with the aims to produce quality human capital (MOHE, 2006) and had recently launched Employability Attributes Framework in 2012. Further explanation on this module and framework will be discussed in Section 1.7.

As these skills are important, students need to improve their generic skills in order to have better employment opportunity upon completing their study. Basically, generic skills are related to “skills, qualities and traits that an individual has to master in order to succeed in their studies and career” (Mohd Sahandri Gani and Saifuddin Kumar, 2009a, p. 684). In addition, Robinson (2000) defines generic skills or employability skills as “those basic skills necessary for getting, keeping, and doing well on a job” (p. 1). There are various terminologies that have been used in defining generic skills such as soft skills (Devadason et al., 2010), transferable skills (Bowman, 2010; Kelly, 2001), teachable skills (Pool and Sewell, 2007; Washer, 2007; Zinser, 2003), employability skills, key skills and core skills (Mohd Sahandri Gani and Saifuddin Kumar, 2009b; Shahrin et al., 2004; Sulaiman et al., 2008). This study will use the term generic skills throughout the thesis.

The use of ‘general’ term indicates that these skills can be implemented across disciplines and workplaces, which means there is no specific set of skills for any particular discipline or working environment (Devadason et al., 2010; Shahrin et al., 2004). However, generic skills are typically refer to communication skill, thinking skill, interpersonal skills, numeracy skill, planning skill and others related skills (Awayiga et al., 2010; Mohd Sahandri Gani and Saifuddin Kumar, 2009a; 2009b). In Malaysian context, the Ministry of Higher Education (MOHE) has listed
seven generic skills, namely communication skill (CS), teamwork skill (TS), critical thinking and problem solving skill (CTPS), moral and professional ethics (MPES), lifelong learning and information management skills (LLIMS), entrepreneurial skills (ES) and leadership skills (LS) (MOHE, 2006). Nevertheless, only four of these skills will be studied in this research which are communication skill, teamwork skill, critical thinking and problem solving skill, and moral and professional ethics skill. The selection of four out of seven generic skills are due to past studies had emphasised that these generic skills can be developed and be sharpen during industrial training (Knemeyer and Murphy, 2002; Mihail, 2006; Mohd Zaidi Omar et al., 2008; Sariwati and Mazanah, 2010). As these skills are transferable and teachable, it is highly recommended for lecturers and instructors to infuse these skills in their teaching and learning activities such as in group assignment, presentation and case study. Through these activities, the generic skills are able to be put on practice as well as to promote the institutions in producing highly skilled graduates (Latisha Asmaak and Surina, 2010).

Basically, generic skills are important due to the changes occurring in today’s organisational environment. These changes are due to the fast-paced technology as well as the changing scenario of global environment which require employers to become very particular in hiring new employees (Mohd Sahandri Gani and Saifuddin Kumar, 2009a). Therefore, it is important for the university students to equip themselves with skills such as critical thinking and problem solving skill, communication and teamwork skills (Zubaidah et al., 2006). Graduates are expected to have ability to interact with people from different background, have a thinking skill that is creative as well as able to solve complex problems. Nevertheless, the improvement of generic skills depends on various external factors, for example, exposure to various experiences. Therefore, university students should be prepared themselves to expose to various experiences by actively participate in class and extra co-curriculum activities throughout the duration of their studies. The institutions, on the other hand, must include in their programme’s curriculum, a specific duration of time for students to attend an industrial training. During industrial training, students are expected to fully utilise this opportunity by interacting and working collaboratively as well as being confident in giving ideas among the professional
(Nurkaliza et al., 2014). This training also provides working experience for students as an early preparation before entering real workforce in the future.

### 1.3 An Overview of Malaysian Education Background

Previously, there are two ministries that handled matters pertaining education in Malaysia. The Ministry of Education (MOE) has caters matters on primary and secondary schools, while MOHE manages on tertiary education. But on May 14, 2013, both ministries were merged, and had known as the Ministry of Education (MOE). The objective of this merger is to increase the highly effectiveness and efficiency by sharing of resources and expertise at every level of educations. Once again, after reshuffling the cabinet on July 28, 2015, the MOE were split into two ministries which dealing with two separate entities focusing on education (primary and secondary education) and higher education (tertiary education).

<table>
<thead>
<tr>
<th>Categories</th>
<th>Lists of public universities</th>
<th>Establishment Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Universities</td>
<td>1. Universiti Malaya (UM)</td>
<td>1961</td>
</tr>
<tr>
<td></td>
<td>2. Universiti Sains Malaysia (USM)</td>
<td>1969</td>
</tr>
<tr>
<td></td>
<td>3. Universiti Kebangsaan Malaysia (UKM)</td>
<td>1970</td>
</tr>
<tr>
<td></td>
<td>4. Universiti Putra Malaysia (UPM)</td>
<td>1971</td>
</tr>
<tr>
<td></td>
<td>5. Universiti Teknologi Malaysia (UTM)</td>
<td>1975</td>
</tr>
<tr>
<td>Comprehensive Universities</td>
<td>1. Universiti Teknologi MARA (UiTM)</td>
<td>1999</td>
</tr>
<tr>
<td></td>
<td>2. Universiti Islam Antarabangsa Malaysia (UIAM)</td>
<td>1983</td>
</tr>
<tr>
<td></td>
<td>3. Universiti Malaysia Sabah (UMS)</td>
<td>1994</td>
</tr>
<tr>
<td></td>
<td>4. Universiti Malaysia Sarawak (UniMAS)</td>
<td>1992</td>
</tr>
<tr>
<td>Focused Universities</td>
<td>1. Universiti Utara Malaysia (UUM)</td>
<td>1984</td>
</tr>
<tr>
<td></td>
<td>2. Universiti Pendidikan Sultan Idris (UPSI)</td>
<td>1997</td>
</tr>
<tr>
<td></td>
<td>3. Universiti Tun Hussein Onn Malaysia (UTHM)</td>
<td>2000</td>
</tr>
<tr>
<td></td>
<td>4. Universiti Teknikal Malaysia Melaka (UTeM)</td>
<td>2000</td>
</tr>
<tr>
<td></td>
<td>5. Universiti Malaysia Perlis (UniMAP)</td>
<td>2001</td>
</tr>
<tr>
<td></td>
<td>6. Universiti Malaysia Terengganu (UMT)</td>
<td>1999</td>
</tr>
<tr>
<td></td>
<td>7. Universiti Malaysia Pahang (UMP)</td>
<td>2001</td>
</tr>
<tr>
<td></td>
<td>8. Universiti Sains Islam Malaysia (USIM)</td>
<td>1998</td>
</tr>
<tr>
<td></td>
<td>9. Universiti Darul Iman Malaysia (UniSZA)</td>
<td>2005</td>
</tr>
<tr>
<td></td>
<td>10. Universiti Malaysia Kelantan (UMK)</td>
<td>2006</td>
</tr>
<tr>
<td></td>
<td>11. Universiti Pertahanan Nasional Malaysia (UPNM)</td>
<td>2006</td>
</tr>
</tbody>
</table>

Source: MOHE (2009)
Currently, there are twenty public universities in Malaysia and these universities can be divided into three main categories, namely Research University, Comprehensive University and Focused University. Table 1.1 shows the list of public universities according to their respective categories. Research University is a categorization given to universities with research-focused field of the study with competitive enrolment. Meanwhile, Comprehensive University is a categorization to universities which are known to offer various fields of studies without focusing on specific areas. Other than that, Focused University is categorised to universities which are focusing on selected fields, such as technical, education, management and defence. As depicted in Table 1.1, it shows that MOHE has acknowledged the importance of higher education in producing quality future leaders and professional human resources. With better higher education provided by the universities, it is expected that the vision to bring Malaysia as a centre of higher educational excellence by the year 2020 will be achieved. Thus, responsible parties should have better planning and implementation by upgrading the higher education system in Malaysia in order to achieve the vision. With this aim, the Section 1.7 describes the initiatives taken by MOHE in improving students’ generic skills.

1.4 Problem Statement

There are two issues which motivate this study to be conducted. Firstly, the issue of generic skills deficiency among university graduates which leads to increase unemployment rate and secondly, the issue of literature gaps found in the area of generic skills and industrial training. Generic skills deficiency among university graduates has garnered wide attention from numerous scholars and educators worldwide (Cable et al., 2007; Crawford et al., 2011; Crossman and Clarke, 2010; Dickinson, 2000; Economic Planning Unit, 2007; Jackling and Watty, 2010; Panagiotakopoulos, 2012). An evidence was provided by ManpowerGroup (2012) who carried out a Talent Shortage Survey to determine problems faced by employers when hiring new employees. This survey found that six percent of employers rated interpersonal skills and enthusiasm/motivation as the most cited problems (see Figure 1.1). Other studies by Ahmad Asrul et al. (2009), Ahmad Nabil et al. (2011)
and Panagiotakopoulos (2012) also found that generic skills deficiency was a problem faced by employers globally. Most of the employers stated that it is difficult to find a potential employee who can work efficiently with others. Furthermore, it was also agreed that new graduates lack of integrity and honesty and unable to work independently (Ahmad Nabil et al., 2011). The justification of four generic skills are also being made based on Figure 1.1 which indicated that employers have problems with students’ interpersonal skill (include communication skill), collaboration and teamwork, ability to deal with complexity and problem solving (require critical thinking and problem solving skill) and professionalism (moral and professional ethics skill). Therefore, it shows the importance of these four generic skill which motivate this study to be conducted.

![Figure 1.1: Global employability skills deficiencies (Soft Skills) (Source: ManpowerGroup, 2012)](image)

At the local context, similar issues regarding generic skills deficiency among university graduates were reported by the National Higher Education Research Institute Malaysia (2003). The report states that employers complained about graduates lack of communication skill and incapable of working as a team. In fact, the National Graduate Employability Blueprint (2012-2017) also reported that main problem faced by employers in hiring fresh graduates is due to lack of communication skill, which contributed 55.8% of the problems (MOHE, 2012). In addition, the Director of Students Affairs Development in the MOHE, Professor Dr. Mohd Fauzi Ramlan, claimed that graduates were lacking with communication skill
and problem solving skill (KOSMO, 2012, November 6). In a study by Nik Hairi et al. (2012) reveals that university students were still found to be lacking with communication, teamwork and critical thinking skills. Employers in the study claimed that students were unable to relay information to others, poor in listening and responding skills during teamwork discussion as well as ineffective in making presentation. Consistently, findings by several public universities in Malaysia shown that majority of university students prefer to interact only in small groups and unable to communicate effectively (Anwar, 2013, July 16). Recently, the Deputy Vice Chancellor of Students Affairs Universiti Teknologi MARA, Professor Datuk Dr. Abdullah Mohd Sai expressed his concern that students were still unaware with the importance of generic skills for their future careers, and thus reducing possibility to be hired due to lack of generic skills (Ruhaiza, 2015, June 29).

Findings from previous studies also indicated that generic skills deficiency leads to an increase in unemployment rate (Ahmad Nabil et al., 2011; Mohd Yusof et al., 2010). This is reported by Human Resource Deputy Minister, Datuk Maznah Mazlan who declared that 76,200 unemployed graduates who are still unemployed due to various factors, including generic skills deficiency (Noor Mohamad, 2012, June 6). In addition, a latest claim made by Deputy Vice Chancellor of Academic and International Universiti Malaysia Pahang, Professor Dr. Wan Azhar Wan Yusoff was on unemployed graduates who only excellent in their technical skills, but poor in their generic skills (Ruhaiza, 2015, March 16). He also mentioned that at present, only 28% of total workforce is highly skilled workers, which is still at low percentage. Therefore, the need to further investigate this issue is suggested by prior studies (Ahmad Nabil et al., 2011; Hairuzila et al., 2009; Mohd Yusof et al., 2010; Rahmah et al., 2011; Selvadurai et al., 2012). One common denominator hold by past studies is the effects of the learning environment on students’ generic skills (Devadason et al., 2010; Hussain et al., 2008).

Many studies (Crebert et al., 2001; Haller et al., 2007; Kitahara et al., 2011; Rocca, 2009) have identified that learning environment is one of the factors which can lead to generic skills deficiency, particularly in communication skill. Despite various learning context practice in the classroom (such as Problem Based Learning
(PBL), and Outcome Based Education (OBE)), which encourage actual communication between lecturers-students and students to students, communication is still minimal. Students who felt less confident and do not want to look dumb in front of others will refuse to interact during discussion session (Hyde and Ruth, 2002; Murie, 2004; Weaver and Qi, 2005) especially when students feel that their lecturers pay less attention to them and overly criticized their opinion, further causing them to be less communicative during the discussion (Rocca, 2009). Hence, less interaction during the discussion leads to communication skill deficiency, even though various learning context are being applied and exercised.

The students learning context also affects the acquisition of teamwork skill. While most of universities are now emphasizing on collaborative learning, it is still questionable why university students are still lacking with teamwork skill. McGourty and Meuse (2001) proposed that the lack of teamwork skill can be explained using self-selection approach. Teamwork skill was not increased because students are allowed to choose their close friends as team member. According to Buckenmyer (2000), students often select those friends who have similar demographic characteristics, interest and academic performance, which then create a homogeneous group. This homogeneous group subsequently lead to restrict learning opportunities, especially for students who poor in academic performance as they often end up together in a leftover group (Felder and Brent, 1994). In addition, Crebert et al. (2001) asserted that students preferred to delegate work individually although they were assigned to work in a team. By delegating individually, it causes students to have less experience on how to tackle conflict and reduce collaboration among team members (Francescato et al., 2006; Thompson and Ku, 2006). Furthermore, Crebert et al. (2001) also stated that the emergence of free rider or social loafing (a person who take less effort in a team) demotivate other team members.

As students learning context shows its inefficiency in improving students’ communication and teamwork skills, the same situation goes to critical thinking and problem solving skill. As asserted by Haller et al. (2007) and Mohd. Ali and Shaharom (2003), teaching and learning process in the classroom which emphasise on rote learning lead students to memorize the knowledge learned, rather than to
analyze and synthesize the exact meaning of the knowledge. Since they do not have deep understanding of the knowledge learned, it reduces their ability to think critically as well as to solve complicated problems (Roselina, 2009). Other than rote learning issue, there are some lecturers who are too focused on the content, without emphasizing on how to induce students’ critical thinking during teaching and learning process (Marlina and Shaharom, 2010). Moreover, the difficulties in designing suitable problem scenario is the one of challenging parts for lecturers, especially for those who are using the PBL method (Jonassen, 2000; Pawson et al., 2006). Without having suitable problem scenario, students lose the opportunity to improve their thinking and problem solving skill. Thus, the method of learning in the classroom should be well planned and implemented in order to alleviate skills deficiency among university students.

Even though moral and ethics are often emphasised during classroom learning, it has yet reach its objectives as most of the employers still complain that university graduates are still poor with this skill (Ahmad Nabil et al., 2011; Panagiotakopoulos, 2012). According to Anitsal et al. (2009), students were inclined to behave unethically in the classroom learning, due to the effect of undetected academic dishonesty that happen during the learning process at the university. In general, there are three factors which lead them to commit unethical behaviour. Firstly, students who were unable to interact and work collaboratively as well as poor in thinking critically were compelled to cheat in order to solve the problems during classroom learning (Carroll and Zetterling, 2009). If this situation is prolonged, low ethical standard and integrity among university students are expected. Secondly, internal and external factors during classroom learning also become the reason which contribute to deficiency in students’ moral and professional ethics skill (Anitsal et al., 2009; Kitahara et al., 2011). The internal factors include gender, age, nationality and interest to learn (Kitahara et al., 2011; Klein et al., 2007), while external factors include peer pressure, fear of being caught and characteristics of their lecturers (Pulvers and Diekhoff, 1999). In the context of students’ interest to learn, Pulvers and Diekhoff (1999) claimed that students who were not motivated to participate during learning classroom, have higher tendency to behave unethically. In regards to lecturer’s characteristics, Love and Simmons (1998) argued that students tend to
commit dishonest behaviour when the lecturers are not too strict. Thirdly, limited exposure to ethical dilemmas during classroom learning causes a lower ethical awareness among university students (Crebert et al., 2001). Therefore, it is important for students to be exposed to real ethical dilemmas as Trevino (1986) asserted that moral development can be developed through work experience.

Technology advancement is also a factor that may influence acquisition of generic skills being less effective (Pumphrey and Slater, 2002). The technology advancement may affect students’ communication skill as the medium to interact has been replaced through e-mail or skype. By using these medium, they may have less actual face to face interaction with lecturers and colleagues (Meyer, 2003; Scotty, 2011). In addition, Curtis and Lawson (2001) argued that technology usage in communication process could lead anxiety and higher misunderstanding between sender and receiver. Such problems could lead to their skills deficiency in communication. Furthermore, with the technology advancement, students can get access to most of the information through internet, which then causes negative effect as they simply adopt the information without analyzing, interpreting and thinking critically (Purcell et al., 2012). By simply adopting the information, it may hinder their ability to solve the problems because internet offers most of the solutions. Moreover, the usage of technology in education also exposed students to plagiarism (Sohrabi et al., 2011). Consequently, this action would undermine students’ ethical standard.

The second issue that this study highlights is the four literature gaps in the area of generic skills and industrial training. Firstly, there is a gap to what extent industrial training could assist university students to improve their generic skills while it is undeniable that industrial training could be a platform for students to improve these generic skills (Craig and Oja, 2012; Mihail, 2006; Sariwati and Mazanah, 2010). In a study by Sariwati and Mazanah (2010), they found that there are six problems in current practices of industrial training, such as: (i) inadequate documentations; (ii) no procedures and guidelines for industrial training; (iii) lack or no documented syllabus and scope of industrial training; (iv) no specific objectives and curricular structure; (v) insufficient industrial training evaluation on learning
outcomes after completion of industrial training and; (vi) no evaluation on the supervisors and host organisations. These problems then lead into the issue of differences in stakeholders’ (students, higher learning institutions and host organisations) perceptions and expectations regarding their experience of industrial training. For example, students are required to accomplish the jobs beyond their educational background (Rusnah et al., 2009). Similarly, Pillai and Marohaini (2007) reported that there is a debate between higher learning institutions and host organisations regarding problem related to kinds of job given to trainees. More badly, host organisations sometimes treat the students as cheap labour due to lower wages being paid to them. By taking benefit of lower wages, there are also host organisations that treat students as floating members in order to replace position of those employees who are on leave (Lam and Ching, 2007). On top of that, a recent study by Karunaratne and Perera (2015) highlighted on the problem of improper training which lead to lack of improvement in knowledge and generic skills. There is also a problem on lack of supervision by host organisation supervisors (Ramlee et al., 2001). Based on these problems, it is imperative to examine factors that influence on students’ generic skills after attending industrial training, so that the stakeholders will understand their roles without having any disagreements.

Secondly, while the previous studies only looked at one specific generic skill, such as communication skill (Kakepoto et al., 2012; Koo et al., 2009; Mohd Zaidi et al., 2009). In filling this gap, the present study focuses on four generic skills (communication skill, teamwork skill, critical thinking and problem solving skill, and moral and professional ethics skill). Thirdly, past studies only looked into organisational factors, such as training duration and job scope (Halabi and Suziah, 2002; Zaherawati et al., 2011), and little has looked into the influence of individual factors (like students’ demographic and motivation) on students’ generic skills. Continuous empirical study need to be conducted on the effectiveness of industrial training, so the objectives of providing training to students can be achieved. For example, if a student is not motivated to go for the industrial training, no significant changes of his or her generic skills can be anticipated even though the training programme is well implemented. Thus, less improvement of generic skills during industrial training may due to individual factor itself. The fourth gap is most of the
previous studies were conducted using cross sectional approach, while the present study using pre and post approach which in contrast to other studies. The former approach only looked at generic skills improvement at one shot, but this study used mean comparison in examining the amount of generic skills improvement after completing their industrial training. With the inclusion of these four gaps in the present study, it is expected that the findings will reduce literatures gaps in generic skills and industrial training.

The third issue is this study highlights the theoretical gap relating to Training Evaluation Model by Kirkpatrick (1994). Past studies investigating on the effectiveness of training use mostly in organisational based (Anese, 2008; Homklin, 2014; Sugrue and Rivera, 2005; Twitchell et al., 2000) and little has looked into industrial training in higher learning institutions students. In addition, studies using this model only focus on specific outcomes, for example examining how training can improve employees’ technical skills in general (Anese, 2008; Homklin, 2014). Due to this gap, this study will examine to what extent the industrial training will improve four specific generic skills. For the above mentioned issues, the following research questions will be proposed.

1.5 Research Questions

The previous section has discussed issues on generic skills deficiency, unemployment and other reasons employers faced in recruiting fresh graduates. In addressing these issues, students are required to attend industrial training because it provides a platform to improve their generic skills. However, to what extent this training contributes to students’ generic skills improvement is still very much unexplained. This is because the improvement of generic skills within industrial training context may influence by other factors (such as individual and organisational). Based on these reasons, this study’s research questions are:
1. Do students’ communication skill is improved after undergoing industrial training?
   1a. Do there any differences between students’ demographic (gender, ethnicity, field of study, academic performance) on students’ communication skill?
   1b. Do there any relationships between students’ motivation and students’ communication skill?
   1c. Do there any differences between supervisors’ demographic (gender, ethnicity, working position, working experience) on students’ communication skill?
   1d. Do there any differences between organisational demographic (types of sectors, types of companies, organisational size) on students’ communication skill?
   1e. Do there any relationships between supervisors’ leadership styles and students’ communication skill?
   1f. Do there any relationships between job scope and students’ communication skill?
   1g. Do there any relationships between organisational culture and students’ communication skill?
   1h. Do individual and organisational factors influence students’ communication skill?
2. Do students’ teamwork skill is improved after undergoing industrial training?
   2a. Do there any differences between students’ demographic (gender, ethnicity, field of study, academic performance) on students’ teamwork skill?
   2b. Do there any relationships between students’ motivation and students’ teamwork skill?
   2c. Do there any differences between supervisors’ demographic (gender, ethnicity, working position, working experience) on students’ teamwork skill?
   2d. Do there any differences between organisational demographic (types of sectors, types of companies, organisational size) on students’ teamwork skill?
2e. Do there any relationships between supervisors’ leadership styles and students’ teamwork skill?

2f. Do there any relationships between job scope and students’ teamwork skill?

2g. Do there any relationships between organisational culture and students’ teamwork skill?

2h. Do individual and organisational factors influence students’ teamwork skill?

3. Do students’ critical thinking and problem solving skill is improved after undergoing industrial training?

3a. Do there any differences between students’ demographic (gender, ethnicity, field of study, academic performance) on students’ critical thinking and problem solving skill?

3b. Do there any relationships between students’ motivation and students’ critical thinking and problem solving skill?

3c. Do there any differences between supervisors’ demographic (gender, ethnicity, working position, working experience) on students’ critical thinking and problem solving skill?

3d. Do there any differences between organisational demographic (types of sectors, types of companies, organisational size) on students’ critical thinking and problem solving skill?

3e. Do there any relationships between supervisors’ leadership styles and students’ critical thinking and problem solving skill?

3f. Do there any relationships between job scope and students’ critical thinking and problem solving skill?

3g. Do there any relationships between organisational culture and students’ critical thinking and problem solving skill?

3h. Do individual and organisational factors influence students’ critical thinking and problem solving skill?

4. Do students’ moral and professional ethics skill is improved after undergoing industrial training?

4a. Do there any differences between students’ demographic (gender, ethnicity, field of study, academic performance) on students’ moral and professional ethics skill?
4b. Do there any relationships between students’ motivation and students’ moral and professional ethics skill?

4c. Do there any differences between supervisors’ demographic (gender, ethnicity, working position, working experience) on students’ moral and professional ethics skill?

4d. Do there any differences between organisational demographic (types of sectors, types of companies, organisational size) on students’ moral and professional ethics skill?

4e. Do there any relationships between supervisors’ leadership styles and students’ moral and professional ethics skill?

4f. Do there any relationships between job scope and students’ moral and professional ethics skill?

4g. Do there any relationships between organisational culture and students’ moral and professional ethics skill?

4h. Do individual and organisational factors influence students’ moral and professional ethics skill?

1.6 Research Objectives

In answering the research questions from the preceding section, this study has established four main objectives; with each has eight sub-objectives. These objectives of this study are:

1. To examine students’ communication skill improvement after undergoing industrial training.
   1a. To examine the differences between students’ demographic (gender, ethnicity, field of study, academic performance) on students’ communication skill.
   1b. To examine the relationship between students’ motivation and students’ communication skill.
1c. To examine the differences between supervisors’ demographic (gender, ethnicity, working position, working experience) on students’ communication skill.

1d. To examine the differences between organisational demographic (types of sectors, types of companies, organisational size) on students’ communication skill.

1e. To examine the relationship between supervisors’ leadership styles and students’ communication skill.

1f. To examine the relationship between job scope and students’ communication skill.

1g. To examine the relationship between organisational culture and students’ communication skill.

1h. To examine the influence of individual and organisational factors on students’ communication skill.

2. To examine students’ teamwork skill improvement after undergoing industrial training.

2a. To examine the differences between students’ demographic (gender, ethnicity, field of study, academic performance) on students’ teamwork skill.

2b. To examine the relationship between students’ motivation and students’ teamwork skill.

2c. To examine the differences between supervisors’ demographic (gender, ethnicity, working position, working experience) on students’ teamwork skill.

2d. To examine the differences between organisational demographic (types of sectors, types of companies, organisational size) on students’ teamwork skill.

2e. To examine the relationship between supervisors’ leadership styles and students’ teamwork skill.

2f. To examine the relationship between job scope and students’ teamwork skill.

2g. To examine the relationship between organisational culture and students’ teamwork skill.
To examine the influence of individual and organisational factors on students’ teamwork skill.

3. To examine students’ critical thinking and problem solving skill improvement after undergoing industrial training.
   3a. To examine the differences between students’ demographic (gender, ethnicity, field of study, academic performance) on students’ critical thinking and problem solving skill.
   3b. To examine the relationship between students’ motivation and students’ critical thinking and problem solving skill.
   3c. To examine the differences between supervisors’ demographic (gender, ethnicity, working position, working experience) on students’ critical thinking and problem solving skill.
   3d. To examine the differences between organisational demographic (types of sectors, types of companies, organisational size) on students’ critical thinking and problem solving skill.
   3e. To examine the relationship between supervisors’ leadership styles and students’ critical thinking and problem solving skill.
   3f. To examine the relationship between job scope and students’ critical thinking and problem solving skill.
   3g. To examine the relationship between organisational culture and students’ critical thinking and problem solving skill.
   3h. To examine the influence of individual and organisational factors on students’ critical thinking and problem solving skill.

4. To examine students’ moral and professional ethics skill improvement after undergoing industrial training.
   4a. To examine the differences between students’ demographic (gender, ethnicity, field of study, academic performance) on students’ moral and professional ethics skill.
   4b. To examine the relationship between students’ motivation and students’ moral and professional ethics skill.
   4c. To examine the differences between supervisors’ demographic (gender, ethnicity, working position, working experience) on students’ moral and professional ethics skill.
4d. To examine the differences between organisational demographic (types of sectors, types of companies, organisational size) on students’ moral and professional ethics skill.

4e. To examine the relationship between supervisors’ leadership styles and students’ moral and professional ethics skill.

4f. To examine the relationship between job scope and students’ moral and professional ethics skill.

4g. To examine the relationship between organisational culture and students’ moral and professional ethics skill.

4h. To examine the influence of individual and organisational factors on students’ moral and professional ethics skill.

1.7 MOHE Initiatives in Improving Students’ Generic Skills

The main focus of higher education is to produce quality graduates who possess both hard and soft skills. In general, employers are satisfied with the graduates’ hard skills, but unfortunately dissatisfied with graduates’ generic skills (Singh and Singh, 2008). With regards to this issue, a Module of Soft Skills Development for Malaysian Higher Learning Institutions has been launched on August 26, 2006 by MOHE, with the aims to produce quality human capital that are presentable and able to compete up to international level. In this module, MOHE has developed a model (see Figure 1.2), which consists of three major approaches to be implemented in all public universities in Malaysia. The first approach is development of generic skills based on formal teaching and learning. This approach can be implemented through stand alone subject model or by embedding in the existing courses. The stand alone subject or known as elective courses can be taken by students in any semester such as English, Professional Ethics and others. Other than that, the implementation of generic skills can be embedded in existing courses through “course objectives, learning outcomes and teaching strategies when conducting either core subjects and co-curriculum and extra –curriculum activities” (Hazadiah et al., 2008, p. 296). The faculties for each university should be responsible to identify which courses have the most and the least generic skills
aspects. With regards to teaching strategies, lecturers should play their role by having creativity in incorporating the generic skills in teaching process. For example, lecturers need to organize class activities through case study, presentation and group discussion in promoting generic skills improvement.

**Figure 1.2:** Model for implementation of soft skills in Higher Learning Institutions (Source: MOHE, 2006)

The second approach is the development of generic skills based on support programmes. The support programmes can be divided into two which are academic and non-academic (co-curriculum) programmes. Even though the co-curriculum activities are non-academic, yet students have the opportunity to further improve their skills. For example, the interaction among the committee members will help to increase their confidence to communicate and will encourage them to respect with other committee members. The last approach is the development of generic skills based on campus life. This approach can be implemented through university residences and campus surroundings. The activities such as sports carnival, ‘gotong-royong’, residences’ day, bazaar and other activities are able to improve students’ social interaction, teamwork, and build relationship among college residents. However, there is a weakness in the implementation of this model as it may vary among faculties due to the courses offered by the respective universities. In fact, the
implementation is not restricted to the actual model, which means higher learning institutions are required to make variations and additions in the implementation aspects. These variations and additions in the module aspect may deviate from the intended objectives in improving students’ generic skills.

Other than the Module of Soft Skills Development, the Ministry of Education also has launched The National Graduate Employability Blueprint 2012-2017 on December 4, 2012 (MOHE, 2012). Among the objectives of the blueprint are to overcome prospective employers complain on generic skills deficiency among graduates and meets the employers demand as well as to reduce number of unemployment and to boost graduates marketability (MOHE, 2012). In attaining these objectives, this blueprint has come out with Employability Attributes Framework (EAF), which consists of four main Generic Students Attributes as illustrated in Figure 1.3. These main attributes are academic attributes, personality

![Figure 1.3: Employability Attributes Framework (Source: Adapted and modified from Hapidah and Mohd Sahandri Gani, 2011)](image-url)
management attributes, exploration attributes and connectivity attributes, which need to be fostered by all graduates and need to be developed throughout learning process in higher learning institutions. Based on the framework in Figure 1.3, it is recognised that all generic skills studied in this study are enclosed in the framework, indicated that these skills are the most important skills in graduates marketability.

Despites of the three approaches in the Module of Soft Skill Development, public universities required their undergraduate students to undergo industrial training. This is because of industrial training is a platform for students to improve their generic skills as well as gain working experience. On top of that, the industrial training also being included as one of the integrated approach in curriculum design by the National Graduate Employability Blueprint 2012-2017 in order to assess and improve students’ generic skills. Although MOHE has come out with several initiatives, it is still questionable to what extent the module, training and framework are effective for students to improve their generic skills. Thus, it is expected that factors such as individual and organisation may influence their generic skills. The next section discusses the foundation of industrial training and generic skills, objectives of industrial training and the importance of this training on the stakeholders; students, higher learning institutions and host organisations.

1.8 Foundation of Industrial Training and Generic Skills

Issues like demand from employers and business, combined with the rapid changes in economic and technology are served as a foundation on the emergence of generic skills term (Caleb and Udofia, 2013; Mohd Sahandri Gani and Saifuddin Kumar, 2009a; Roselina, 2009; UNESCO, 2012). With respect to these issues, higher education in 21\textsuperscript{st} century has made substantial changes by integrating generic skills in learning and teaching processes (Hazadiah et al., 2008; Muhamad Farid, 2013). These changes are identified as part of initiatives in producing graduates who are marketable. One of the popular initiatives is providing industrial training or experiential learning as part of compulsory subject for undergraduate programmes (Weligamage, 2009). According to MOHE (2006), industrial training refers to the
students’ placement in an organisation by taking part in supervised practical work in selected industries, either outside or inside the country, within a certain period of time before they are awarded certificate, diploma or degree. Although the work of experiential had begin in the late of 1940s by John Dewey (Dewey, 1938), but theorist like Kolb (1984) proposed a more validated concept as he focused on adult learning development. Based on the concept, scholars and researchers recognised industrial training as learning through experience. By undergoing the industrial training, students are able to apply theory into practical work, have real work experience, and most importantly enhance their marketability, in conjunction with generic skills improvement after the training period.

It is undeniable that industrial training serve as a platform in improving students’ generic skills due to positive outcomes were reported by previous studies (Devadason et al., 2010; Hanim and Noor Hafisah, 2010; Keneley and Jackling, 2011; Knemeyer and Murphy, 2002; Mohd Zaidi et al., 2008; Smith, 2000; Smith et al., 2007; Sulaiman et al., 2008). These studies serve a foundation to what extent generic skills can be improved through industrial training. Further discussions on these past studies were discussed in Chapter 2, Sub-sections 2.7.1, 2.8.1, 2.9.1 and 2.10.1 with the respect of four generic skills. The next sub-section highlights the objectives and goals of the implementation of industrial training in public higher learning institutions in Malaysia.

1.8.1 Objectives of industrial training

Industrial training is an important element in the formulation of curriculum for many programmes offered at the university (Callanan and Benzing, 2004; Mihail, 2006; Nor’Aini and Siti Nur Fazillah, 2013; Wasonga and Murphy, 2006). This is because many people have realized the importance of industrial training to students. It is a value-added to students' learning process (Maisarah and Raja Adzrin, 2009). In general, industrial training conducted is based on the following objectives and goals as outlined by MOHE.
1. To expose students with the real working environment;
2. to expose students with the latest technology and knowledge in the market;
3. to expose students with specific practice in respective fields of specialization;
4. to enhance students’ knowledge, skills (especially generic skills) and experiences regarding organisation;
5. to produce competent graduates;
6. to improve employment opportunities; and
7. to close the links between higher education institutions (HEIs) and industries.

Source: MOHE (2010)

In addition to the above mentioned objectives, MOHE has also listed other specific objectives of industrial training for students. From these objectives, students are able to identify and understand their roles in attending the industrial training. Specifically, industrial training aims the students to:

1. understand the responsibilities of real working environment;
2. acquire relevant practical experiences that are related to respective fields;
3. apply knowledge and skills in real working environment;
4. appreciate the value of professional ethics;
5. develop relevant generic skills that related to work environment;
6. develop communication skill;
7. assess the career ability, knowledge and self-confident;
8. develop employability of students to become more competitive;
9. inculcate and develop entrepreneurship ability through real exposure and career opportunities; and
10. build connection with professionals and industries.

Source: MOHE (2010)

MOHE industrial training’s objectives may serve as a guideline for higher learning institutions, in designing its own industrial training curriculum.
Nevertheless, the implementation of industrial training is diverse across the universities, due to these universities unique objectives that are designed to suit with their respective programmes. Even though each institution and programme has different objectives and goals, it has a common mission of implementation. The following is a summary of industrial training objectives (most highlighted) from public universities in Malaysia.

1. Provide students the opportunity to bridge the theory learned in university into practical work of a real working environment.
2. Develop students’ generic skills through interaction and experience in working with professionals.
3. To provide students with opportunities for practical, hands-on learning from practitioners in the students’ areas of specialization.
4. Increase a responsibility of students towards their job requirements.
5. Enhance students’ employability for future work career.
6. Enhance to students’ motivation on their career choice.

Source: MOHE (2010)

In achieving the above mentioned objectives of industrial training, it requires better planning and implementation from stakeholders. The reason is industrial training may not only benefit the students, but it also benefits to higher learning institutions and host organisations. The subsequent sub-section discusses the benefits of industrial training to the stakeholders.

1.8.2 Benefits of industrial training to stakeholders

Apart from learning process in the class, university students also have chances to embrace with learning process in the authentic work environment through industrial training placement. As industrial training benefits the students, it goes similar to the other two stakeholders; higher learning institutions and host organisations. Within the student’s context, industrial training provides a platform
for them to apply knowledge to the world of practical work (Paulins, 2008). By doing practical work, the students may realize the real nature of their future work and learn how to become responsible with the task given (Hurst and Good, 2010). After undergoing the training, they may able to identify their strength, weaknesses and interest regarding their practical work and future career. Consequently, it assists them to make wise career choices as they have experienced in real working environment (Mihail, 2006). On the other hand, many scholars have highlighted the benefits of industrial training in improving students’ generic skills (Craig and Oja, 2012; Knemeyer and Murphy, 2002; Maisarah and Raja Adzrin, 2009; Mihail, 2006; Mohd Zaidi et al., 2008; Nurkaliza et al., 2014; Sariwati and Mazanah, 2010; Semedo et al., 2010). This is supported by Knemeyer and Murphy (2002), where the interaction process between students and supervisor or senior employees will enhance effective communication skill. In addition, students who undergo this training have opportunity to mingle with professionals and observe how they work and make decision in accomplishing the tasks assigned. The improvement of generic skills will then increase students’ employability (Blasko, 2002; Greenbank, 2002; Mason et al., 2009; Singh et al., 2014) as they meet employer’s expectations.

Looking into higher learning institutions perspectives, industrial training also provides benefits to this stakeholder. Firstly, higher learning institutions can collaborate with host organisations in terms of sharing the latest knowledge and products through research that benefits both parties (Cord et al., 2010). Through this linkage, higher learning institutions are able to improve industrial training programme as they received feedbacks from host organisations. As mentioned by Coco (2000), other potential benefits include research funding and sponsorship for higher learning institutions activities. Secondly, higher learning institutions will receive good reputation in producing graduates who are marketable (Chi and Gursoy, 2009), results from effective industrial training. Consequently, it will reduce the number unemployed graduates.

The host organisations are benefited as well. The first benefit is the host organisations have an opportunity to identify the potential candidates to be hired (Chi and Gursoy, 2009; Sessions, 2006). As asserted by Beck and Halim (2008), industrial
training provides effective method in recruiting new employees as compared to interview session. This is because employers can assess students’ ability, knowledge and skills as well as observe their commitment to work. It is important for employers to select potential candidates because they can save their cost in sending new employees for training. The second benefit of industrial training is it helps host organisations to know the latest knowledge, techniques and concept from the students (Cook et al., 2004). By knowing these, host organisations are able to increase their performance and hit the goals. The third benefit is by having closer link with higher learning institutions. This provides a win-win situation for both parties, as host organisations may provide funding to invent new product, whereby higher learning institutions benefit to enhance their knowledge. From this investment, it will increase expectations in society of an organisation’s social responsibility (Beard, 1998; 2007; Burnett, 2003).

1.9 Conceptual Framework

In order to achieve the research objectives, a conceptual framework in Figure 1.4 is proposed and used as a guideline for this study. The foundation to develop the conceptual framework is based on the reviewed made on learning theories, training evaluation model and literatures in Chapter 2, which then aims to answer four main research questions. The theories and models provide as a guide for researcher to carry out the research, which then used to develop the conceptual framework (Imenda, 2014). In other words, the conceptual framework is developed based on several concepts from theories or models which then integrated together in order to explain and predict one phenomena. The conceptual framework attempts to analyze comprehensively the relationship between independent variables and dependent variables within industrial training context.
This study utilised learning theories and training evaluation model by Kirkpatrick (1994) as a guide to develop the conceptual framework. In fact, the theories and model serve holistic discussions on how the variables (mainly independent and dependent variables) were selected. Both factors provides an indicator on how learning occurred (from Level 2 of learning to Level 3 of behaviour) in the Kirkpatrick model which then finally result to effective training (Bates and Coyne, 2005). In fact, the learning theories which comprises of behaviourism, cognitivism and constructivism highlighted that factors such as behaviour and environment influence the learning outcomes including generic skills improvement. Therefore, it is assumed that both individual and organisational factors have become the influential factor on students’ generic skills improvement after they completed the industrial training. However, less attention has been paid with regards to the influence of both factors on generic skills improvement mainly in the context of industrial training. As generic skills deficiency issue keeps on growing in workplace setting, higher education is responsible to provide graduates with appropriate skill, and thereby taken an initiative by sending them to industrial training. The understanding on generic skills in this study are taken from model of transactional communication (Barnlund, 1970; DeVito, 2007; Tubbs and Moss, 1983), model of understanding teamwork (Reeves et al., 2010), model of critical thinking and problem solving skill (Haller et al., 2007) and model of ethical decision making in organisations (Trevino, 1986). Apart from these models, Herzberg’s Motivation-Hygiene Theory and Full Range Leadership Model (FRLM) are utilised.
in understanding the concept of motivation and leadership styles. Beside, Hofstede theory is adopted to grasp the concept of organisational culture in training organisation. Detail explanations regarding the conceptual framework are discussed in Chapter 2.

In order to respond on research questions in examining the influence of individual and organisational factors on students’ generic skills improvement within industrial training context, generic skills is assigned as dependent variables and both factors as the independent variable. Specifically, individual factors refer to two main aspects; students’ demographic (consist of gender, ethnicity, field of study and academic performance) and students’ motivation (include of intrinsic and extrinsic motivation). Organisational factors, on the other hand, will be divided into five main aspects. Firstly, supervisors’ demographic (consist of gender, ethnicity, working position and working experience), secondly, organisational demographic (consist of types of sectors, type of industries and organisational size) and thirdly, supervisors’ leadership styles. The other two aspects under organisational factor are job scope and organisational culture (individualism versus collectivism and power distance) where students undergo their training.

1.10 Significance of Research

The findings of this study could provide significant implications in three aspects of theoretical, practical and empirical. The details of these implications with several recommendations will be elaborated in Section 5.7. Briefly, the findings of this study contributes theoretically to learning theories and training evaluation model by Kirkpatrick (1994) that being used, mainly in the relevance to industrial training context and generic skills. The findings of this study validate and support the notion made by the theorists such as Tubbs and Moss (1983) and Trevino (1986) which suit within the industrial training context. Practically, the findings of this study benefit industrial training stakeholders (students, higher learning institutions and host organisations). Findings on generic skills assist stakeholders to identify the loopholes (for example, identify tasks that suit with their field of study) if any, that can help to
improve industrial training and become indicator to what extent the industrial training is able to improve students’ generic skills. For example, the stakeholders are able to identify what are the individual and organisational factors that influence students’ generic skills. By knowing these factors, it may help students and higher learning institutions to select appropriate industrial training placement. Meanwhile, host organisations mainly supervisors are able to improve in terms of their supervision as they know factors that influence students’ generic skills. It is important for higher learning institutions and host organisations to provide better planning because students must clearly understand the objectives of training in order to integrate theory and practice in a real workplace setting.

When looking into the empirical implications, this study contributes largely to the body of knowledge and reduces the literature gap in education and industrial training in Malaysia. The investigation of individual and organisational factors with relation to industrial training will result in a number of recommendations for establishing effective training which later able to improve students’ generic skills. These recommendations will assist industrial training stakeholders in order to minimize the gaps between students’ and employers’ expectation regarding generic skills, mostly in public universities in Malaysia. Additionally, this study is also important as it examines the generic skills in different field of study which are social science, science and engineering. Most of past studies only focused in specific field such as accounting and human resources. Thus, the findings will contribute mostly to social science, science and engineering bodies on how far these students benefited from industrial training, particularly in generic skills. In fact, the findings assist future employers by having view on what are future employees from these three fields of study looks alike.

On the other hand, most of past studies (Abdul Malek et al., 2012; Ahern et al., 2012; Beck and Halim, 2008; Devadason et al., 2010; Fadzilah Akmal et al., 2012; Keneley and Jackling, 2011; Knemeyer and Murphy, 2002; Latisha Asmaak and Surina, 2010; Mihail, 2006; Panagiotakopoulos, 2012; Sugahara et al., 2010) investigate students’ generic skills with relation to industrial training by using cross sectional approach. In attaining more comprehensive results, this study extends prior
studies by implementing pre- and post-industrial training approaches. Even though studies have been using pre and post approaches (Craig and Oja, 2012; Dellaportas et al., 2006; Mohd Zaidi et al., 2008) generic skills have been limited to certain skills such as communication skill. The present study not only used the pre and post approaches, but also looks into four generic skills; communication, teamwork, critical thinking and problem solving, and lastly moral and professional ethics. In addition, the present study is the extension from the previous study as is takes into account the influence of industrial training on those skills. Besides, this study further investigates whether individual factors (consist of students’ demographic and motivation) and organisational factors (consist of supervisors’ demographic, organisational demographic, supervisors’ leadership styles, job scope and organisational culture) have influence on students’ generic skills. As these factors being included in the present study, it will assist to reduce the literature gaps mostly in generic skills and industrial training areas.

1.11 Research Scope

This study focused on students’ generic skills improvement after undergoing an industrial training. It also focused on the influence of individual and organisational factors on students’ generic skills. The respondents of this study were undergraduate students who enrolled in social science (such as accounting, management and business, economics and others social science programmes), science (such as chemistry, biology, mathematics and others science programmes) and engineering (such as civil, electrical, mechanical and other engineering programmes). Students in these three fields of study were selected from public universities in Malaysia. The researcher developed two sets of questionnaires in order to capture data on students’ generic skills. As this study used pre and post approaches, the survey was conducted in two phase; pre- and post-industrial training. Thus, to ensure the validity of this study, similar students were used in both phases.
1.12 Conceptual and Operational Definitions

The followings are basic definition of terms which are frequently used throughout the thesis. Conceptual definition explains the terms in general, while operational definition describes the terms accordingly to suit with the context of the present study.

(a) Generic skills

Generic skills refer to “skills, qualities and traits that an individual has to master in order to succeed in their studies and career” (Mohd Sahandri Gani and Saifuddin Kumar, 2009a, p. 684). These skills are transferable (Kelly, 2001; Yorke, 2004), teachable (Pool and Sewell, 2007; Washer, 2007; Zinser, 2003) and important in securing a job (Robinson, 2000) for university graduates. The generic skills can be interchangeably used with other terms; employability skills; soft skills; key skills; and core skills (Dacko, 2008; Mohd Sahandri Gani and Saifuddin Kumar, 2009a; 2009b; Sulaiman et al., 2008; Yorke, 2004). However, the terms generic will be used throughout this study. In the context of this study, generic skills are mainly referred to four skills; communication, teamwork, critical thinking and problem solving, and finally moral and professional ethics.

(b) Communication skill

Communication can be defined as a process of sending information whereby both sender and receiver understand the meaning of what have been communicated (Keyton, 2011). Meanwhile, communication can be defined as a process where ‘sender’ transmits the message to ‘receiver’ through a right channel, and then the receiver give feedback on the message received, with both sender and receiver able to differentiate and aware of the communication context and try to minimize the interference or noise when the communication process takes place (Tubbs and Moss, 1983). According to Malaysian Higher Education, communication skill involves effective communication both in Malay and English languages which include different individual and different context of communication (MOHE, 2006). Specifically, it refers to students’ abilities to present ideas clearly, practice active listening and provide feedback (MOHE, 2006). It also includes abilities to
communicate with individuals from different cultures and possesses non-verbal skill in communication. In the context of this study, communication skill refers to how competent students’ interaction in different situations or contexts, sensitivity into cultural, and ability to deliver and receive accurate messages.

(c) **Teamwork skill**

A team can be defined as two or more people working together in order to accomplish common goals (Cohen and Bailey, 1997; Harris and Harris, 1996). Besides, teamwork can be defined as a “cooperative process that allows ordinary people to achieve extraordinary results” (Scarnati, 2001, p.5). Meanwhile, O’Neil et al. (1997) defined effective teamwork when team members adopt six categories of skills in teamwork, which are adaptability, communication, coordination, decision making, leadership, and interpersonal skills. According to Malaysian Higher Education, teamwork skill involves an ability to work with others from different socio-cultural background in achieving the same goals (MOHE, 2006). Specifically, it refers to ability to build good relationship, interact with others, understand and respect other team members, and able to exchange roles (MOHE, 2006). In the context of this study, teamwork skill refers to students’ ability to work cooperatively, adapt and respond effectively, build good relationship and communicate closely in understanding other team members.

(d) **Critical thinking and problem solving skill**

Critical thinking refers to an ability to analyze information, to determine the relevance of information gathered and then to interpret it in solving the problems (Ennis, 1989; Gagné, 1988). According to Jeevanantham (2005), critical thinking in solving the problems requires high-level thinking: involves the process of analysis, evaluation, reasonableness and reflection. In addition, critical thinking and problem solving skill involves students’ critical, creative, innovative and analytical thinking abilities as well as ability to understand and apply knowledge into new perspective (MOHE, 2006). In detail, it refers to ability to solve problems; by identifying, analyzing, making justification based on actual fact and finding other alternatives (MOHE, 2006). In this study, critical thinking and problem solving skill is related to students’ ability to solve problems creatively by remembering previous knowledge,
understanding the knowledge, applying the knowledge in new ways, analyzing the concept into several alternatives and evaluating pro and cons of all alternatives before making any decisions.

(e) **Moral and professional ethics skill**

Morals are concerned with the principles of right and wrong behaviour, while ethical is defined as moral principle of an individual or a group (Hornby, 1989). Besides, ethics can also be defined as moral behaviour standards which the groups refer it as right or wrong behaviour (Nickels *et al.*, 2008). Moral and professional ethics skill involves students’ inclination to apply ethical principles and professional ethics which includes awareness towards society, culture and the environment (MOHE, 2006). Moral and professional ethics skill also specifically related to ability to understand the effect of ethical principles on economy, environmental and socio cultural, as well as ability to make decision ethically (MOHE, 2006). In this study, moral and professional ethics skill referred to students’ ethical principle, moral awareness, intention and behaviour when dealing with ethical dilemma or situation. The terms moral and ethical can be used interchangeably as the two concepts are closely related (Khalidah *et al.*, 2010; Kidder, 2005).

(f) **Industrial training**

Industrial training refers to the students’ placement in an organisation by taking part in supervised practical work in selected industries, either outside or inside the country, within a certain period of time before they are awarded certificate, diploma or degree (MOHE, 2006). In the context of this study, industrial training is a component of the social science, science and engineering undergraduate programmes in public universities in Malaysia and act as context of this study. Students either return to their respective universities to complete the education programme or graduate on the completion of the industrial training.

(g) **Individual factors**

According to Gilbert (2007), individual factors are one of the factors that can impact organisational performance, which also include skills development. On top of that, Kirkpatrick’s training evaluation model (1998) proposed that factors such as
individual characteristics and motivation have influenced learning. Similarly, there are numbers of researchers claimed that factors such as individual characteristics, organisational, work environment, training design and delivery can influence training effectiveness throughout the training period (Aguinis and Kraiger, 2009; Bates et al., 2000; Cannon-Bowers et al., 1995; Ford and Kraiger, 1995; Homklin, 2014; Salas and Cannon-Bowers, 2001; Tannenbaum and Yukl, 1992; Tracey et al., 1995). Thus, in this study, individual factors refer to students’ demographic and their motivation. The students’ demographic include factor of gender, ethnicity, field of study and academic performance. By following Herzberg’s theory (1974), students’ motivation includes two types of motivation namely; intrinsic and extrinsic motivation.

(h) Organisational factors

Other factor that impact organisational performance is work environment (Gilbert, 2007) which refer to organisational factors. Similar to individual factors, Kirkpatrick (1998) and Baldwin and Ford (1988) also suggest that throughout the learning process, factors such as direct supervisor, training design and delivery as well as work environment might influenced on the training outcomes. Therefore, in this study, organisational factors refer to supervisors’ demographic, organisational demographic, supervisors’ leadership styles, job scope and organisational culture. More specifically, supervisors demographic includes factor of gender, ethnicity, working position and experience. Meanwhile, the organisational demographic consists types of sectors, types of companies and organisational size factors. In supervisors’ leadership styles, it refers to transformation, transactional and laissez-faire styles which follow the Full Range Leadership Model by Bass (1985). Using Hofstede cultural dimensions (1984), the organisational culture refers to individualism versus collectivism and power distance dimensions.

1.13 Outline of the Thesis

The thesis starts with Chapter 1 by introducing research background on generic skills and overview of Malaysian education. Subsequently, the chapter identifies research problem and clarifies the research objectives. It then continues
with initiatives taken by MOHE in improving students’ generic skills and briefly reviews on the foundation of industrial training and generic skills. The chapter continues with justification of its contribution and describing the research scope. The following section proposes a conceptual framework and defines conceptual and operational definitions. Chapter 2 then reviews relevant learning theories and training evaluation model. The chapter also discusses past studies in relation to generic skills and proposes the hypotheses. Chapter 3 explains methods used in this study. Chapter 4 then analyses and reports the findings of four generic skills improvement in this study. Finally, Chapter 5 discusses the findings of this study and provides a few implications and recommendations for future research.

1.14 Summary

This chapter provides an insight for the study by introducing the research background, the research problem and clarifies the objectives of research. This chapter also highlights the MOHE initiatives in improving students’ generic skills and outlines the foundation of industrial training and generic skills. The chapter also highlights significance and scope of the study and delineates conceptual and operational definitions of this study. In short, this study aims to examine students’ generic skills after undergoing industrial training. It further aims to examine the influence of individual and organisational factors on university students’ generic skills. Next, Chapter 2 will discuss learning theories and training evaluation model, as well as past literatures that relevant to this study.
REFERENCES


Abdul Rahim Zumrah (2012). The Influence of Perceived Organizational Support on Transfer of Training and the Consequences of Transfer of Training on Service Quality and Job Satisfaction: A Malaysian Public Sector Context. Doctor Philosophy, University of South Australia, Australia.


Azmi Ahmad (2011). *Effectiveness of Learning Transfer in National Dual Training System (NDTS)*. Doctor Philosophy, Universiti Tun Hussein Onn, Batu Pahat and University of Bremen, Germany.


Pacific Conference. 27-31 March. Hong Kong Special Administrative Region, 1-16.


Hanim Sulaiman and Noor Hafisah Sapuan (2010). Kemahiran Generik yang diperoleh Pelajar Sarjana Muda Teknologi serta Pendidikan (Kemahiran Hidup) PKPG semasa Menjalani Latihan Industri. Universiti Teknologi Malaysia.


Koo, Y. L., Pang, V. and Fadhil Mansur (2009). Employer Perceptions on Graduate Literacies in Higher Education in Relation to the Workplace. *In English for


Nurazzura Mohamad Diah, Khairulanuar Abd Rahman, Sohela Mustari and Noor Syafika Ramli (2014). Internship in Sociology: A New Dimension of


