Effectiveness of entrepreneurship education in developing entrepreneurial intentions among Malaysian university students

Parimala Rengiah
Southern Cross University

Publication details
Rengiah, P 2013, 'Effectiveness of entrepreneurship education in developing entrepreneurial intentions among Malaysian university students', DBA thesis, Southern Cross University, Lismore, NSW.
Copyright P Rengiah 2013
Effectiveness of Entrepreneurship Education in Developing Entrepreneurial Intentions among Malaysian University Students

PARIMALA RENGIAH

A research thesis submitted to the Graduate College of Management, Southern Cross University, Australia, in partial fulfilment of the requirements for the degree of Doctor of Business Administration

Date: 30 May 2013
Statement of Original Authorship

I certify that the substance of this thesis has not currently been submitted for any degree and has not previously being submitted for any other degree.

I acknowledge that I have read and understood the University’s rules, requirements, procedures and policy relating to my thesis.

I also certify that to the best of my knowledge any help received in preparing this thesis and all sources used have been acknowledged in this thesis.

Parimala Rengiah.

Date: 10 December 2011.
Acknowledgements

I wish to express my gratitude and thanks to several people who helped me to make this Doctorate in Business Administration possible.

I would like to thank my supervisor, Dr. Ilham Sentosa, for showing me great encouragement and guidance in the completion of my thesis.

My gratitude also is extended to the DBA administration team of City International University, Malaysia, for their invaluable guidance and support. I also extend my gratitude to Prof. Dr. A. Selvanathan who was my interim supervisor and Director for the program and the staff at Southern Cross University who made my research a wonderful experience.

I extend my special thanks to the students, staff and management of the Universities that have participated in the questionnaire survey.

Finally, to my family and friends who remained very supportive of my endeavours.
Abstract

Malaysia being a developing nation has a high rate of unemployment among the young graduates emerging from the universities. This issue has triggered the Malaysian government’s efforts to transform the country into a knowledge-based economy, where ‘entrepreneur’ was defined as one of the key elements. One of the challenges faced by the government is how to change the minds of students to venture into business than seeking jobs.

This study examines the effectiveness of entrepreneurship education in developing entrepreneurial intentions among the Malaysian university students. The probing into the literature of concepts and conceptualisations of the theories permitted a theoretical framework that identified the research issues and the research gap.

The research design was based on a hypothetical framework, the independent variable of entrepreneurship education, including entrepreneurship curricula, teaching methodologies and universities roles in promoting entrepreneurship, to test the dependent variable of entrepreneurial intentions. Attitude and stakeholder support system factors acted as mediating variables. This led to the development of three research issues as follows:

Research Issue 1: What are the educational factors that determine entrepreneurial intentions among Malaysian university students?

Research Issue 2: What are the attitude factors determine entrepreneurial intentions among Malaysian university students?

Research Issue 3: What are the stakeholder support system factors determine entrepreneurial intentions among Malaysian university students?

Five hypotheses were developed namely; entrepreneurship curricula, teaching methodologies, universities roles, and attitude and stakeholder support system factors to test the entrepreneurial intentions of the Malaysian university students. The quantitative methodology included a stratified sample from the final year students studying entrepreneurship as a subject from four entrepreneurial-focused universities.
A preliminary survey questionnaire was developed and pre-tested with two Malaysian universities to validate the variables and to ascertain that the questionnaire was in accordance with the required responses. Final questionnaires were distributed to students in the four universities through face to face and drop off and pick up method. The response rate was 396 (66%) usable questionnaires for subsequent data analysis.

The data collected was analysed through SPSS version 14.0 and Structural Equation Modelling techniques using AMOS version 16.0. Descriptive statistics was used for demographic characteristics and confirmatory factor analysis through AMOS 16.0, to test the goodness-fit-of the model and the hypotheses developed for the study. The proposed model was modified which contributed to the theory and the development of new variables of ‘attitude towards goals’ and ‘family roles’ in the study. Three of the hypotheses H3, H4 and H5 were accepted, H2 was rejected and H1 was partially accepted.

The findings of this research extended to the body of knowledge on entrepreneurship education in the Malaysian universities. It also proposed recommendations and suggestions for further research in exploring entrepreneurship education and entrepreneurial intentions as necessary and appropriate.

**Key words**

Entrepreneurship, entrepreneurship education, entrepreneurship curricula, teaching methodologies, universities roles, attitude, stakeholder support systems, entrepreneurial intentions, attitude towards goals, family roles and Structural Equation Modelling.
List of Abbreviations

ADB  Asian Development Bank
ADFD  Asymptotic Distribution Free
AGFI  Adjusted Goodness Fit Index
AMOS  Analysis of Movement Structure
AVE  Average Variance Extracted
B.ENT  Bachelor of Entrepreneurship
BCIC  Bumiputra Commercial Industry Community
CFA  Confirmatory Factor Analysis
CMIN  Chi-square
CMIN/DF  Chi-square/Degrees of Freedom
CR  Composite Reliability
DF  Degrees of Freedom
ENTINT  Entrepreneurial Intention
GDP  Gross Domestic Product
GEM  Global Entrepreneurship Monitor
GFI  Goodness Fit Index
GLS  Generalised Least Squares
HREC  Human Research Ethics Committee
IT  Information Technology
MANOVA  Multivariate Analysis of Variance
MARA  Majlis Amanah Rakyat
MECD  Ministry of Entrepreneurship and Co-operative Development
MIMOS  Malaysian Institute of Microelectronic Systems
MLI  Maximum Likelihood Index
MOHE  Ministry of Higher Education
MP  Malaysia Plan
MTDC  Malaysia Technology Development Corporation
MYKE  Malaysia Knowledge Intent
NDP  New Development Policy
NEM  New Economic Model
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEP</td>
<td>New Economic Policy</td>
</tr>
<tr>
<td>NVP</td>
<td>New Vision Policy</td>
</tr>
<tr>
<td>OPP</td>
<td>Outline Perspective Plan</td>
</tr>
<tr>
<td>P VALUE</td>
<td>Probability Value</td>
</tr>
<tr>
<td>PGFI</td>
<td>Parsimonious Goodness of Fit Index</td>
</tr>
<tr>
<td>PUNB</td>
<td>Pelaburan Usahawan Nasional Berhad</td>
</tr>
<tr>
<td>RIDA</td>
<td>Rural and Industrial Development Authority</td>
</tr>
<tr>
<td>RMSEA</td>
<td>Root Mean Square Error of Approximation</td>
</tr>
<tr>
<td>SEDC</td>
<td>State Economic Development Authority</td>
</tr>
<tr>
<td>SEM</td>
<td>Structural Equation Modelling</td>
</tr>
<tr>
<td>SMC</td>
<td>Square Multiple Correlation</td>
</tr>
<tr>
<td>SME</td>
<td>Small Medium Enterprises</td>
</tr>
<tr>
<td>SMI</td>
<td>Small Medium Industries</td>
</tr>
<tr>
<td>SMIDEC</td>
<td>Small Medium Industries Development Corporation</td>
</tr>
<tr>
<td>SPSS</td>
<td>Statistical Package for Social Science</td>
</tr>
<tr>
<td>TEKUN</td>
<td>Tabung Ekonomi Usahawan Negara</td>
</tr>
<tr>
<td>UDA</td>
<td>Urban Development Authority</td>
</tr>
<tr>
<td>Uitm</td>
<td>Universiti Institute of Teknology Mara</td>
</tr>
<tr>
<td>UKM</td>
<td>Universiti Kebangsaan Malaysia</td>
</tr>
<tr>
<td>UNIKL</td>
<td>Universiti Kuala Lumpur</td>
</tr>
<tr>
<td>UNITAR</td>
<td>Universiti Tun Abdul Razak</td>
</tr>
<tr>
<td>UPM</td>
<td>Universiti Putra Malaysia</td>
</tr>
<tr>
<td>UK</td>
<td>United Kingdom</td>
</tr>
<tr>
<td>USA</td>
<td>United States of America</td>
</tr>
<tr>
<td>USM</td>
<td>Universiti Sains Malaysia</td>
</tr>
<tr>
<td>UTM</td>
<td>Universiti Teknologi Malaysia</td>
</tr>
<tr>
<td>UUM</td>
<td>Universiti Utara Malaysia</td>
</tr>
<tr>
<td>VE</td>
<td>Variance Extracted</td>
</tr>
</tbody>
</table>
Table of Contents

DECLARATION..................................................................................................................i
ACKNOWLEDGEMENTS...................................................................................................ii
ABSTRACT.......................................................................................................................iii
ABBREVIATIONS..............................................................................................................v
TABLE OF CONTENTS......................................................................................................vii
LIST OF FIGURES...........................................................................................................xiv
LIST OF TABLES............................................................................................................xvii
LIST OF APPENDICES.................................................................................................xx

CHAPTER 1: INTRODUCTION.............................................................................................1
1.1 Introduction to the Research Topic..............................................................................1
1.2 Background to the Problem........................................................................................3
   1.2.1 Significance of the research................................................................................4
   1.2.2 Author's interest in conducting the research......................................................4
1.3 Research Problem, Theoretical Framework and Hypotheses Development..............4
   1.3.1 Research Problem..............................................................................................4
   1.3.2 Theoretical Framework....................................................................................7
   1.3.3 Research Hypotheses.......................................................................................8
1.4 Justification for the Research...................................................................................10
1.5 Research Methodology...............................................................................................12
   1.5.1 Literature Review............................................................................................12
   1.5.2 Research Design.............................................................................................12
   1.5.3 Data Analysis................................................................................................13
1.6 Operational Definitions of the Key Terms................................................................13
1.7 Outline of the Thesis................................................................................................17
1.8 Limitations of the Research...........................................................................................................18
1.9 Summary.......................................................................................................................................19

CHAPTER 2: LITERATURE REVIEW.................................................................................................21
2.1 Introduction...................................................................................................................................21
2.2 The Country Context.....................................................................................................................24
  2.2.1 Significant Developments in the Malaysian Economy.........................................................24
  2.2.2 The New Economic Policy....................................................................................................25
  2.2.3 The New Development Policy...............................................................................................26
  2.2.4 The National Vision Policy...................................................................................................27
  2.2.5 The New Economic Model.....................................................................................................29
  2.2.6 Evolution of Malaysian Universities and Linkages to Entrepreneurship Education................32
2.3 Definitions and Theories of Entrepreneurship.............................................................................33
  2.3.1 Defining Entrepreneurship....................................................................................................33
  2.3.2 The Preferred Definition.........................................................................................................34
  2.3.3 Entrepreneurship Theories and Models................................................................................37
  2.3.4 Development of Entrepreneurship History...........................................................................44
  2.3.5 Perspectives of Entrepreneurship..........................................................................................46
2.4 Entrepreneurship Education.........................................................................................................49
  2.4.1 Definition of Entrepreneurship Education and its Chronology...........................................49
  2.4.2 Entrepreneurship Education Research and Models...............................................................49
2.5 Entrepreneurial Intentions.............................................................................................................57
  2.5.1 Definition and Theories of Entrepreneurial Intentions.........................................................57
  2.5.2 Entrepreneurial Intentions and Entrepreneurship Education..............................................61
  2.5.3 The Appropriate Theoretical Model for this Research.........................................................62
2.6 Entrepreneurship in Malaysia......................................................................................................63
  2.6.1 Historical Development of Entrepreneurship.................................................................63
  2.6.2 Socio-economic Development...............................................................................................64
2.7 Significant Development, Government Policies and Situation Analysis..................66
  2.7.1 Significant Development of Entrepreneurship...........................................66
  2.7.2 Government Policies Support of Entrepreneurship..................................68
  2.7.3 Situation Analysis ..................................................................................70
2.8 Entrepreneurship Education in Malaysian Universities..................................71
  2.8.1 Perspectives of Entrepreneurship Education.............................................71
  2.8.2 The Development of Academic Entrepreneurship.....................................74
  2.8.3 Demographic Characteristics of Students in the Malaysian Universities........78
2.9 Malaysian Entrepreneurial Intentions............................................................83
  2.9.1 Entrepreneurship Intentions through Entrepreneurship Education...............83
  2.9.2 Entrepreneurial Intentions among Malaysian University Students...............84
2.10 Identification of Research Issues and Gap..................................................86
  2.10.1 Hypotheses Development......................................................................88
2.11 Summary.....................................................................................................95

CHAPTER 3: RESEARCH METHODOLOGY..........................................................96
3.1 Introduction...................................................................................................96
3.2 Methodical Approaches................................................................................98
  3.2.1 Research Paradigms................................................................................101
  3.2.2 Justification of the Paradigm....................................................................104
3.3 Research Methods........................................................................................105
  3.3.1 Types of Research....................................................................................105
  3.3.2 Justification of the Research Type...............................................................106
  3.3.3 Research Methodology...............................................................................107
  3.3.4 Justification of the Quantitative Research Method.....................................109
  3.3.5 Research Propositions and Hypotheses Development...............................111
3.4 Data Collection.............................................................................................116
  3.4.1 Primary Data Collection...........................................................................116
  3.4.2 Secondary Data Collection.......................................................................117
3.4.3 Research Design ........................................................................................................... 118
3.4.4 Justification of the Questionnaire Survey Method ....................................................... 120
3.4.5 Types of Survey Administration Methods ..................................................................... 120
3.4.6 Justification for Personally Administered Questionnaires and Drop-off and Pick-up Survey .................................................................................................................. 123

3.5 Data Collection Tools .................................................................................................... 124
3.5.1 Survey Techniques ........................................................................................................ 124
3.5.2 Survey Questionnaire .................................................................................................... 125
3.5.3 Sampling Design .......................................................................................................... 135
3.5.4 Justification of the Chosen Sampling Method ............................................................... 144
3.5.5 Pre-testing the Questionnaires ..................................................................................... 145

3.6 Quality of Data ................................................................................................................. 146
3.6.1 Reliability ..................................................................................................................... 147
3.6.2 Validity ......................................................................................................................... 148

3.7 Data Analysis .................................................................................................................... 150
3.7.1 Descriptive Data Analysis ........................................................................................... 150
3.7.2 Inferential Data Analysis ............................................................................................. 150

3.8 Ethical Considerations ..................................................................................................... 152

3.9 Summary .......................................................................................................................... 153

CHAPTER 4: DATA ANALYSIS ............................................................................................ 154
4.1 Introduction ....................................................................................................................... 154

4.2 Preliminary Data Examination ........................................................................................ 156
4.2.1 Non-response Rate ....................................................................................................... 156
4.2.2 Dealing with Missing Responses ................................................................................ 156
4.2.3 Data Cleaning and Screening ..................................................................................... 157
4.2.4 Outliers ....................................................................................................................... 157
4.2.5 Normality .................................................................................................................... 158

4.3 Profile of respondents ..................................................................................................... 158
4.3.1 Profile of Respondents from Sample.................................................................159
4.3.2 Analysis using Descriptive Statistics...............................................................159

4.4 Structural Equation Modelling...........................................................................167
4.4.1 Structural Equation Modelling Technique.........................................................167
4.4.2 Model Construction..........................................................................................169
4.4.3 Model Estimation..............................................................................................171
4.4.4 Goodness-of-fit Statistics..................................................................................174

4.5 Homogeneity Testing of Factors.........................................................................176
4.5.1 Reliability Analysis..........................................................................................176
4.5.2 Validity Analysis..............................................................................................178

4.6 Data Analysis using Confirmatory Factor Analysis.............................................179
4.6.1 Evaluation of the CFA Model............................................................................181
4.6.2 CFA 1st order Analysis and Goodness-of-fit Results........................................181
4.6.3 CFA 2nd order Analysis and Goodness-of-fit Results.......................................190
4.6.4 Generated Model............................................................................................194
4.6.5 Re-specified Model.........................................................................................196
4.6.6 Second Re-specified Model.............................................................................199
4.6.7 Competing Model...........................................................................................201

4.7 Hypotheses Testing Results................................................................................203
4.7.1 Goodness-of-fit Indices....................................................................................203
4.7.2 Path Analysis (Direct and Indirect effects).......................................................205
4.7.3 Analysis of the Hypotheses..............................................................................212
4.7.4 Composite Reliability and Discriminant Validity.............................................213
4.7.5 Fundamental Contribution of Entrepreneurship education, Attitude towards
goals, Family roles and Entrepreneurial intentions..............................................214

4.8 Summary..............................................................................................................218

CHAPTER 5 CONCLUSION AND FINDINGS...............................................................221
5.1 Introduction..........................................................................................................221
5.2 Discussion of Data Analysis

5.2.1 The Mediating Effect of Attitude towards goals in the Relationship between Entrepreneurship education and Entrepreneurial intentions

5.2.2 The Mediating Effect of Family roles in the Relationship between Entrepreneurship education and Entrepreneurial intentions

5.2.3 The Interaction Effect of Attitude towards goals and Family roles in the relationship between Entrepreneurship education and Entrepreneurial intentions

5.3 Implications for Theory and Practice

5.3.1 The Mediating Effect of Attitude towards goals in the Relationship of Entrepreneurship education and Entrepreneurial intentions

5.3.2 The Mediating Effect of Family roles in the Relationship of Entrepreneurship education and Entrepreneurial intentions

5.3.3 The Interaction of Attitude towards goals and Family roles in the relationship of entrepreneurship education and entrepreneurial intentions

5.4 Contributions of the Study

5.4.1 Theoretical Contributions

5.4.2 Methodical Contributions

5.4.3 Practical Contributions

5.5 Recommendations

5.5.1 Entrepreneurship Programs

5.5.2 Teaching Methods and Pedagogies

5.5.3 Role of the Malaysian Universities

5.5.4 Attitude of Students towards Entrepreneurship

5.5.5 Role of the Malaysian Government

5.5.6 Small Medium Enterprises

5.5.7 Role of the Malaysian Financial Institutions

5.5.8 Parents and Extended Family Members
5.5.9 Other Recommendations.................................................................239

5.6 Recommendations Based on the Findings of the Literature Review........240

5.7 Limitations of the Study........................................................................241

5.8 Suggestions of Further Research..........................................................242

5.9 Summary..............................................................................................244
# List of Figures

## Chapter 1: Introduction

<table>
<thead>
<tr>
<th>Figure</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Outline of Chapter One</td>
<td>2</td>
</tr>
<tr>
<td>1.2</td>
<td>Hypothetical Model</td>
<td>8</td>
</tr>
<tr>
<td>1.3</td>
<td>Outline of the Thesis</td>
<td>18</td>
</tr>
<tr>
<td>1.4</td>
<td>Proposed Hypothesised Research Model</td>
<td>20</td>
</tr>
</tbody>
</table>

## Chapter 2: Literature Review

<table>
<thead>
<tr>
<th>Figure</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td>Conceptual Framework for the Literature Review</td>
<td>22</td>
</tr>
<tr>
<td>2.2</td>
<td>Outline of Chapter Two</td>
<td>23</td>
</tr>
<tr>
<td>2.3</td>
<td>Goals and Characteristics of New Economic Model</td>
<td>30</td>
</tr>
<tr>
<td>2.4</td>
<td>Theory of Planned Behaviour</td>
<td>39</td>
</tr>
<tr>
<td>2.5</td>
<td>Theory of Achievement</td>
<td>40</td>
</tr>
<tr>
<td>2.6</td>
<td>Theory of Social Cognition</td>
<td>41</td>
</tr>
<tr>
<td>2.7</td>
<td>Social Learning theory</td>
<td>42</td>
</tr>
<tr>
<td>2.8</td>
<td>Personality Traits model</td>
<td>43</td>
</tr>
<tr>
<td>2.9</td>
<td>Timeline of the Development of Entrepreneurship History</td>
<td>45</td>
</tr>
<tr>
<td>2.10</td>
<td>Teaching Model of Entrepreneurship Education</td>
<td>50</td>
</tr>
<tr>
<td>2.11</td>
<td>Entrepreneurship Education: A Review</td>
<td>51</td>
</tr>
<tr>
<td>2.12</td>
<td>The Entrepreneurial Process: Behaviours, Skills and Attributes</td>
<td>52</td>
</tr>
<tr>
<td>2.13</td>
<td>Conventional View of Entrepreneurship Business Planning Education</td>
<td>54</td>
</tr>
<tr>
<td>2.14</td>
<td>The Undergraduates – SME Partnership Model</td>
<td>55</td>
</tr>
<tr>
<td>2.15</td>
<td>Hypothetical Model of the Relationship between Educational Background and Entrepreneurial Intentions</td>
<td>58</td>
</tr>
</tbody>
</table>
Chapter 3 : Research Methodology

Figure 3.1 Outline of Chapter Three 97
Figure 3.2 Quantitative Research Approach 110
Figure 3.3 Proposed Hypothesised Research Model 115
Figure 3.4 Research Master Plan 116
Figure 3.5 Data Collection Techniques 125
Figure 3.6 Seven-point Likert scale 128

Chapter 4 : Data Analysis

Figure 4.1 Outline of Chapter Four 155
Figure 4.2.1 Program Study
Figure 4.2.2 Program Choice
Figure 4.2.3 Family History of Entrepreneurship
Figure 4.2.4 Student’s Interest in Entrepreneurship
Figure 4.2.5 Increased Interest in Entrepreneurship
Figure 4.2.6 Motivation in Entrepreneurship
Figure 4.2.7 Increase in Skills
Figure 4.3 Hypothesised CFA Model
Figure 4.4.1 (a) and (b) CFA 1st order (Curricula)
Figure 4.4.2 (a) and (b) CFA 1st order (Teaching methodologies)
Figure 4.4.3 (a) and (b) CFA 1st order (Universities roles)
Figure 4.4.4 (a) and (b) CFA 1st order (Entrepreneurial intentions)
Figure 4.5.1 CFA 2nd order (Attitude)
Figure 4.5.2 CFA 2nd order (Stakeholder support systems)
Figure 4.6 Generated Model
Figure 4.7 Re-specified Model
Figure 4.8 Second Re-specified Model
Figure 4.9 Competing Model

Chapter 5: Conclusion and Findings

Figure 5.1 Outline of Chapter Five
Figure 5.2 Proposed New Model for Further Study
List of Tables

Chapter 1: Literature Review

Table 1.1 List of Research Issues and Hypotheses 6
Table 1.2 Summary of the Hypotheses 9
Table 1.2 Graduate Unemployment in Malaysia According to Ethnicity 11
Table 1.3 Operational Definitions 14

Chapter 2: Literature Review

Table 2.1 Market Value of Bumiputra Equity 26
Table 2.2 Development History of Malaysia 27
Table 2.3 Definitions of ‘Entrepreneurship’ by Past Researchers 35
Table 2.4 Synthetic View of Entrepreneurial Research 37
Table 2.5 Different Schools of Thought in Entrepreneurship 38
Table 2.6 Perspectives of Entrepreneurship 46
Table 2.7 Status of SMEs in Malaysia 2005 67
Table 2.8 Growth SMEs in Malaysia’s Manufacturing Sector (1975 – 2005) 68
Table 2.9 The Knowledge-Based Economy Development Index: Malaysia 70
Table 2.10 Area, Population and Labour Force (2004-2009) 78
Table 2.11 Population and Age Structure (2007 – 2009) 78
Table 2.12 Principal Statistics of Labour Force, Malaysia 79
Table 2.13 Male and Female Population in the Private Universities and Colleges 80
Table 2.14 Labour Force Participation Rates by Ethnic Group, Malaysia, Q3/2009 and Q4/2009 80
Table 2.15 Enrolment in Public and Private Universities - Business and Economics 81
Table 2.16 Output of Graduates from Public and Private Universities - Business Economics 82
Chapter 2: Research Methodology

Table 3.1 Definitions of Scientific Paradigms 98
Table 3.2 Research Paradigms and Associated Views 100
Table 3.3 Definitions of Ontology, Epistemology and Methodology in research 101
Table 3.4 Distinction between Quantitative and Qualitative Research 108
Table 3.5 Summary of Research Support for Hypotheses 110
Table 3.6 Survey Method – Advantages and Disadvantages 119
Table 3.7 Advantages and Disadvantages of Survey Administration Methods 121
Table 3.8 Likert Scales used in Previous Research 129
Table 3.9 Summary of Operationalisation of Constructs, Indicators and Empirical Support for Research Model 132
Table 3.10 Distribution of the Respondents for the Study 140
Table 3.11 Non-response bias 141
Table 3.12 Types of Probability Sampling Techniques 143
Table 3.13 Non-profitability Sampling Methods 144

Chapter 4: Data Analysis

Table 4.1.1 Program study 160
Table 4.1.2 Program choice 161
Table 4.1.3 Family history 162
Table 4.1.4 Students’ interest in entrepreneurship 163
Table 4.1.5 Increased interest in entrepreneurship 164
Table 4.1.6 Motivation in entrepreneurship 165
Table 4.1.7 Increase in Skills 166
Table 4.2 Summary of Fit Indices used in the Research 176
Table 4.3 Reliability Analysis of the Composite Variables 177
Table 4.4.1 Goodness-of-fit of Curricula 182
Table 4.4.2 Goodness-of-fit of Teaching methodologies 184
Table 4.4.3 Goodness-of-fit of Universities roles 186
Table 4.4.4 Goodness-of-fit of Entrepreneurial intentions 188
Table 4.5 Goodness of Model Fit of Attitude after MI 193
Table 4.6 Goodness of Model Fit of Stakeholder Support Systems after MI 190
Table 4.7 Summary of Goodness-of-fit Index of Variables 194
Table 4.8 Goodness of Model Fit of Generated model 196
Table 4.9 Goodness-of-fit Statistics of the Generated and Re-specified Models 197
Table 4.10 Goodness-of-fit Statistics of the Second Re-specified and Competing Models 201
Table 4.11 Summary of the Goodness of the Variables (18 factor loadings) 203
Table 4.12 Summary of the Goodness-of-fit Index of the Variables 204
Table 4.13 Comparison of the Generated Model to the Competing Model 204
Table 4.14 Direct Impact of the Re-specified Model: Standard Regression Weights 206
Table 4.15 Direct and Indirect Effect of Attitude towards goals as mediating variable 208
Table 4.16 Direct and Indirect Effect of Family roles as mediating variable 210
Table 4.17 Direct Effect of Mediating variables on Endogenous variable 211
Table 4.18 Composite Reliability and Variance Extracted Results 214

Chapter 5: Conclusion and Findings

Table 5.1 Squared Multiple Correlation Estimates 223
List of Appendices

Appendix 1: Sample letter to CEOs of the universities 280
Appendix 2: Survey Questionnaire 281
Appendix 3: Descriptive Statistics Analysis 294
Appendix 4: Reliability Analysis Results 299
CHAPTER ONE

INTRODUCTION

1.1 Introduction

The importance of entrepreneurship has been the centre of attention and recognised worldwide including Malaysia. The increasing interest in entrepreneurship in Malaysia can be seen in the current developments, such as globalisation and the emergence of knowledge-based industries. Entrepreneurship is seen as a possible solution to global competition and corporate downsizing which has contributed to the problem of unemployment, especially among the graduates in Malaysia (Ragayah & Smith 2005; Ooi 2008). The research topic focuses on the ‘Effectiveness of entrepreneurship education in developing entrepreneurial intentions among the Malaysian university students’.

This chapter introduces the present research and an overview of the thesis. In line with Perry (2002), the chapter is organised into 9 sections as presented in Fig.1.1. The first section, Section 1.1 introduces the research topic and provides an outline of the chapter.

Section 1.2 discusses the background to the research of the effectiveness of entrepreneurship education in the Malaysian universities in developing entrepreneurial intentions among the students.

Section 1.3 identifies the research issues, theoretical framework and the development of the hypotheses. Justification for the research is presented briefly in Section 1.4, while the research methodology is discussed in Section 1.5.

Section 1.6 presents the operational definitions of the key terms used in this research. Section 1.7 presents a detailed outline of the structure of the thesis and the limitations of the research are presented in Section 1.8. Section 1.9 provides a summary of the chapter.
Fig. 1.1 Outline of Chapter One

1.1 Introduction

1.2 Background to the Research

1.3 Research Problem, Theoretical Framework and Hypotheses Development

1.4 Justification for the Research

1.5 Research Methodology

1.6 Operational Definitions of the Key Terms

1.7 Outline of the Thesis

1.8 Limitations to the Research

1.9 Summary

Source: Developed for the Research
1.2 Background to the Research

In Malaysia, the twenty first century has seen the burgeoning of entrepreneurship education resulting in the growing of newly emerging knowledge-based economy. Realising the importance of entrepreneurs in the development of a knowledge-based economy, efforts are taken to nurture entrepreneurship in all ways (Ramlee & Abu 2004). Malaysia is a developing country, but has a high rate of unemployment among the graduates emerging from the higher educational institutions. This is one of the main social development problems facing the Malaysian government. Graduates’ preference for being paid employees over becoming self-employed is one of the contributing factors to the current problem (Muszafarsha & Woon 2004; Fong 2005).

Entrepreneurship would help the graduates develop their own careers and expand the job market by easing the current unemployment problem (Norasmah 2004). Entrepreneurship was acknowledged by many researchers as a solution to the problem of unemployed graduates (Kamariah et al. 2004; Salmah 2006). The higher educational institutions started offering formal entrepreneurship education, and included it as one of the subjects in the curriculum of business and other courses; organising seminars, conferences, short courses and training for the students (Cheng & Chan 2004).

In the Malaysian context, it can be said that on an individual level, attitudes toward enterprise creation were previously divided along racial lines due to the identification of race with economic activity. Historically, the Chinese and to an extent the Indian-Muslim community had a long tradition of entrepreneurship, but the Malays were lagging behind. The government is making endless efforts to increase the participation of the Malays in entrepreneurship and to have a more equitable distribution of wealth between the various races (Malaysia 2006b). All stakeholders, civil society, private sector and the government want to ensure that entrepreneurship continues to flourish in today’s society.

The other promising entrepreneurial scene is the emphasis on human capital development namely; general education. Training programs involving IT skills of formal and informal education systems and collaboration between the stakeholders are essential. The roles of universities promoting entrepreneurship education and entrepreneurial skills to the students are increasing (Mohamed & Lim 2001). Education and training received the biggest percentage of the allocation; at 20.6% in line with the Government’s policy to enhance the human capital quality. There was an increase in funding for education and training in the
9th Malaysia Plan. To-date, the government’s allocation for entrepreneur development has an allocation of RM334.76 million schemes throughout the nation (9th Malaysia Plan).

1.2.1 Significance of the research

National policies, as reflected by the New Economic Policy in 1970, the National Development Policy 1991 and the National Vision Policy in 2001 emphasised on the increasing Bumiputra ownership of economic assets with strategies to spur entrepreneurship (Jomo 1995). Despite the laudable efforts of the government, Malaysia faces a challenge of meeting the aspirations of unemployable graduates seeking paid jobs rather than to consider the alternative of self-employment (Muszafarsha&Woon 2004; Fong 2005). The Malaysian government has accordingly emphasised on entrepreneurship education in institutions of higher learning.

However, there is limited prior research on the adequacy of the government’s policy initiatives. The findings of the research should extend to the existing body of knowledge on this issue.

1.2.2 Author’s interest in conducting the research

The candidate has been working in a Malaysian university which focuses on entrepreneurship education. The university’s mission is to produce young and creative entrepreneurs through entrepreneurship education. In line with this mission, the candidate investigated the entrepreneurial intentions of the Malaysian university students through entrepreneurship education, attitudes and stakeholder support systems.

1.3 Research Problem, Theoretical Framework and Hypotheses Development

1.3.1 Research Problem

The research problem identified three research issues as listed in Table 1.1. The researcher examines the research problem more precisely in the hypotheses, which is the problem prompting and placing a boundary around the research, not specifying what kind of research is to be done (Emory & Cooper 1991).
In view of the research study, the research problem is stated as:

‘How effective is entrepreneurship education in developing entrepreneurial intentions among Malaysian university students?’

Entrepreneurship education resulted in the growth of a newly emerging knowledge-based economy in many countries. This was a fundamental transformation since mid 1990’s. The changes were globally inter-linked and created enormous business opportunities for people in innovative enterprise activities. Entrepreneurship education became important to higher educational institutions, as they promoted innovation, creativity, generated and drove the economy of most nations (Keats & Abercrombie 1991; Gorman et al. 1997). The characteristics of entrepreneurship education found that the majority of programs conducted were to increase the awareness and understanding of entrepreneurship as a process (Hills 1988), and this awareness of entrepreneurship was seen as a career possibility (Solomon et al. 2002).

Entrepreneurship intentionality was suggested as an indicator of the effectiveness of entrepreneurship education programs. Some researchers focused on assessing the impact of entrepreneurship education programs on students’ intentions to start a business venture and on the traditional antecedents of intentions; such as attitudes, perceptions of control and self-efficacy (Cox, Mueller & Moss 2002; Fayolle, Gailly & Lassas-Clerc 2005a; Botha, Nieman & Vuuren 2006).

Researchers also traced entrepreneurial intentions to general factors (Krueger et al. 2000). A person’s attitude towards behaviour, e.g. intrinsic rewards, social norms and the beliefs of relevant groups, such as family, friends, colleagues and customers (Davidsson 1995) were found to have an influence in entrepreneurial intentions. A person’s self-efficacy, role of social networks, having close relatives who were entrepreneurs (Rajiman 2001), socio-cultural conditions, e.g. importance of work and status of entrepreneurship in a society (Begley et al. 1997), barriers and support, e.g. credit conditions, business loans and other incentives, increased the individual’s intentions towards self-employment (Frank & Luthje 2004) and were predictors of entrepreneurial intentions.

The university environment was found to have a great impact on entrepreneurial intentions. The differences in the entrepreneurial intent relative to individual’s perception of the
university environment were significant and stronger than the differences relating to personal traits, attitudes and socio-economic environmental factors (Schwartz et al. 2009).

The development of entrepreneurship both as a concept and activity is growing in importance in Malaysia. The previous research on entrepreneurship education in Malaysia focused on the field of entrepreneurship in general; the success factors of actual entrepreneurs and to a certain extent the characteristics of entrepreneurs (Nor Ezlika & Ong 2000; Ariff & Abu Bakar 2003; Noor & Ali 2004; Nor Aishah & Yufiza 2004).

There is still a paucity of empirical research on students’ perceptions and intentions towards entrepreneurship in Malaysia through entrepreneurship education (Kamariah, Yaacob & Wan Jamaliah 2004). Hence, prompting the need for this study.

Table 1.1 illustrates the research issues and the hypotheses developed for the study. A model was developed for the study, reflected in Chapter Two (Section 2.8) and tested in Chapter Four (Section 4.2 and 4.5), identifying the gaps from the previous empirical studies.

<table>
<thead>
<tr>
<th>Research Issues or Questions</th>
<th>Research Hypotheses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Research Issue 1</strong></td>
<td></td>
</tr>
</tbody>
</table>
| What are the educational factors that determine entrepreneurial intentions among Malaysian university students? | H1 – Entrepreneurship curricula has a direct effect on entrepreneurial intentions.  
H2 – Teaching methodologies have a direct effect on entrepreneurial intentions.  
H3 – Universities roles have a direct effect on entrepreneurial intentions. |
| **Research Issue 2**         |                     |
| What are the attitude factors that | H4 (i) – Attitude towards money has a direct effect on entrepreneurial intentions. |
| Research Issue 3 | H4 (ii) – Attitude towards change has a direct effect on entrepreneurial intentions.  
H4 (iii) – Attitude towards competitiveness has a direct effect on entrepreneurial intentions.  

| What are the stakeholder support system factors that determine entrepreneurial intentions among Malaysian university students?  
H5 (i) – Government has a direct effect on entrepreneurial intentions.  
H5 (ii) – Financial Institutions have a direct effect on entrepreneurial intentions.  
H5 (iii) – Parents of students have a direct effect on entrepreneurial intentions. |  

**Source: Developed for the Research**

1.3.2 Theoretical Framework

The theoretical framework developed for this research takes into account all the major variables to test the entrepreneurial intentions of students in universities. The independent variable is entrepreneurship education; the components being entrepreneurship curricula, teaching methodologies and the universities roles in promoting entrepreneurship. The dependent variable is entrepreneurial intentions. There are two mediating factors; that consist of attitude, examining the attitude towards money, change and competitiveness, and stakeholder support systems, examining the support of government, financial institutions and parents. The hypothetical model developed for the study is shown in Fig. 1.2.
1.3.3 Research Hypotheses

The research hypotheses are the specific questions that the researcher will gather data in order to satisfactorily solve the research problem (Emory & Cooper 1991). The hypotheses developed by the researcher makes a prediction about the expected outcome for the population of the study (Creswell 2003). The hypotheses developed for the study are shown in Table 1.2.
### Table 1.2 Summary of the Hypotheses

<table>
<thead>
<tr>
<th>No.</th>
<th>Hypotheses</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td><strong>Entrepreneurship Curricula</strong></td>
</tr>
<tr>
<td></td>
<td>There is a significant relationship between entrepreneurship curricula and entrepreneurial intentions.</td>
</tr>
<tr>
<td>H2</td>
<td><strong>Teaching methodologies</strong></td>
</tr>
<tr>
<td></td>
<td>There is a significant relationship between teaching methodologies and entrepreneurial intentions.</td>
</tr>
<tr>
<td>H3</td>
<td><strong>Universities roles</strong></td>
</tr>
<tr>
<td></td>
<td>There is a significant relationship between the universities roles and entrepreneurial intentions.</td>
</tr>
<tr>
<td>H4</td>
<td><strong>Attitude</strong></td>
</tr>
<tr>
<td></td>
<td>There is a significant relationship between attitude and entrepreneurial intentions.</td>
</tr>
<tr>
<td>H4(i)</td>
<td>There is a significant relationship between attitude towards money and entrepreneurial intentions.</td>
</tr>
<tr>
<td>H4 (ii)</td>
<td>There is a significant relationship between attitude towards change and entrepreneurial intentions.</td>
</tr>
<tr>
<td>H4 (iii)</td>
<td>There is a significant relationship between attitude towards competitiveness and entrepreneurial intentions.</td>
</tr>
<tr>
<td>H5</td>
<td><strong>Stakeholder Support Systems</strong></td>
</tr>
<tr>
<td></td>
<td>There is a significant relationship between stakeholder support systems and entrepreneurial intentions.</td>
</tr>
<tr>
<td>H5 (i)</td>
<td>There is a significant relationship between the government and entrepreneurial intentions.</td>
</tr>
</tbody>
</table>
There is a significant relationship between the financial institutions and entrepreneurial intentions.

There is a significant relationship between parents of students and entrepreneurial intentions.

Source: Developed for the Research

1.4 Justification for the Research

The focus of the research is justified on the following issues. Firstly, enterprise and entrepreneurial activities were growing tremendously in the last two decades. There were several factors relating to this growth, such as the advancement of technology, increased competition among suppliers, economic downturn, changing economies and downsizing of job opportunities. Entrepreneurial activities were seen as a means of revitalising stagnated economies and dealing with unemployment problems for developing economies, and as an engine of economic progress, job creation and social adjustment for developed countries (Jack & Anderson 1999; Mueller & Thomas 2000).

Entrepreneurship education has expanded significantly in most industrialised countries with the expansion in entrepreneurship (Matlay & Carey 2007). Globalisation has brought about substantial changes in the job market, in which young people as newcomers are particularly vulnerable. The students of the current century find that university education is no longer security for employment in the continuously changing environment of the job market (Collins, Hannon & Smith 2004).

Secondly, there is a gap in the research. Malaysia, being a developing country, entrepreneurship is seen as an engine of economic progress, job creation and social adjustment. With the high rate of unemployment (3.5%) as at 2010 (www.statistics.gov.my) and the increasing rate of graduate unemployment, the question that arises is; how to instil in the minds of students, to venture into business opportunities rather than seek job opportunities (refer Table 1.3). By the end of 2009, 81,046 active graduate registrants were on the Labour Exchange. In the year 2010, it was reported that 30,000 graduates could not find employment six months after graduation. Malaysia’s world class education system
appears to have produced unemployable graduates with 90% of them Malays. The Malaysian public universities with a population of mainly Malay students accounted for the highest number of unemployed graduates. There is a mismatch of Malay graduates unemployed in relation to Malaysian public universities, which are not being in tune with industry needs or producing graduates not in demand. Retraining the graduates resulted in tremendous cost, approximately RM500 million a year (www.asiapacific.anu.edu.au).

The government through the Entrepreneurship Development Ministry is promoting all Institutions of Higher Learning to focus on the subject of entrepreneurship by including it as a subject in the curriculum (Mohamed & Lim 2001). This research provides useful and valuable information on entrepreneurship education in terms of how to evaluate the Malaysian students in the universities, and the intentions to become future entrepreneurs through entrepreneurship education.

Table 1.3 Graduate Unemployment in Malaysia According to Ethnicity

<table>
<thead>
<tr>
<th>Years</th>
<th>Total unemployed graduates</th>
<th>Malays</th>
<th>Chinese</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>4,594</td>
<td>4,060</td>
<td>163</td>
</tr>
<tr>
<td>2005</td>
<td>2,413</td>
<td>2,186</td>
<td>31</td>
</tr>
<tr>
<td>2006</td>
<td>56,750</td>
<td>50,594</td>
<td>1,110</td>
</tr>
<tr>
<td>2007</td>
<td>56,322</td>
<td>49,075</td>
<td>1,348</td>
</tr>
<tr>
<td>2008</td>
<td>47,910</td>
<td>41,813</td>
<td>1,403</td>
</tr>
</tbody>
</table>

Source: www.asiapacific.anu.edu.au
1.5 Research Methodology

This section describes briefly the literature review, nature of the research paradigms, research approach and the methodology used to investigate the research issues and the conceptual framework underlying the study’s hypotheses. A detail of the research methodology is discussed in Chapter three.

1.5.1 Literature Review

This research begins with a review of the literature on the parent theories namely: entrepreneurship, entrepreneurship education and entrepreneurial intentions. It later moves on to the discussion of the research problem theories, i.e. entrepreneurship development in Malaysia, entrepreneurship education in Malaysian higher educational institutions and entrepreneurial intentions among the Malaysian students. The secondary data emerging from the literature review identified the research issues and the hypotheses developed for the study.

1.5.2 Research Design

A realism paradigm which uses quantitative research was found to be most appropriate for testing the research assumptions, hypotheses developing and solving the research problems through the statistical analysis of Structural Equation Modelling. The research focused on testing the theory rather than developing a theory. Structural Equation Modelling was used to test the unobservable or latent behaviour (Hunt 1991; Hair et al. 1998; Perry, Riegs & Brown 1999). Descriptive and causal research techniques were used in this research, in order to describe which factors influence the entrepreneurial intentions among the Malaysian university students and to find out the relationship between the variables.

The research involved mainly primary data collection from a group of respondents from the Malaysian universities. The targeted sample for this research was final year students from four Malaysian universities; from business, computing and information technology disciplines, with entrepreneurship education as one of the subjects in their curricula. The survey questionnaire consisted of seven sections and 78 questions to be answered in total.

A pilot study was proposed to pre-test the questionnaires to further validate and improve the proposed scales, to refine the final questionnaire. The reliability and validity measures were used to measure the consistency of the variables and intended concepts. The statistical test for measuring reliability was by assessing how highly inter-correlated items act to each
other, according to a scale using Cronbach’s alpha coefficient which assessed the homogeneity of a group of items in a questionnaire (Carmines & Zeller 1990; Hair et al. 1998; Lewis 1999; Kitchenham & Pfleeger 2002; Siniscalco & Auriat 2005). Four approaches; content, criterion, construct and face validity were used to test the validity of the questionnaire.

Ethical considerations were taken into account in this research, to ensure appropriate confidentiality and not to be potentially harmful to the respondents. The Southern Cross University Research Human Research Ethics Committee (HREC) had to approve the questionnaire before distributing to the respondents.

1.5.3 Data analysis

The data collected from the survey were coded, analysed and interpreted using the SPSS (Statistical Package for the Social Science) version 14.0 program and SEM (Structural Equation Modelling) using the AMOS version 16.0 program.

Descriptive statistics was used to analyse the demographic profiles through percentages, frequencies, table charts and standard deviation methods. Reliability and validity analysis were suggested to measure the consistency for the constructs. Confirmatory factor analysis was used to test the scale variables in the Likert scale from section 2 to section 7 of the questionnaire and the five hypotheses developed for the study through AMOS 16.0. Contributions were made to the study after the data analysis procedure. Suggestions for further research are necessary and appropriate.

1.6 Operational Definitions of the Key Terms

The subject vocabulary gives a clearer conceptual understanding of the terms used. It is good to define some of the common terms used in the study (Hagan 2004). It is important for the researcher to use the terms and concepts applied in the study as operationalised, and measured (Veal 2005). Refer Table 1.4.
Table 1.4 – Operational Definitions

<table>
<thead>
<tr>
<th>I</th>
<th>Entrepreneurship</th>
<th>It is a dynamic process of vision, change and creation; the willingness to take risks; to formulate an effective venture team; the creative skill to marshal needed resources; the fundamental skill of building a solid business plan, and finally to recognize the opportunity (Kuratko &amp; Hodgetts 2009, p. 5).</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Entrepreneur</td>
<td>An innovator or developer who recognizes and seizes opportunities; converts these opportunities into marketable ideas; adds value through time, effort, money or skills; assumes the risks of the competitive marketplace to implement these ideas; and realizes the rewards from these efforts (Bjerke Bjorn 2007).</td>
</tr>
<tr>
<td></td>
<td>Entrepreneurial school of thought:</td>
<td>A school of entrepreneurial thought that focuses on identifying traits that appear common to successful entrepreneur (Cunningham &amp; Lischeron 1991).</td>
</tr>
<tr>
<td></td>
<td>Psychological perspective</td>
<td>The personality traits, unique values and attitudes found in individual character, the drive to behave in such a way and it includes traits of risk-taking, high achievement and internal locus of control (Berger 1991; Begley &amp; Boyd 1987; Brockhaus &amp; Horwitz 1986).</td>
</tr>
<tr>
<td></td>
<td>Sociological perspective</td>
<td>The study of social life, social change and consequences of human behaviour among the groups, organisations and societies (Light &amp; Rosenstein 1995; Dyer Jr. &amp; Gibb 1994; Reynolds 1991).</td>
</tr>
<tr>
<td></td>
<td>Economic perspective</td>
<td>The basic resources of land, labour, capital and raw</td>
</tr>
<tr>
<td><strong>II</strong></td>
<td><strong>Entrepreneurship education</strong></td>
<td>A range of skills and attributes that can be developed through educational programmes that try to develop in the participants the intention to perform entrepreneurial behaviours or some elements that affect that intention such as entrepreneurial knowledge, desirability of entrepreneurial activity, or its feasibility (Linan 2004a, p. 163).</td>
</tr>
<tr>
<td><strong>Teaching methodologies</strong></td>
<td>The methods of teaching and assessment of entrepreneurship that are part of the entrepreneurship education in the university (Fayolle A 2008; Krueger 2007; Kuratko 2005; Bechard &amp; Gregoire 2005b; Morse &amp; Mitchell 2005; Edwards &amp; Muir 2005; Saks &amp; Gaglio 2004; Adcroft et al. 2004; Sogunro 2004).</td>
<td></td>
</tr>
<tr>
<td><strong>Universities roles</strong></td>
<td>The environment of universities that encourage the materials or set of factors necessary for entrepreneurial development (Lucas 1988 &amp; Romer 1986; Aldrich &amp; Zimmer 1986; Birley 1986).</td>
<td></td>
</tr>
<tr>
<td><strong>Cultural perspective</strong></td>
<td>The pattern of beliefs, expectations and values shared by the organisation’s members (Hisrich et al. 2007; Basu &amp; Altinay 2002; Davidsson 1995; Berger 1991).</td>
<td></td>
</tr>
<tr>
<td>III</td>
<td>Entrepreneurial intentions</td>
<td>A state of mind directing a person’s attention, experience and action towards a specific goal, or a path to achieve something, e.g. entrepreneurship actions (Vesalainen &amp; Pihkala 1999, p. 3 Bird 1988; Shapero 1980).</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Attitude factors</td>
<td>An individual’s attitude measures, social cognition and processes (Schwarz et al., 2009; Franke &amp; Luthje 2004; Lim &amp; Teo 2003; Shane et al., 2003; Krueger et al 2000; Douglas 1999).</td>
<td></td>
</tr>
<tr>
<td>Stakeholder support system factors</td>
<td>The group that supports entrepreneurial activities, such as the Government, financial institutions and parents (Matlay H. 2009; Romani et al., 2009; Fehr &amp; Hishigasuren 2006; Reynolds et al. 2005; Stevenson and Lundstro’m 2005; Storey 2005; Tan &amp; Peng 2003).</td>
<td></td>
</tr>
</tbody>
</table>

**Source:** Developed from various authors
1.7 Outline of the Thesis

As guided by Perry (2002), the research adopts a structured approach and is organised into five chapters outlined in Fig. 1.3.

Chapter 1: This chapter provides the background to the research, justifies the conduct of the study, describes the research problem and identifies the research issues and develops the research hypotheses for the study. It also describes the research methodology for the collection and analysis of the data. The chapter finally lists the operational definitions of the key terms and the limitations of the study.

Chapter 2: This chapter commences with a review of the literature about the development of entrepreneurship, entrepreneurship education and entrepreneurial intentions. It provides the details of the parent theories and the research problem theories. The gaps in the existing body of literature are identified and it concludes with the development of a theoretical framework and hypotheses.

Chapter 3: This chapter presents the research methodology and design including the choice of the appropriate paradigm and justifying the type of research. It explains the data collection technique, the research design, sampling process, questionnaire development and the process of data analysis. Reliability and validity measures are explained followed by the various statistical analytical tools employed in the study. Lastly, the chapter presents the measures taken to address the ethical issues.

Chapter 4: This chapter analyses the results of the primary data collected for the research. It begins with the data screening procedures for checking missing data, outliers and normal distribution. Secondly, it presents and analyses the data from the appropriate statistical analysis. Descriptive statistics is used to explain the demographic characteristics of the respondents. Cronbach’s alpha coefficient (α) is used to test the reliability of factors. Confirmatory factor analysis is used to test the proposed model through AMOS 16 to test the goodness-fit of the model and the hypotheses.

Chapter 5: The final chapter provides the conclusion and implications of this research. It relates to the research problem issues and the results of testing the proposed model and the hypotheses in the thesis relating to the relevant theories. The chapter also discusses the implications of the research findings. It also provides contributions, recommendations, limitations on the study and suggestions for further research.
1.8 Limitations of the Research

The limitations to the research are how the conceptual framework which consists of theories, as well as how the research is relevant to the phenomena being studied influences the research. It has not considered the attitudes and behaviour of all the respondents. There are some key issues as limitations that are considered in this research.

The theoretical framework for the study examines entrepreneurship education variables, its components of entrepreneurship curricula, teaching methodologies and universities roles as the independent variables, and attitude and stake holder support systems as mediating variables to test entrepreneurial intentions, the dependent variable. The limitations to the study are on these variables only that have been developed for the study.
The research is limited to respondents from the disciplines of business, computing and information technology, and not from disciplines such as medicine, law, engineering, accountancy, architecture and others.

The research is limited to four entrepreneurial focused Malaysian universities. The students in those universities were seen to be the highest percentage studying for entrepreneurship programmes. The attitudes and behaviours from students enrolled for the entrepreneurship courses in other Malaysian universities have not been considered.

The time frame between the students’ graduation and their involvement in entrepreneurial activities is not taken into account. Factors like students’ intentions are likely to change over time and could be influenced by other factors not covered in the research study.

1.9 Summary

This chapter introduces the research problem and provides the background of the research. The research aim and issues, theoretical framework, hypotheses development and justification for the research are explained. It outlines the research methodology justifying the type of research design to be used. Finally it provides the definitions of the key terms used, an outline of the thesis and the limitations for the study.

The next chapter reviews the existing literature about the development of entrepreneurship, entrepreneurship education and entrepreneurial intentions overall, and in the Malaysian context leading to the development of the theoretical model and hypotheses to test the model.
Fig. 1.4 Proposed Hypothesized Research Model

Source: Developed from Fig. 1.2
CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

The earlier chapter introduced the research problems and provided an overview of the research. This chapter reviews the literature on the research problem: ‘How effective is entrepreneurship education in developing entrepreneurial intentions among the Malaysian university students?’ It examines the parent theories and the research problem theories (Perry 2002) to identify the key research issues germane to this research (Hart 2000).

The literature review has five main goals. First is to demonstrate familiarity with a body of knowledge (Baker 2000). Secondly is to review prior research to establish and rationalise the significance of the research problem (Leedy 2001). Thirdly is to construct a theoretical framework for guiding the research (Perry 2002). Fourth is to determine key research issues and emerging themes to place the research in its proper context (Cavanna, Dalahaye & Sekaran 2001). The fifth is to identify gaps in the existing body of knowledge and the development of hypotheses to be tested by the research (Leedy 2001; Newman 2006).

The review is guided by a conceptual framework. As shown in Fig.1, it brings together the key variables for assisting with the structuring of this chapter (Zuber-Skerritt & Knight 1986) shown in Fig.2. This chapter has ten sections and starts with the introduction in Section 2.1.

Section 2.2 provides the contextual setting for the review (Perry 2002). Sections 2.3 – 2.5 review the parent theories namely; entrepreneurship, entrepreneurship education and entrepreneurial intentions.

The review then moves on to a discussion of the research problem theories. Sections 2.6 – 2.8 examine entrepreneurship development in Malaysia, entrepreneurship education in Malaysian higher educational institutions and entrepreneurial intentions among the Malaysian students.

The secondary data emerging from the literature review are then reviewed in Section 2.9, to identify the research issues, the research questions and developing the hypotheses for testing by this research. Section 2.10 gives a summary of the chapter.
Figure 2.1: Conceptual Framework for the Literature Review

Introduction and Country context

Parent Theories

Theoretical framework

Entrepreneurship education

Entrepreneurial intentions

Research Problem Theories

Malaysian entrepreneurship development

Entrepreneurship education in Malaysia

Entrepreneurial intentions in Malaysia

Research issues and Hypotheses development

Conclusion

Source: Developed for this Research
2.1 Introduction

2.2 County Context

2.3 Theoretical Framework

2.4 Entrepreneurship Education

2.5 Entrepreneurial Intentions

2.6 Entrepreneurship in Malaysia

2.7 Entrepreneurship Education in Malaysian Universities

2.8 Malaysian Entrepreneurial Intentions

2.9 Research Issues and Hypotheses Development

2.10 Summary

Source: Developed for this Research
2.2 The Country Context

This Section outlines the contextual setting for the study (Perry 2002). It examines the major policies and development that have influenced Malaysia’s economic growth and entrepreneurial development following the country’s independence in 1957.

Situated in South-East Asia, with a total area of 330,252 sq.km, Malaysia is a Federation of 13 States and three Federal territories in Peninsular Malaysia, and over part of the island of Borneo. Malaysia is a multi racial society, with a population approximately 28.3 million in January 2010 (census 2010 report), comprising of Malays, Chinese, Indians, Bidayuhs, Ibans and Kadazans. The Malays make up 53.3% of the population, followed by the Chinese with 26%, the indigenous groups with 11.8%, the Indians with 7.7% and others with 1.2%. (Department of Statistics, March 2010).

2.2.1 Significant Developments in the Malaysian Economy.

In the evolution of the Malaysian economy when Malaysia became a sovereign country, agricultural sector dominated the economy accounting for 70% of export earnings and 75% of the GDP. These were significant contributions with rubber and palm oil being the principal crops (Omar 1996). The plantations were largely owned by the European and Malaysian Chinese business communities (Goh 2008). In 1957, almost two-thirds of the population, largely the Malays, were dependent on subsistence agriculture and lived below the poverty line (Omar 1996). The Malaysian Chinese accounted for almost 30% of the corporate wealth. Residing largely in the urban areas, they dominated the manufacturing, wholesale and retail sectors, where majority were family-owned enterprises based primarily on small-scale trade and petty business ventures (Heng 1988).

The 1960s witnessed the expansion of the small Chinese businesses which benefited from the high economic growth rate; averaging at 6% annually during that period (Gale 1981). The family members were involved in practically all the major aspects of the business operations (Perkins 2004). Relying on networking and high productivity, they amassed much wealth and bought major stakes in the British companies that controlled the plantation houses and tin mines (Puthucheary 1969). As a consequence, the Chinese accounted for 50% ownership of the construction sector, 82% of the wholesale trade, 50% of the retail trade, 40% of the manufacturing sector and almost 70% of the small scale enterprises by 1990 (Malaysian Business 1991b).
Accounting for only 7% of the nation’s economic wealth, most Malay businesses were small traditional cottage industries (Gale 1981). The ratio of the business units to the population was 1:623, for the Malays known as Bumiputras (son of earth) compared to the Chinese, which was at 1:40. To remedy this imbalance, various measures were undertaken by the Government to promote Bumiputra entrepreneurship capitalism. These included: entrepreneurial development programs, grant assistance for the start-up of new enterprises, educational training support, the issuance of business licenses and preferential treatment for the award of Government contracts (Goh 1962).

The First Malaya Plan (1957-1962) was aimed at addressing the inequalities of wealth distribution among the races, with emphasis on rural development and the provision of physical and social-infrastructure (MIMOS 2002). Special attention was given to promote Malay participation in business and the Rural and Industrial Development Authority (RIDA) was established for this purpose. Although the Malaysian economy grew at an annual growth rate of 5.8% over the period 1957 to 1970 (Gale 1981), the problem of unequal wealth distribution persisted with attendant social tensions. These triggered racial riots in Kuala Lumpur in May 1969 (Backman 2001), and the situation compelled the Government to introduce the New Economic Policy (NEP) in 1970. As discussed below, the NEP marked a very important shift in the policy approaches for the growth of Malay Entrepreneurs.

2.2.2 The New Economic Policy

Justified by the need to address the grave issues of social imbalance and prevalent poverty among the Bumiputra community (Chin 2003), the NEP had two main thrusts. The first was to eradicate poverty regardless of race. The second and pertinent to this research was to restructure Malaysian society with the Bumiputras owning 30% of the corporate wealth of the country by 1990, as compared to 2.4% in 1970, First Outline Perspective Plan (OPP1 1970 – 1990). As this required enlarged Bumiputra participation in all aspects of commerce and industry, the NEP was seen as a catalyst for the development of the Bumiputra entrepreneurs (Buang 2002; Shukor 2003). The government provided business loans and set up large government-owned corporations to increase the Bumiputra participation in business (Cheah 1999). The literature revealed that Bumiputra ownership rose to 19.3% in 1990 and 20.7% in 2004 (Jomo 2004) as shown in Table 2.1 (Economic Planning Unit 2005).

This growth was also due to the privatisation policy. The NEP was launched in 1983 and designed to make privatised entities a vehicle for achieving the 30% target of Bumiputra
participation in the economy (Economic Planning Unit 2009). Accordingly, the Government divested state enterprises largely to Bumiputras in the key sectors of utilities, power, transportation and telecommunications (Bruton, Fried & Hisrich 1997).

The failure of certain programs aimed at increasing the Bumiputra participation on the entrepreneurial and management front remained a concern (Mohamad 1993a). This resulted in a re-orientation of the strategies to encourage Bumiputra entrepreneurial development and it was reflected in the New Development Policy.

| Table 2.1: Market Value of Bumiputra Equity |
|-------------------------------|-----------------|-----------------|
| NEP Benchmarks               | 1970            | 1990            | 2004            |
| Bumiputra equity             | 2.4%            | 19.3%           | 20.7%           |
|                               | RM477 million   | RM 20.9 billion | RM73.2 billion  |

*Source: Economic Planning Unit 2005*

2.2.3 The New Development Policy

Introduced in 1991, the primary aim of the New Development Policy was to correct the persisting socio-economic imbalance between the Bumiputra and non-Bumiputra (Sarji 1993). A component of the Second Outline Perspective Plan for 1991–2000, the NDP emphasised on balanced development for establishing a more united and just society. The new development policies emphasised on achieving rapid growth, industrialisation, structure change and eradication of hardcore poverty (Jomo 2004). The NDP was orientated to making Malaysia through the Vision 2020 policy, a developed nation by 2020 (Malaysia 2001c). The Government policies for achieving its objectives are shown in Table 2.2.
Table 2.2 Development History of Malaysia

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>New Economic Policy and New Development Policy</td>
<td>Industrial and Production-based economy</td>
<td>National Vision Policy</td>
</tr>
<tr>
<td>Agricultural-based economy</td>
<td>Capital, labour and infrastructure</td>
<td>Knowledge-based economy</td>
</tr>
<tr>
<td>Land and labour</td>
<td></td>
<td>Human capital, technology, knowledge and entrepreneurial</td>
</tr>
</tbody>
</table>

Source: Adapted from MIMOS 2002

2.2.4 The National Vision Policy

The National Vision Policy embodied in the Third Outline Perspective Plan was a developmental framework for the period 2001 – 2010. The NVP outlined the general strategies for the country to move forward with increasing Bumiputra participation in various sectors and occupations (Sarji 1993; Chin 2003). It viewed education and training in business, engineering and information technology, as critical for developing skilled Bumiputra entrepreneurs (Malaysia Business 1991). The National SME Blueprint for 2006 identified 246 programmes involving a commitment of RM 3.9 billion. The 2007 Blueprint targeted an increase of SMEs contribution to GDP from 32% in 2005 to 37% by 2010 and the share of total exports from 19% in 2005 to 22% by 2010 (SME Annual Report 2006, cited in [link](http://www.smibusinessdirectory.com.my)).

A total of 189 key programmes were planned for SME development in 2007 and they fell into three broad categories:

- ‘Stimulatory’ which focused on supporting entrepreneurship, and included programmes in entrepreneurial education, identification of potential entrepreneurs and motivating entrepreneurs.
• ‘Promotional’ support for entrepreneurs to establish and operate their enterprises efficiently.

• ‘Enhancement’ activities which were aimed at moving SMEs up the value chain, producing high quality and high value added products for international markets (Ashokkumar 2005).

The emphasis on entrepreneurial development was also reflected by the strengthening of the institutional structure, including the creation of new agencies, and the introduction of entrepreneurship as a primary discipline in Malaysian Higher Educational Institutions and outlined in the subsequent sections.

The institutional machinery comprised of the government agencies responsible for promoting entrepreneurial development. The principal ones are: the Council of Trust for Indigenous People (MARA), Urban Development Authority (UDA), Ministry of Entrepreneur Development (MECD), the Small Medium Industries Development Corporation (SMIDEC), the Small Medium Entrepreneur Bank and the Central Bank. Some of the main agencies are discussed below:

i) The Council of Trust of Indigenous People (MARA)

As one of the main agencies set up for entrepreneurial development, MARA’s activities include motivating, guiding, training and assisting Bumiputras in rural areas with emphasis to participate actively and progressively in the commercial sectors in line with the NEP. The main functions are directed to; medium and small scale entrepreneur development, consulting, credit infrastructure and other incentives, and dissemination of information.

MARA plays an important role in two major activities to achieve its objectives namely; education and training and entrepreneurial development. Education and training is aimed to increase well-trained, skilled and qualified Bumiputras for the needs of the commercial and industrial sectors. It has established MARA Junior Science Colleges, Vocational Institutes and Technical Universities, to train more Bumiputra entrepreneurs to successfully survive in the globalised millennium (Buang 2002).

MARA’s target under the 9th Malaysia Plan (2006 - 2010) was to produce 11,000 entrepreneurs covering 28 fields of business. This vision supports the country’s capacity for knowledge, creativity, innovation and entrepreneurship. The universities undertake the social
responsibility of producing graduates who look forward to economic and business challenges, and view entrepreneurship as an engine of growth in the global economy (Malaysia 2006b).

ii) The Ministry of Entrepreneur and Co-operative Development Malaysia (MECD)

The Ministry of Entrepreneur and Co-operative Development (MECD) established in 2004 is another agency set up for Bumiputra entrepreneurs. Its responsibilities include overseeing the administration of various public enterprise agencies, such as Majlis Amanah Rakyat (MARA), the Urban Development Authority (UDA) and State Economic Development Authorities (SEDCs).

Its main activities include: formulation of policies, creation and implementation of entrepreneur development programmes, at federal and state levels. It also supports and facilitates the existing entrepreneurs in setting up their businesses through strategic networks, creation with private sectors, federal and international levels, and finally through the planning and implementation of its activities that encourage entrepreneurial culture. The MECD encourages entrepreneurial development through various agencies under the MECD and optimising the human resources within the MECD (www.MECD.gov.my).

iii) Small Medium Industries Development Corporation (SMIDEC)

The Small Medium Industries Development Corporation serves as a specialised agency to spur the development of small and medium industries (SMEs) in Malaysia. The agency has three major roles to play. Firstly, it provides financial assistance to entrepreneurs in the form of grants and soft loans for new businesses and existing businesses through various ministries and agencies. Secondly, it develops and nurtures competitive SMEs through its development programmes; human capital development, product development and technology enhancement. Thirdly, it provides business advisory services on how to set up business and funding for businesses at the Referral Centre of SME Corporation Malaysia (www.smidec.gov.my).

2.2.5 The New Economic Model

The New Economic Model, a continuation of the New Development Policy and New Vision Policy was launched on April 2010. Its aim was to achieve an economic, social and government transformation. The first goal of the New Economic Model was to drive Malaysia’s transformation into a high income economy by 2020.
The characteristics of the NEM by 2020 were focused on a market-led economy, well-governed government institutions, regionally integrated for entrepreneurial and innovative measures to be taken. The economic transformation was aimed at transforming from agricultural to industrial services through innovation, technological advancement and entrepreneurial drive. The initiated plans were to support budding entrepreneurs revamp the seed and venture capital funds, promote vibrant entrepreneurship, and provide financial and technical support for SMEs and micro businesses.

The aim for higher educational sectors was to foster research and development in entrepreneurship between institutions of higher learning and the private sector, to integrate the education services with industrial and entrepreneurial development and emphasis placed on technology based innovations and research development (www.pmo.gov.my). Fig. 2.3 reflects the New Economic Model.

**Fig. 2.3 Goals and Characteristics of the New Economic Model**

![Goals and Characteristics of the New Economic Model](source: New Economic Model Malaysia 2010)
In addition to the New Economic Model, the Tenth Malaysia Plan (2011 – 2015) was proposed in the Parliament. It reviewed the earlier Ninth Malaysia Plan (2006 - 2010). The Malaysian economy was seen to grow at a rate of 4.2% per annum, and the Gross National Income per capita to reach RM26,420 or US$8,260 in 2015. Unemployment rate was expected to remain at 3.6% with a low inflation rate. Poverty eradication programmes successfully reduced the incidence of poverty to 3.8% in 2009, compared to 5.7% in 2005. The hardcore poverty also declined from 1.2% in 2005 to 0.7% in 2009.

The Tenth Malaysia Plan is formulated with various new approaches towards becoming a higher-income and high productivity economy in line with the New Economic Model. The Gross National Income per capita is targeted to increase RM38,850 or US$12,140 in 2015. This requires achieving real GDP growth of 6% p.a. Growth is to be led by manufacturing and services sectors, revitalising the agricultural sectors towards higher value added, and adopting of ICT and relevant technologies.

The Government is committed to reducing the fiscal deficit from 5.3% of the GDP in 2010 to less than 3% in 2015. This reduction will stimulate private sector investments growth to 12.8% p.a. or RM115 billion. The main aim, which requires a holistic and focused approach by the Government, is to transform the nation towards achieving Vision 2020. These thrusts are comprehensive strategies to achieve the objectives and targets set in the 10th Malaysia Plan (2011 – 2015). Five key strategic thrusts have been identified to achieve the aspirations of the 10th Malaysia Plan. These thrusts are comprehensive strategies to achieve the objectives and targets set in the 10th Malaysia Plan (2011 – 2015). First is to design the Government philosophy and approach to transform Malaysia. Second is to create an environment that is conducive for unleashing economic growth. Third is to move towards inclusive socio-economic development. Fourth is to develop and retain first world-class talent base. Fifth is to build and environment that enhances the quality of life.

The Government’s aim is mainly focused towards economic transformation with the implementation of the five national key result areas, which are discussed in detail in the immediate discipline in Section 2.5 (10th Malaysia Plan).
2.2.6 Evolution of Malaysian Universities and Linkage to Entrepreneurship Education

The universities in Malaysia can be categorized as public and private universities. All public universities are funded by the government. The first university that was set up is University Malaya in 1905, followed by other public universities, such as Science University of Malaysia (USM), National University of Malaysia (UKM), Putra University of Malaysia (UPM), Technology University of Malaysia (UTM), Mara Information of Technology University (UITM) and Northern University of Malaysia (UUM). Currently, there are 21 public universities and 627 higher educational institutions in Malaysia. The establishment of private universities and university colleges was made possible, with the passing of the Private Higher Educational Institutions Act 1996 (www.mohe.Malaysia.com).

Entrepreneurship education has recently been the focus among the Malaysian universities. This is mainly due to the affirmative action taken by the government to introduce entrepreneurship education at all public universities, as a solution to graduate unemployment (Staff 2007b). In mid 1990, entrepreneurship courses were offered in colleges and universities (Cheng & Chan 2004), but they have become prevalent at all public universities through the implementation of the Undergraduate Entrepreneurship Training Programmes (Malaysia 2001b). The government’s strategy is to encourage entrepreneurial development through the educational institutions, by introducing various entrepreneurship programmes and training courses. Entrepreneurship study has been introduced as a compulsory subject for undergraduates at all levels recently (Staff 2006a, 2007b). The provision of business skills and knowledge in higher educational institutes is a way of enhancing competitiveness in the employment market and reducing the unemployment problem.

The Northern University of Malaysia (UUM) is the first public university in the country to offer a full undergraduate degree in entrepreneurship. In 2006, the Malaysian University College of Technology and Management is the first private university to establish a chair in entrepreneurship (Staff 2006c). Currently, there are four public universities which play the lead role of entrepreneurial development units and research centres in Malaysia namely; Northern University of Malaysia (UUM), Science University of Malaysia (USM), Putra University Malaysia (UPM) and the National University of Malaysia (UKM), with others also following their roles. The review continues with examining the parent theories in the next section.
2.3 Definitions and Theories of Entrepreneurship

This section presents the first parent discipline of this research, by defining the term and examining the pertinent theories and models for establishing the theoretical framework.

2.3.1 Defining Entrepreneurship

The term is derived from a French word ‘entreprendre,’ which means ‘to undertake’. The theory was defined and interpreted by many scholars from multiple disciplines. An entrepreneur could be an innovator or developer who recognised and seized opportunities; converted those opportunities into workable and marketable ideas; adds value through time, effort, money or skills and realizes rewards from these efforts. Basically, an ‘entrepreneur’ is one who undertakes to organise, manage and assume the risks of a business (Kuratko & Hodgetts 2004, p. 28-29).

There are several definitions of ‘entrepreneurship’ and those that are pertinent to this research are listed in Table 2.3.

Research defined ‘entrepreneurship’ in two fundamental ways which highlighted a dichotomy. First, it was explained as ‘a property or quality of the firm’. Entrepreneurial firms were thought of small (Aldrich & Austen 1986), fast-growing (Drucker 1985), organic and network-based, rather than mechanistic or bureaucratic (Birley 1986). The distinctions in the definitions clearly stated that entrepreneurial firms were advantageous compared to other forms of organisations. Secondly, entrepreneurial firms were thought of as more innovative (Backman 1983); flexible and adaptable (Birch 1987).

The term ‘entrepreneurship’ included a ‘behavioural characteristic’ of employers and managers in the firm and not a characteristic of the firm itself. Entrepreneurial people took advantage of opportunities to acquire added value for themselves or for the firm. It championed the idea of ‘corporate entrepreneurship’ (Burgelman 1983).

Firms could maintain entrepreneurial advantage by instilling a culture that forces entrepreneurial behaviour among the managers and employees in a firm (Kanter 1983) thus, creating an entrepreneurial spirit among its members (Kradchart 1995).

As innovators and developers, entrepreneurs identified and exploited opportunities (Peterson 1985), and this was further explained by Thompson (1999), that entrepreneurs want to realise new opportunities and are willing to be able to act on it.
‘Entrepreneurship’ was defined as the result of creating new business opportunities (Levie 1999b; Morris et al. 2004), and they could be later converted into marketable products and services (Schaper & Volery 2004, p. 6).

The term was further defined by Reynolds et al. (1999) as, ‘an attempt of new business or new venture creation, such as self-employment, a new business organisation, or the expansion of an existing business by an individual, a team of individuals, or an established business’.

An entrepreneur was classified as, ‘a person who creates a new business, but faces risk and uncertainty for the purpose of achieving profit and growth, by identifying the opportunities and assembling the resources to capitalise on them’ (Zimmerer & Scarborough 2002, p. 4).

Hisrich et al. (2007) summarised the earlier definition and stated that, ‘entrepreneurship is the process of creating something new with the assumption of risk and rewards’. Sorenson 2007 looked at a more innovative perspective and suggested that, ‘entrepreneurship is associated with innovation and management dynamics’.

2.3.2 The Preferred Definition

With the various definitions proposed by the researchers and scholars, emerged the preferred definition of ‘entrepreneurship’. It could be defined as ‘a dynamic process of vision, change and creation’. It requires an application of energy and passion towards creation and implementation of new ideas and creative solutions. It includes the willingness to take risks; to formulate an effective venture team; the creative skill to marshal needed resources; the fundamental skill of building a solid business plan, and finally to recognize the opportunity where others see as chaos, contradiction and confusion (Kuratko & Hodgetts 2009, p. 5).
Table 2.3 - Definitions of ‘Entrepreneurship’ by Past Researchers

<table>
<thead>
<tr>
<th>Names of researchers</th>
<th>Year</th>
<th>Definitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burgelman</td>
<td>1983</td>
<td>A person who acquires opportunities to add value for themselves on firm or ‘corporate entrepreneurship’.</td>
</tr>
<tr>
<td>Peterson</td>
<td>1985</td>
<td>A person who identifies and exploits opportunity.</td>
</tr>
<tr>
<td>Thompson</td>
<td>1999</td>
<td>A person who wants to realise a new opportunity and willing to be able to act on it.</td>
</tr>
<tr>
<td>Levie</td>
<td>1999b</td>
<td>Entrepreneurship is the process of creating new business activity.</td>
</tr>
<tr>
<td>Reynolds et al.</td>
<td>1999, p. 3</td>
<td>Any attempt at new business or new venture creation such as self-employment, a new business organisation or the expansion of an existing business by an individual, a team of individuals, or an established business.</td>
</tr>
<tr>
<td>Zimmerer and Scarborough</td>
<td>2002, p. 4</td>
<td>An entrepreneur is one who creates a new business in the face of risk and uncertainty for the purpose of achieving profit and growth, by identifying opportunities and assembling the necessary resources to capitalise on them.</td>
</tr>
<tr>
<td>Morris et al.</td>
<td>2004</td>
<td>The process of creating value by bringing together a unique package of resources to exploit an opportunity.</td>
</tr>
<tr>
<td>Author(s)</td>
<td>Year, Page</td>
<td>Definition</td>
</tr>
<tr>
<td>---------------------------</td>
<td>------------</td>
<td>------------</td>
</tr>
<tr>
<td>Schaper &amp; Volery</td>
<td>2004, p. 6</td>
<td>Entrepreneurship is the process brought about by individuals of identifying new opportunities and converting them into marketable products or services.</td>
</tr>
<tr>
<td>Hisrich et al</td>
<td>2007, p. 8</td>
<td>Entrepreneurship is a process of creating something new and assuming the risks and rewards.</td>
</tr>
<tr>
<td>Sorensen</td>
<td>2007</td>
<td>Entrepreneurship is associated with innovation and management of dynamics.</td>
</tr>
<tr>
<td>Kuratko and Hodgetts</td>
<td>2009, p. 5</td>
<td>Entrepreneurship is a dynamic process of vision, change and creation. It requires an application of energy and passion towards creation and implementation of new ideas and creative solutions. It includes the willingness to take risks; to formulate an effective venture team; the creative skill to marshal needed resources; the fundamental skill of building a solid business plan and finally to recognise the opportunity where others see as chaos, contradiction and confusion.</td>
</tr>
</tbody>
</table>

Source: Cunningham & Lischeron (1991), Bjerke Bjørn (2007) and various authors
2.3.3 Entrepreneurship Theories and Models

There are several theories relating to entrepreneurship. Some of the main theories are discussed below.

The evolution of research in entrepreneurship over the last few years, the reorientation from being centred on the individuals was described as being created on the processes (Bygrave & Hofer 1991), and the shift from a positivist epistemology to a more constructive epistemology. This is reflected in Table 2.4.

**Table 2.4- Synthetic View of Entrepreneurial Research**

<table>
<thead>
<tr>
<th>The entrepreneur</th>
<th>Entrepreneurship implies individuals who possess unique capacities and personal characteristics.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Innovation</td>
<td>Entrepreneurship is usually related to innovation (something new in an existing or new organisation).</td>
</tr>
<tr>
<td>Creation of an organisation</td>
<td>Entrepreneurship describes the behaviours involved in the creation of an organisation.</td>
</tr>
<tr>
<td>Creation of value</td>
<td>Entrepreneurship contributes to creation of value.</td>
</tr>
<tr>
<td>Private, public, or not for profit sectors</td>
<td>Entrepreneurship can be applied to these different sectors.</td>
</tr>
<tr>
<td>Growth</td>
<td>The importance of growth is a characteristic of entrepreneurship.</td>
</tr>
<tr>
<td>Unique character</td>
<td>Entrepreneurship is something unique.</td>
</tr>
<tr>
<td>Owner/ Manager</td>
<td>Entrepreneurship concerns individuals who are owners and managers of their enterprises or activities.</td>
</tr>
</tbody>
</table>

*Source: Cunningham & Lischeron (1991)*
a) Entrepreneurship Schools of Thought

The problems of classifying different philosophers into schools had long been recognised. A systematisation of the discipline continues, and schools of thought develop because similarities and affinities do exist among theories (Elias & Merriam 1980, p.1).

Cunningham and Lischeron (1991) identified 6 principal schools of thought. Cunningham and Lischeron(1991) regarded entrepreneurship as a multi-faceted phenomenon, and that each school of thought offers a special dimension and to understand entrepreneurship requires researchers to be interested in each dimension of the entrepreneurial process as listed in Table 2.5 (Cunningham & Lischeron 1991).

Table 2.5 – Different Schools of Thought in Entrepreneurship

<table>
<thead>
<tr>
<th>Entrepreneurial Model</th>
<th>Focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Great Person School</td>
<td>Inborn characteristics of entrepreneurs and their success stories.</td>
</tr>
<tr>
<td>Psychological characteristics school</td>
<td>Specific and unique psychological traits of entrepreneurs.</td>
</tr>
<tr>
<td>Classical school</td>
<td>Innovation and creativity. Identification of opportunities.</td>
</tr>
<tr>
<td>Management school</td>
<td>Pursuit of business opportunities and use of appropriate management tools to concretise their accomplishment.</td>
</tr>
<tr>
<td>Leadership school</td>
<td>Leadership qualities of entrepreneurs.</td>
</tr>
<tr>
<td>Intrapreneurship school</td>
<td>Entrepreneurship behaviour in existing organisations.</td>
</tr>
</tbody>
</table>

*Source: Cunningham & Lischeron (1991)*
b) Theory of Planned Behaviour

The ‘theory of planned behaviour’ was introduced by Ajzen and Fishbein (1980, 1991), and classified as one of the most popular models that analysed the entrepreneurial intentions of students. It is a modified version of the ‘theory of reasoned action’ by Sheppard et al.(1988). Intentions have been a predictor of planned entrepreneurial behaviour (Shapero 1982; Krueger 1993). The theory stated that entrepreneurial intentions stemmed from the perception of feasibility and desirability of a person and this path was affected by the cultural and social context. This indicated attitude towards behaviour and perceived behavioural control, which were affected by subjective norms and resulted in social pressure to perform the behaviour (Turker et al.2009). The theory of planned behaviour is shown in Fig. 2.4.

**Fig. 2.4 Theory of Planned Behaviour**

![Diagram of Theory of Planned Behaviour]

*Source: Autio, Keeley, Klofsten, Parker & Hay (2001)*
c) Theory of Achievement

The ‘theory of achievement’ is one of the most applied theories on entrepreneurship introduced by McClelland (1961). Individuals with strong need for achievement demonstrated a higher performance in challenging tasks and through innovativeness, looked for new and better ways to improve their performance (Littunen 2000; Utsch & Rauch 2000). McClelland’s theory stated that, starting a business required people who took moderate risks, assumed personal responsibilities, paid attention to feedback of costs and profits, and found new innovative ways of developing new products or services. People with high needs for achievement and motivation were found with those characteristics (Raposo, do Paco & Ferreira 2008). McClelland’s theory depicted an ideal type of ‘entrepreneurial personality’ which included the needs of achievement, affiliation and power and is shown in Fig. 2.5.

Fig. 2.5 Theory of Achievement

d) Theory of Social Cognition

The cognitive paradigm dominates the study of learning and is limited by using the concept of individual information processing, to understand the human mind and ability to learn (Gagne 1977; Bandura 1986). In Bandura’s ‘theory of social cognition’, learning was considered as, ‘largely an information processing activity’. Young & Sexton (1987) emphasised the role of memory in defining effective entrepreneurial learning, as a problem-solving process centred on the acquisition and use of entrepreneurial knowledge in long-term memory. Learning in entrepreneurship included both implicit and explicit knowledge. It was solving complex problems and making entrepreneurial decisions, based on a strong interaction of tacit and explicit knowledge (Davidsson & Honig 2003). The theory of social cognition is shown in Fig. 2.6.

**Fig 2.6 Theory of Social Cognition**

![Diagram](source: Social Cognition Theory by Bandura (2001, p. 2))
e) Social Learning Theory

The ‘social learning theory’ is developed from the conceptualisation that learning is a process through knowledge transmission and assimilation towards a view of learning, and identity change within a network of social relationships. The emphasis placed was on ‘relational interdependency of an agent and the world, activity, meaning, cognition, learning, and knowing’ (Lave & Wenger 1991, p. 50). Lave & Wenger (1991) offered the notion of a conceptual architecture, as a means of thinking about the general process of design and acknowledged the influence of Giddens’ (1990) perspective on design, as ‘the colonisation of the future’. He noted that students needed places of engagement, materials and experiences, with which to build an image of the world and themselves. This initiated the purpose of educational design that was needed to support the formation of learning communities as depicted in Fig. 2.7 (Wenger 1998, p. 270, cited in Brosnan & Burgess 2003).

**Fig 2.7 Social Learning Theory**

![Social Learning Theory Diagram](source: Social Learning Theory by Lave & Wenger (1991))
f) Personality Traits Model

‘Personality traits model’ is initiated as another intriguing, but imperfect predictor of entrepreneurship including the intention to start a business (Shaver & Scott 1991). There are three characteristics attributed with entrepreneur and entrepreneurship. They were classified as firstly; achievement motivation, secondly, tolerance for ambiguity; and thirdly, locus of control (refer Fig. 2.8). Achievement motivation was singled out as the most prevalent predictor of entrepreneurship (Shaver & Scott 1991; Babb & Babb 1992). The tolerance for risk was more common among people who chose to become entrepreneurs. The adventurous nature found in entrepreneurs showed a significantly high tolerance of ambiguity among them. Individuals with an internal locus of control showed that life outcomes were the result of their own actions, such as hard work, and this was associated with entrepreneurial venturing and success (Gatewood et al. 1995, cited in de Pillis & Reardon 2007).

**Fig 2.8 Personality Traits Model**

![Personality Traits Model](image_url)

*Source: Personality Traits Model, Babb & Babb (1992)*
g) Other Theories

Autio’s model of intention analysed the entrepreneurship of university students through a process-based approach study (Autio et al. 1997 & Veciana et al. 2005). The study checked the robustness of entrepreneurial intentions in many cultural contexts, which indicated the entrepreneur’s image and encouragement of university environment that affect entrepreneurial intentions among university students. Veciana et al. (2005) tested the desirability, feasibility and intentionality for entrepreneurship with regard to gender and entrepreneurial history of students (Schwartz et al. 2009).

Krueger (1993) proposed better models for entrepreneurship, and they were tested by Davidsson (1995) and Reitan (1996). Davidsson (1995) proposed an economic-psychological model of factors influencing individuals’ intentions to go into business through a concept called ‘entrepreneurial conviction’. Reitan (1996) combined Ajzen’s and Shapero’s models and used different measures for intentions, defining willingness at some point of time to start a new business.

Kolvereid (1996) used constructs derived from the theory of planned behaviour, looked at the influence of demographic variables, such as family background, gender and previous self-employment experience (Autio et al. 2001). Gorman et al. (1997) and Kolvereid & Moen’s (1997) study showed that entrepreneurship attributes can be positively influenced by educational programmes (Turker et al. 2009).

2.3.4 Development of Entrepreneurship History

The historical perspective of entrepreneurship began in the 18th century, when the term ‘entrepreneur’ was introduced by Richard Cantillon, a French economist. Joseph Schumpeter (1951), in his theory described ‘entrepreneur’ as, ‘an agent who buys means of production at certain prices to combine them into a new product’. It was further added by another French economist J.B. Say, to the idea that entrepreneurs were leaders, bringing people together to build a single productive organism (Schumpeter 1951).

British economists, such as Adam Smith, David Ricardo and John Stuart Mills touched on the concept and referred to as ‘business management’ (Burnett 2000). Alfred Marshall in his treatise ‘Principles of Economics’ recognised the necessity of entrepreneurship for production and described the four factors of production, i.e. land, labour, capital and organisation (Marshall 1994). The concept of entrepreneurship continued to undergo a theoretical
evolution that entrepreneurship was the driving force behind the organisation, but today’s economists believed that entrepreneurship coordinated the other three factors of production of land, labour and capital (Arnold 1966). Many scholars argued that entrepreneurship was necessary for economic growth.

Economists, Marshall and Kirzner claimed that entrepreneurs had special skills that enabled them to participate in the process of innovation (Kirzner 1985; Marshall 1994). Many economists accepted the idea that entrepreneurs were innovators, but this theory was not applicable to less developed countries. In developed countries, the process was named ‘creative imagination’ (Drucker 1985). Though different scholars stated different characteristics, the belief was that they were all common among most entrepreneurs (Burnett 2000). Fig. 2.9 shows the timeline of the development of entrepreneurship history.

**Fig 2.9  Timeline of the Development of Entrepreneurship History**

<table>
<thead>
<tr>
<th>Eighteenth Century</th>
<th>Nineteenth Century</th>
<th>Twentieth Century</th>
<th>Twenty first century</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early 1700s</td>
<td>Late 1700s</td>
<td>Early 1800s</td>
<td>Late 1934</td>
</tr>
<tr>
<td>Richard Cantillon</td>
<td>Jean Baptise Say</td>
<td>Joseph Schumpeter</td>
<td></td>
</tr>
<tr>
<td>(economist) coined term entrepreneur</td>
<td>(economist) proposed that the profits of entrepreneur as someone who ‘creatively destructs’</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(go-between ‘or ‘between taker’)</td>
<td>(economist) described entrepreneurship were separate from profits of and someone who</td>
<td></td>
<td></td>
</tr>
<tr>
<td>capital ownership</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distinction made between those who supply funds and earn interest and those who organise and owns factors of production</td>
<td>Peter Drucker (management author) described profit from entrepreneurial interest and those who the entrepreneur new ideas</td>
<td>Kuratko &amp; Hodgetts Entrepreneur bears risk and plans, supervises, and creation with the implementation of creativity and</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Source: Coulter(2003)**
2.3.5 Perspectives of Entrepreneurship

The four main perspectives of entrepreneurship: psychology, sociology, economic and cultural are discussed below and shown in Table 2.6.

<table>
<thead>
<tr>
<th>Perspectives</th>
<th>Research subjects</th>
<th>Line of Inquiry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic</td>
<td>Relationship between economic environment and entrepreneurship</td>
<td>Effects (why)</td>
</tr>
<tr>
<td>Psychological traits</td>
<td>Entrepreneurs’ characteristics and entrepreneurial processes</td>
<td>Causes (why)</td>
</tr>
<tr>
<td>Sociological</td>
<td>Entrepreneurs of different social backgrounds</td>
<td>Causes (why)</td>
</tr>
<tr>
<td>Cultural</td>
<td>Entrepreneurs of different cultural backgrounds</td>
<td>Causes (why)</td>
</tr>
</tbody>
</table>

*Source: Kruger (2004)*

a) Psychological perspective

First, the focus was on distinctive traits and special psychological characteristics of an entrepreneur. There was a belief that entrepreneurs had unique values and attitudes toward work and life, and these needed drives for the individual to behave in certain ways. The traits included: propensity to risk-taking (Begley & Boyd 1987), high achievement (McClelland 1961, 1976), or an internal locus of control (Brockhaus & Horwitz 1986), and who possessed the qualities like leaders of innovation and catalysts, which initiated economic growth and development (Berger 1991).
b) Sociological perspective

Secondly, the perspective looked into a variety of social factors that influenced an entrepreneur’s decision (Reynolds 1991). Collin and Moore (1964), in their study noted that entrepreneurs came from ‘deprived’ social environments filled with poverty and parental negligence (Kets de Vries 1977). These individuals, due to this highly impulsive upbringing, were motivated to take control of a hostile work and create businesses when they grew up (Roberts & Wainer 1968; Collins & Moore 1970; Shapero 1972). The children of entrepreneurs were likely seen to have entrepreneurial careers than working for others (Dyers 1992). Sociological approach was also attributed to culture (Shane 1993), social class and ethnic groups (Aldrich & Waldringer, 1990, Light & Rosenstein 1995) that produce entrepreneurial behaviour (Dyer Jr. & Gibb 1994).

c) Economic perspective

Thirdly, the economic perspective was viewed as an activity that would encourage or inhibit entrepreneurial activity. Entrepreneurial effort became ultimately the key element in the process of economic growth, in the economic theory by Robert Solow (1994), which identified technological progress as the key to sustained growth. Technology investment in the form of increases to the returns of scale served as a mechanism for attaining a process of sustained economic growth (Romer 1986 & Lucas 1988). Economic growth created business opportunities and in turn generated ‘entrepreneurship’. The increase in the demand for goods and services was reflected in the likelihood that someone would seize the opportunity to start an entrepreneurial career (Aldrich & Zimmer 1986; Birley 1986).

d) Cultural perspective

The fourth perspective is cultural. Its variations might stem from ethnic, language, national, regional, religious, or social class variations (Basu & Altinay 2002). Culture was seen to affect the supply of entrepreneurs by influencing preferences for entrepreneurship (Davidsson 1995). The individuals’ personalities, behaviours, firms, economic conditions and social/political systems were all embedded in the national culture from which they originate (Berger 1991). Some countries were yet to experience a cultural shift to a paradigm which supported entrepreneurial behaviour.
Through the economic reform called ‘modernisation’ there was a cultural transformation. Culture served as a conductor for entrepreneurial behaviour and as the catalyst to entrepreneurship (Berger 1991, p. 122). The presence of a favourable environment and motivational factors; such as financial rewards, achievement, social careers and individual fulfilmentmotivated entrepreneurship, but a national culture that supports and encourages entrepreneurial intentions and activities was needed(Hisrich et al. 2007).

The sociological theory of entrepreneurship by Max Weber (1864-1920) holds social cultures as the driving force of entrepreneurship. The entrepreneur becomes a role performer in conformity with role expectations of the society based on religious beliefs, taboos and customs. Max Weber held religion as the major driver of entrepreneurship and stressed capitalism for economic freedom and private enterprise (Mohanty S K 2005).

None of the major religions namely; Christianity, Islam, Buddhism, Jainism and Hinduism oppose entrepreneurship. In Malaysia, the Chinese who are mainly Buddhists and the Indian-Muslim community in Malaysia are mainly entrepreneurs since Independence in 1957. Malaysian Hindus, Buddhists, Christians, Malays and the Sikhs have the freedom to decide on whether they want to get involved in entrepreneurship.
2.4 Entrepreneurship Education

This section reviews the definition of entrepreneurship education and its theories and models.

2.4.1 Definition of Entrepreneurship Education and its Chronology

Entrepreneurial education is defined as, ‘the whole set of education and training activities within the educational system, or not that try to develop in the participants the intention to perform entrepreneurial behaviours or some elements that affect that intentions, such as entrepreneurial knowledge, desirability of entrepreneurial activity, or its feasibility’ (Linan 2004a, p. 163).

The chronology of entrepreneurship education was developed by Katz (2003), dated back to 1876 with the economic and agricultural literature and included the start of Harvard courses in 1947. Entrepreneurship education was enforced in business schools in the early 1970’s, with the launch of MBA programs in 1971 by the University of Southern California. By early 1980’s, over 300 universities reported courses in entrepreneurship and by 1990’s, the number grew to 1,050 (Solomon, Weaver & Fernald 1994), with over 2,000 colleges and universities around the world currently (Charney & Libecap 2000). The continued increase of business education as a field of study took a broad integration and rational approach that would be popular for those who aspire to be entrepreneurs (Zeithaml & Rice 1987). Entrepreneurship education has come a long way, but many researchers stated that the field is very young, emergent and in adolescence phase. This lack of accepted paradigms or theories in entrepreneurship education has been stressed by many researchers (Hills 1988; McMullan and Long 1990; Fiet 2000a, b; Katz 2003; Bechard and Gregore 2005a; Kuratko 2005).

2.4.2 Entrepreneurship Education Research and Models

Entrepreneurship education studies in the universities were explored across campuses in universities by many researchers. Weaver et al. (2006) proposed a linear regression method and found a significant positive correlation between participation in entrepreneurial programs and venture creations (Smith 2008). Interest in entrepreneurship and the development of entrepreneurs remained high both in and out of academia. The contributing factors were; firstly, the prevailing economic conditions, and secondly, the recent federal government emphasis on small business development and entrepreneurship that gave rise to colleges and universities recognizing, that starting and operating a business as viable career alternatives deserves academic attention (Shinnar, Pruett & Toney 2009).
The debate in the entrepreneurship academy about whether ‘entrepreneurship could be taught’ was critiqued by many researchers. ‘Entrepreneurship’ related to a matter of personality and psychological characteristics, and the argument was that talent and temperament could not be taught (Thompson 2004). Many researchers argued and suggested that ‘entrepreneurship could be taught as a subject’ and was confirmed by Peter Drucker’s words, quoted by (Kuratko 2005, p. 580), as ‘it is becoming clear that entrepreneurship or certain facets of it can be taught’. According to Béchard and Grégoire (2005a), entrepreneurship teaching activities were closer to craft than science driven by experience more than systematic teaching approaches. As viewed in the ontological and educational perspectives, the key questions addressed by the educators were: what, for whom, why, how and for what results. This resulted in the proposal of a ‘teaching model’ framework developed at ontological and didactical levels and shown in Fig. 2.10 (Fayolle&Gailly 2008).

**Fig. 2.10 Teaching Model for Entrepreneurship Education**

![Teaching Model for Entrepreneurship Education](image)

*Source: Adapted from Fayolle & Gailly (2008)*

The body of knowledge on entrepreneurship education was traced from its essence and objectives. Firstly, it was focused on specific objectives to train individuals for, about or in entrepreneurship. Secondly, to support the local communities through the types of courses,
target groups and outreach projects. Thirdly, to introduce appropriate teaching methods and community outreach activities. Fourthly, it was to establish success indicators and methods of evaluation and impact measurements. The concept behind the developed framework suggested that training efforts in entrepreneurship education had to be in conformity with its definitional essence and general objectives as shown in Fig. 2.11 (Matley 2005, cited in Mwasalwiba 2010).

**Fig. 2.11 Entrepreneurship Education: A Review**

![Entrepreneurship Education Diagram]

**Source: Adapted from Matley (2005)**

After reviewing the teaching methodologies commonly employed in higher education, it was found that a typical university setting was unlikely to include many entrepreneurial elements. Traditional teaching methods, lectures, literature reviews, examinations, and so on did not
seem to activate entrepreneurship (Gibb 2002; Sogunro 2004). Education in general was focused on supporting the development of knowledge and the intellect, whereas entrepreneurship education involved human beings as a whole (including their feelings, values and interests) in terms of planning, organising and decision-making, and became part of society at large (Kyro 2003b). The budding entrepreneur needed not only knowledge (science), but new ways of thinking, new kinds of skills and new modes of behaviour (arts). As traditional methods were found to be insufficient, they had to be complemented with entrepreneurial approaches (Gibb 1993; 1996; 2002). Gibb (2002) promoted multidisciplinary approaches outside the business schools in entrepreneurship education, that focused on the entrepreneurial-directed approach, involving ‘co-learning’ between the teachers and students, and ‘experience’ organised on the basis of theory and learning as reflected in Fig. 2.12.

Source: Adapted from Gibb (1993)&Shook et al. (2003)
Past researchers examined the psychological perspective, i.e. personality traits and characteristics of an entrepreneur. There was a belief that entrepreneurs possess unique values and attributes. These needed drives to behave in such a way and were argued that they cannot be merely developed or trained in classroom settings. Statements included that these characteristics would develop over a time period through family relationships, friends or relatives who were entrepreneurs. These personality traits were seen to differentiate an entrepreneur from a non-entrepreneur (Cunningham & Lischeron 1991). Individuals with high needs of control, achievement, the ability to take risks, and a tolerance for ambiguity were seen to have the drives for entrepreneurial activity (Brockhaus & Horwitz 1986).

However, the personality approaches were not without critics (Gartner 1988; Robinson et al. 1991) and as an alternative, the attitude approach became widely in use (Robinson et al. 1991; Douglas 1999). Attitude measures became a predictive behaviour, and social cognition and cognitive processes act as significant factors in career choice (Robinson et al. 1991; Shaver & Scott 1991).

The universities roles as promoters of entrepreneurship were considered due to organisational and societal changes. This increased the interest to teach ‘through entrepreneurship’ using the new venture creation processes to involve students in business understanding, and transferable skills and competencies. By including ‘entrepreneurship’ in the basic business curriculum recently, business educators were ready to prepare students better for a ‘changing environment’ (Kirby 2006, p. 23).

Entrepreneurship education resulted in a newly emerging knowledge-based economy in many countries, which was a fundamental transformation. Through its program characteristics, such as interactive learning, experience-based learning, role models, business and community links (Peterman & Kennedy 2003), entrepreneurship education focused on issues related to social experiences that influenced an individual’s desire similar to their learning experiences and skills that contributed to successful entrepreneurial activity (Menzies & Taroff 2006).

Research findings suggested that exposure to certain types of entrepreneurship education increased the individual’s self-reported intentions to venture into business. Programs that provide real-world experience seemed particularly useful in enhancing intentionality through increased perceived desirability and feasibility (Peterman & Kennedy 2003).
One of the most popular curricula formats consisted of teaching and monitoring the production of business plans. The business plan was found to be the most popular curricula format of teaching and monitoring among 78 out of 100 top universities in the United States (U.S. News and World Report 2004). The paradigm of business planning became so popular that universities around the world send competitive teams to enter the business plan competitions (Honig 2004). The contemporary model of how business plan occupied a central position in entrepreneurship business plan is shown in Fig. 2.13.

**Fig. 2.13 Conventional View of Entrepreneurship Business Planning Education**

![Diagram showing the conventional view of entrepreneurship business planning education]

Method:
Solutions based on convergent thinking

Instruction on how to write an entrepreneurial business plan

Entrepreneur completes a business plan

Entrepreneur creates a new organisation or firm

Outcomes:
Analytical tools (cognitive factors)

*Source: Adapted from Honig (2004)*

Another substantive theme of research addressed the issues associated with graduate recruitment within the SME sector. The process model was employed in the developing of a partnership between the undergraduates and the managers within the SMEs. There were two dimensions to the model; the explicit dimension and the implicit dimension. The latter sought to ensure an effective mechanism for the interaction of the two primary partners where the
employers gauged the qualities of the undergraduates initially, and assessed the contribution they made to the business as full-time employees. From the undergraduates’ perspective, the implicit objective was to provide a direct insight into the smaller organisation, so that they understood the nature of the career opportunities in the smaller organisation, their project work and the staff of the organisation. The academic tutor remained as a ‘key player’ in the process, whose role was to mentor the group of the undergraduates and mediate on any difficulties that arose in the project work. The groups of undergraduates were finally required to present their findings and recommendations to the partner business organisation (Brindley & Ritchie 2000). This partnership model is reflected in Fig. 2.14.

Fig. 2.14 The Undergraduates - SME Partnership Model

Source: Adapted from Brindley and Ritchie (2000)
Further to the description of the above models, it is pertinent to address entrepreneurship in the 21st century. The younger generation in the 21st century is becoming the most entrepreneurial generation since the Industrial Revolution. More than 5.6 million American youngsters aged 34 and below are actively trying to start their own businesses today. The number of colleges and universities offering courses related to entrepreneurship has grown tremendously in the current generation (Katz 2003). With this enormous expansion, there is the challenge of entrepreneurship’s complete academic legitimacy which the universities and higher educational institutes are facing currently (Kuratko 2005). Similarly, throughout the world there are universities where start-up rates for students are extremely high, such as Babson College in USA (Upton et al. 1995), Stanford University and Silicon Valley (Pfeiffer 1997).

Entrepreneurship education has become an important economic and social phenomenon, as well as a popular research subject and an academic teaching field (Davidsson 2003; Fayolle 2007a). With the fast growing number of universities worldwide that offer entrepreneurship programs and courses, some authors have adverse arguments. They stated that ‘to teach individuals to become not only more enterprising, but businessman as well, could be an undertaking that in both time and scope was beyond the capabilities of an academic business school,’ (Johannison 1991, p. 79). The characteristics of entrepreneurship education indicated that, the majority of the programs conducted were to increase the awareness and understanding of entrepreneurship as a process (Hills 1988), and this awareness of entrepreneurship was seen as a career possibility (Solomon et al. 2002). Another researcher, Rae (1997, p. 199) suggested that, ‘the skills traditionally taught by business schools were essential, but not sufficient to make a successful entrepreneur.’ The contradictory perspectives resulted in an ongoing debate whether universities can really make a significant contribution to the number and quality of entrepreneurial stock that operate in an economy as government rhetoric would have us believe (Matlay 2006a).

The development of entrepreneurship, both as a concept and activity is growing in importance in Malaysia, as well as in many countries. Entrepreneurship is seen as a process of identifying opportunities, gathering resources and exploiting opportunities through action and considered important as a source of income and employment. Through the expanding role of entrepreneurship, the global changes were aimed to present new opportunities for youth employment.
2.5 Entrepreneurial Intentions

The section reviews the definition and theories on entrepreneurial intentions.

2.5.1 Definition and Theories on Entrepreneurial Intentions

‘Entrepreneurial intention’ or ‘intent’ in general is defined as, ‘a state of mind directing a person’s attention, experience and action towards a specific goal, or a path to achieve something’. ‘Entrepreneurial action has been predicted like an ‘intentional behaviour’ (Shapero 1982; Bird 1988; Vesalainen & Pihkala 1999, p. 3).

An overview of recent studies of different entrepreneurial intention models provided by Peterman and Kennedy (2003) was proposed and tested (Shapero & Sokol 1982; Bird 1988; Krueger & Carsrud 1993; Boyd & Vozikis 1994; Autio et al. 1997). Shapero’s model (Shapero 1975; Shapero & Sokol 1982) suggested that entrepreneurial intentions were influenced by perceptions of desirability, feasibility and propensity to act and by exposure to entrepreneurship (Peterman & Kennedy 2003). It further supported the notions of ‘career socialisation theory’ (Dyer 1994), which suggested that entrepreneurship education experiences ‘could influence the perceived desirability’ (Peterman & Kennedy 2003) and through enhanced self-efficacy (Shapero 1975; Boyd & Vozikis 1994). The increase was seen through participation in entrepreneurship education programmes in schools and universities (Peterman & Kennedy 2003; Robertson et al. 2003).

The growing demand in participation of entrepreneurship education programmes at schools transpired into the belief that childhood and adolescence years were a crucial time for acquiring the relevant knowledge and attitudes (Filion 1994), and had contributed to the increased attention for these particular initiatives (Kourilsky 1995; Young 1997). ‘Entrepreneurship intentionality’ was suggested as an indicator of the effectiveness of entrepreneurship education programs, where the researchers focused on assessing the impact of entrepreneurship education programs on students’ intentions to start business ventures and on the traditional antecedents of intentions, such as attitudes, perceptions of control and self-efficacy (Cox, Mueller & Moss 2002; Fayolle, Benoit & Lassas-Clerc 2006; Botha, Nieman & Vuuren 2006), by applying the theory of planned behaviour shown in Fig. 2.15 (Barbosa, Kickul & Smith 2008).
Numerous approaches to the study of entrepreneurial intentions addressing the different facets of intentional entrepreneurial activity were the ‘theory of planned behaviour’ (Ajzen 1991) and Shapero’s (1982) model of the ‘entrepreneurial event’, which were similar intention models. The ‘theory of planned behaviour’ model explained that the individual’s behaviour was useful for assessing entrepreneurial intentions, when being adopted by entrepreneurship scholars (Krueger et al. 2000). It addressed three attitudinal antecedents of intentions. First, the intentions were triggered by a person’s attitude towards the behaviour and this was observed from the different outcomes of the behaviour which included intrinsic rewards. Secondly, the factor of social norms was the beliefs of relevant groups, such as family, close relatives, friends, colleagues and customers, which were found to have an effect on entrepreneurial intentions (Davidsson 1995). Thirdly, a person’s self-efficacy greatly influenced entrepreneurial behaviour by improving the perceived feasibility of certain courses of actions, which were vital to encourage increased entrepreneurial intentions (Krueger et al.)
The attitudinal antecedents of intentions have accounted for a large part of the variance in intentions (Fishbein & Ajzen 1975).

The proposed research model for this research adopted the mediating variable of only attitudes, and not social norms and perceived behavioural control. Social norms incorporated external factors to the model which measure the perceived social pressure to perform or not to perform the entrepreneurial behaviour, refer to the perceptions of reference people; such as families, friends and relatives toward entrepreneurship support (Liñan & Chen 2006). Some early studies by Krueger et al. (2000) and Autio et al. (2001), of entrepreneurial intentions found that the relationship between subjective norms and entrepreneurial intentions were weak and they were omitted from subjective norms (Veciana et al. 2005). Social norms was omitted from the model, as it was included in family history and measured under the demographic characteristics. Perceived behavioural control referred to the perception of easiness or difficulty in fulfilment of creating a new venture. It was based on the individual’s controllability and self-efficacy during the process of new venture development. Education was seen to enhance the ability to acquire and use codified information about specific aspects of working and non working life. Hence, the explored data on educational attainment revealed the cognitive abilities possessed by the individual. Perceived behavioural control was omitted as it was included in the entrepreneurial intentions section.

The dimensions of attitudes are included in the proposed research model. Attitudes are defined as, ‘a learned predisposition to respond in a consistently favourable or unfavourable manner with respect to a given object’ (Fishbein & Ajzen 1975). They are less stable than personality traits and can be changed both across time and situations in virtue of the individual’s interactions with the environment (Robinson et al. 1991). In this context, entrepreneurial attitudes were seen to be influenced by educators and practitioners. General attitudes relating to the broad psychological disposition of an individual and domain attitudes referring to the person’s more specific attitude towards entrepreneurship had to be distinguished. The application of specific attitudes was seen to increase the accuracy of the measurement within the specified domain, thus improving the predictability of the behavioural intent. The attitudes dimensions in the research model include: attitudes towards money, change and competitiveness. Entrepreneurial intentions were also affected by environmental barriers, support factors and the university environment. Support actions for entrepreneurship were found to be stronger than students’ entrepreneurial intentions in some
studies. A hostile environment, with good financial support increased the individual’s intention towards self-employment (Frank & Luthje 2004) as shown in Fig. 2.16.

**Fig. 2.16 Model of Entrepreneurial Intent through Attitudes and Environmental factors**

The university environment had a great impact on entrepreneurial intentions. Frank and Luthje’s (2004) study found that the support provided by the university environment had a negative effect on entrepreneurial intent. The results from this study indicated that lower level of students were found to have intentions followed from a negative appraisal of the university’s activities to provide the students with the knowledge to start new venture creations actively (Frank & Luthje 2004). The differences in the entrepreneurial intentions relative to individual’s perception of the university environment were significant and stronger than the differences relating to personal traits, attitudes and socio-economic environmental factors.
2.5.2 Entrepreneurial Intentions and Entrepreneurship Education

Research by Souitaris et al. (2007) indicated that there wasn’t sufficient information as to the effects of different entrepreneurship programs on student’s subsequent behaviour, but such programs increased entrepreneurial intentions. Souitaris (2007) conducted a survey on entrepreneurship programs for science and engineering students and found that the programs raised some entrepreneurial intentions among the students. Many of the students experienced key moments of inspiration that drastically changed their ‘heart and mind’ and made them consider becoming entrepreneurs. Education was the starting point where the entrepreneurship students would be expected to be more likely than other students to consider starting their own businesses, because of the selection of the entrepreneurship programs (Storey 2000). There was ample international evidence that participating in entrepreneurship programs raised students’ entrepreneurial intentions. However, except for the study by Souitaris et al. (2007), there was little document evidence of what specific factors within the programs were effective in raising entrepreneurial intentions. Research indicated that creativity was a key part of the entrepreneurial process, which reflected a characteristic of entrepreneurial behaviour and a common attribute in the entrepreneurship educational programs. The introduction of innovation and creativity increased the students’ eagerness to engage in entrepreneurship activities (Yar Hamidi et al. 2008).

The Global Entrepreneurship Monitor (GEM 2001), Reynolds et al. (2005) had indicated that people with limited education were less likely to participate in entrepreneurial initiatives, contradicting the famous paradigm of ‘entrepreneurs were born or made’. There were different stories of successful entrepreneurs that stimulate this paradigm (Garavan & O’Cinneide 1994). Personality traits were ignored and contextual factors were considered. Entrepreneurship education and training were among the most important elements in human resources development. Previous studies indicated a link between education and entrepreneurship (Gorman et al. 1997; Henderson & Robertson 1999; Galloway & Brown 2002). According to Garavan and O’Cinneide (1994, p. 3), there was clearly a major role and need for entrepreneurship education and training, where the universities were seen as a potential source to develop entrepreneurial behaviour among students (Linan 2004a, p. 163, 2004b). A mismatch was seen between skills acquired at the university and those needed by the students, as the entrepreneurial skills were poorly developed within the university study and showed adverse effects to engage in entrepreneurship. This resulted in resistance to the
access of entrepreneurship education where the students did not recognise entrepreneurship education as an appropriate curriculum (Smith 2008).

2.5.3 The Appropriate Theoretical Model for this Research

As discussed in the earlier sections, there are several theories and models that attempt to explain the effectiveness of entrepreneurship education with entrepreneurial intentions. Despite the strengths and merits, some were not considered appropriate to meet the objectives of this research.

A more pertinent and appropriate theory is the Theory of Planned Behaviour by Ajzen and Fishbein (1975). Emphasising on individual behaviour, it is useful for assessing entrepreneurial intentions. (Krueger et al 2000).

The Theory of Planned Behaviour identifies three attitudinal antecedents; personal attitudes, subjective norms and perceived behavioural control. Personal attitude is a reflection of beliefs and opinions held by an individual about the behaviour. Subjective norms refer to the degree to which the behaviour will comply with other people, such as family members, friends and relatives. Perceived behavioural control is a person’s perception of their ability to perform the specific behaviour (Wu and Wu 2008).

Based on the Theory of Planned Behaviour, Wu and Wu (2008) developed a hypothetical model of the relationship between educational background and entrepreneurial intentions. This model, shown in Fig. 2.15, identifies entrepreneurship education as the main variable to test entrepreneurial intentions and is adopted as the theoretical model for the study.
2.6 Entrepreneurship in Malaysia

The earlier sections reviewed the parent theories pertinent to the research. The immediate discipline reviews the historical development of entrepreneurship, significant developments, government policies and situation analysis in Malaysia, entrepreneurship education in Malaysian universities and entrepreneurial intentions among Malaysian university students.

2.6.1 Historical Development of Entrepreneurship

The country context reviewed the historical aspect and origination of entrepreneurship. Entrepreneurship emerged with the rubber and tin industries in Malaysia during the colonial times and the growth of palm oil-industries from 1960 onwards. The enterprise creation was divided along racial lines due to identification of race with economic activity. The practice of segregation along the racial activity was introduced by the British under the colonial rule of Malaya (pre-1957). The urban areas, the plantations and mining sectors were dominated by Malaysians, of Chinese and Indian origins. This unbalanced economic landscape generated tensions, particularly between the ruling Malay class and Chinese businessmen, who accounted for more than 50% of the country’s economy assets. The Chinese were viewed as a major obstacle to the economic advancement of the Malay community (Selvanathan 2000).

The Malays from the upper or royal family class were allowed in the bureaucracy, while the majority of the Malays were confined to the low-income agricultural sector. This became a society that was multi-layered and segregated economically and racially, with the Malays at the bottom rung (Ariff & Abubakar 2003).

Though entrepreneurship was divided along racial lines due to identification of race with the economic activity, the situation began to change. The Chinese, and to a certain extent the Indian-Muslim community, had a long tradition of entrepreneurship. The Malay community members had less resistance to entrepreneurial activities and the passing over to the family from father to son was quite common among these groups. Women entrepreneurs from the northern state of Kelantan were another exception. Kelantanese women had traditionally been the main breadwinners of their families and worked as petty traders in the markets engaging in a form of entrepreneurship. In terms of skills and entrepreneur development, training programs were established for the women in the country to improve themselves and promote entrepreneurial careers (Mohamed Ali 2001).
The Malaysian Indian community were largely employed in the plantation sectors which were then controlled by British Agency Houses. Isolated from the urban areas and without access to financial capital and education, they were not provided with opportunities to establish business enterprises (Puthucheary 1969). Malaysian Indians account for a substantial number of the unemployable graduates who are not inclined to be self-employed.

2.6.2 Socio-economic Development
In 1970, the number of industries, small and medium enterprises saw an increase. The participation of Bumiputras in these enterprises began to grow after 1971, when the New Economic Policy (NEP) was implemented. The areas of their participation were limited to such areas as handicrafts, batik, furniture and foods. Currently, the enterprises accounted for a larger proportion of the total number of establishments in various sectors of agriculture, construction, services and manufacturing (Abdullah & Hamid 2008). The main objectives of the NEP were eradicating poverty and restructuring the society, providing Bumiputra 30% equity participation in the industrial sector by 2000. This was further extended to 2010, as stipulated in the Third Outline Perspective Plan (OPP 3) 2001 – 2010, a turning point for Bumiputra involvement in economic activities (Abdullah & Amran 2008).

The Bumiputra Commercial Industrial Community (BCIC) was created to foster Bumiputra entrepreneurs, professionals and creating a Bumiputra middle-class group, that became the backbone of Malaysia’s strategy to strengthen national entrepreneurship (Economic Planning Unit 2001). This strategy helped the Bumiputras tremendously, but the Non-Bumiputras (Chinese and Indians) were not ignored and the government still continued to nurture the business community with a wide variety of entrepreneurial support services (Ariff & Abubakar 2003).

The BCIC depended mainly on the continued success of Bumiputra entrepreneurs and the government gave great support in seeing the enterprises survive and flourish. This was clearly seen during the post-war Asian economic crisis. Many business enterprises and entrepreneurs found themselves in severe financial problems, were adversely affected by the crisis and had effectively collapsed (Chin & Fay 2005; Jomo 2005). The government took major steps to ensure the non-failure of enterprises in the post Asian economic crisis by setting up special purpose vehicles. These bodies were mainly to acquire and manage non-performing loans and to recapitalize the banking sector. The government bailed out certain companies to ensure that Bumiputra corporate interests and equity share would not be severely eroded by the
crisis. The movements were seen as negative by the international community, who were influenced by the ideology of good governance and transparency shown by the World Bank and the International Monetary Fund (Ariff & Abubakar 2003). These developments showed the beginning of a new phase toward Bumiputra entrepreneurs. They received much political support which they can expect in the future, or could be signalled as the adoption of a new model for national economic development, one that separates the agenda of developing the Bumiputra entrepreneurs (Ariff & Abubakar 2003).

A review of the historical perspective of Malaysia saw how entrepreneurship was developed prior to independence in 1957. Initially, in the year 1931, there were 475 Malays, 16,894 Chinese, 4,428 Indians and 246 Europeans involved in businesses, in the then Federated Malay States of Perak, Pahang, Negeri Sembilan and Selangor (Emerson 1966). In 1954, there were 79,673 business units registered in the then Federation of Malaya (Goh Joon Hai 1962:84), showing an increase after independence in 1957 (Abdullah & Amran 2008).

In the year 1990, the Small Medium enterprises contributed to RM 4.3 billion to the GDP, about 20%. The amount was projected to increase to about RM 120 billion by 2020. SMEs invested approximately RM 80 billion during the Sixth Malaysia Plan (1991 – 1995) and RM 126 billion during the Seventh Malaysia Plan (1996 – 2000). The figure increased to RM 250 billion in the Ninth Malaysia Plan (2006 – 2010). These investments would generate a significant proportion of economic activity and growth. Economists had shown that the higher the amount of investments, the greater the multiplier effect that sets off spending chains that would bring about greater prospects for near future economic growth. Small medium enterprises were dynamic forces in the Malaysian economy (Abdullah & Hamid 2008).

In the Tenth Malaysia Plan (2011-2015), the Malaysian Government ensured better financing facilities for the SMEs, and established the Working Capital Guarantee Scheme totalling RM7 billion and Industry Restructuring Loan Guarantee Scheme totalling RM3 billion. They also set up a Business Growth Fund for public venture capital financing through an allocation of RM150 million. The Government provided a development package to the BCIC, to strengthen their competitiveness and resilience, which included entrepreneurial training, technical assistance, financial consulting services, promotion and marketing. The amount allocated for these facilities were RM1.5 billion. In addition to this entrepreneurial
development organisations, such as MARA and Pelaburan Usahawan Nasional Berhad (PUNB) had to be strengthened, and an allocation of RM3 billion was provided (10th Malaysia Plan).

2.7 Significant Developments, Government Policies Support and Situation Analysis

This section discusses the significant developments, government policies and situation analysis of entrepreneurship in Malaysia.

2.7.1 Significant Developmentsof Entrepreneurship

The Malaysian government plays a major role in the promotion and development of entrepreneurship through emphasis on the development of SMIs and SMEs, where the government’s major steps include: providing a positive environment, tax incentives and a variety of financing schemes. To support the SMEs, the government established two micro-credit schemes; Amanah Ikhtiar (Enterprise Trust) and TEKUN (Tabung Ekonomi Usahawan Negara or National Entrepreneurs’ Economic Fund). The schemes had been remarkably successful in alleviating poverty and improving the living standards. The development of SMEs between 1970 and 1990 brought a strong focus on developing domestic market-orientated small-scale industries, and small enterprises through the Bumiputra Commercial Industrial Community (BCIC). With the development of the Small and Medium Industries Development Corporation (SMIDEC) in 1996, the focus shifted towards promoting those SMEs that had strong growth potential, and towards enhancing the capacity of SMEs to be competitive and export orientated (Abdullah & Hamid 2008).

The government adopted various policy-timely measures to address the concerns of SMEs and provided them with strategic support. The impact of the Asian financial crisis in 1997/1998 arising from globalisation and made it realise that there was a need for SMEs to be competitive. Priorities were given to SMEs in the Eighth Malaysia Plan (2001 – 2005) and Ninth Malaysia Plan (2006 – 2010), to accelerate Malaysia’s industrialisation through the cluster approach and human capital development. There were 38 agencies under 12 ministries, running a wide variety of programmes to promote SME development. SMIDEC was strengthened so that it can function as a coordinator for those agencies and a one-stop agency for SMEs. The support programmes offered were as follows: financial and credit assistance, entrepreneurial development, business management and human resource
management, consultancy and marketing services, technical and vocational programmes, vocational and infrastructural facilities, and financial-fiscal incentives. The policy led to the growth and development of SMEs in the country accounting for 99.2% of all enterprises (Abdullah & Hamid 2008). Status of SMEs in Malaysia is shown in Table 2.7.

### Table 2.7 Status of SMEs in Malaysia 2005

<table>
<thead>
<tr>
<th>Sector</th>
<th>All Establishments</th>
<th>SMEs</th>
<th>Percentage of SMEs</th>
<th>Percentage of Structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing</td>
<td>39,219</td>
<td>37,866</td>
<td>96.6</td>
<td>7.3</td>
</tr>
<tr>
<td>Services</td>
<td>119,980</td>
<td>118,662</td>
<td>98.9</td>
<td>22.8</td>
</tr>
<tr>
<td>-Retail, wholesale and restaurants</td>
<td>312,245</td>
<td>311,234</td>
<td>99.7</td>
<td>60.0</td>
</tr>
<tr>
<td>-Retail, wholesale and restaurants</td>
<td>19,291</td>
<td>19,108</td>
<td>99.1</td>
<td>3.7</td>
</tr>
<tr>
<td>Total Services</td>
<td>451,516</td>
<td>449,004</td>
<td>99.4</td>
<td>86.5</td>
</tr>
<tr>
<td>Agriculture</td>
<td>32,397</td>
<td>32,126</td>
<td>99.2</td>
<td>6.2</td>
</tr>
<tr>
<td>Overall Total</td>
<td>523,132</td>
<td>518,996</td>
<td><strong>99.2</strong></td>
<td>100.0</td>
</tr>
</tbody>
</table>


The data analysis does not permit an analysis of SME growth and development over the last decade. A report in 1999, by the Asian Development Bank (ADB) from which the Malaysian Department of Statistics derived the data and SMIDEC’s performance report in 2005 were used to give insights into the growth trend of SMEs in the manufacturing sector. It was noted that between 1975 and 1985, the contribution of SMEs to Malaysia’s manufacturing sector in
terms of share of total employment and output was almost stagnant. There were changes in the total number of establishments, total employment and total output. The number of establishments increased to 96.6% from 92.4% in 1975, although their contribution to the total employment and total output declined quite significantly. Comparing the figures from 2004 and 2005, the total output grew from RM75.2 billion to RM82 billion and shown in Table 2.8. Total employment grew at a lower rate. In general, the SMEs grew in tandem with the rapid overall economic development of the country (Abdullah & Hamid 2008).

### Table 2.8 Growth of SMEs in Malaysia’s Manufacturing Sector (1975 - 2005)

<table>
<thead>
<tr>
<th>Indicators of SMEs</th>
<th>1975</th>
<th>1985</th>
<th>1995</th>
<th>2004</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage share of total establishments</td>
<td>92.4</td>
<td>92.1</td>
<td>N/A</td>
<td>N/A</td>
<td>96.6</td>
</tr>
<tr>
<td>Percentage share of total employment</td>
<td>48.0</td>
<td>49.4</td>
<td>29.6</td>
<td>31.0</td>
<td>31.1</td>
</tr>
<tr>
<td>Number of employees</td>
<td>135,259</td>
<td>235,471</td>
<td>329,848</td>
<td>384,935</td>
<td>394,670</td>
</tr>
<tr>
<td>Percentage of total output</td>
<td>47.7</td>
<td>46.7</td>
<td>22.1</td>
<td>29.3</td>
<td>29.6</td>
</tr>
<tr>
<td>Total value output (RM Billion)</td>
<td>RM 5.1</td>
<td>RM 21.2</td>
<td>RM 51.5</td>
<td>RM75.2</td>
<td>RM82.0</td>
</tr>
</tbody>
</table>

- N/A – not available

*Source: SMIDEC (2006) and ADB (1990)*

### 2.7.2 Government Policies Support for Entrepreneurship

The establishment of the Ministry of Entrepreneurship and Co-operative Development (MECD) in 1995 strengthened the entrepreneurship activities. MECD served Bumiputra entrepreneurship, acted as a coordinating body, an information resource centre, providing training and financial assistance and subsidised business premises for qualified entrepreneurs.
The Ministry of Entrepreneurship Development is currently abolished and its activities transferred to the Ministry of Domestic Trade and Industry and other ministries.

In 1992, the Malaysian Technology Development Corporation (MTDC) was established and it provided premises, capital, technical support and advice, to enhance the technical capabilities of the entrepreneurs. Later in 1998, it was further upgraded and established five incubator centres in collaboration with the universities. The majority of the businesses incubated were from high-tech sectors, such as software and biotechnology (www.entrepreneurMalaysia.com).

The government established various development programmes to upgrade the performance of SMIs in line with Malaysia’s industrial policy to create industrial linkages. SMI development programmes included the vendor development programmes, integrated market programmes, SMI expos and industrial airs, the subcontract exchange schemes, human resources development programmes, foreign technical assistance for SMIs, product and market segment studies, industrial technical assistance funds, soft loans for modernisation and automation, soft loans for furniture, food-based industries and infrastructure development programmes. In addition the government supports by creating a business environment that is entrepreneurship friendly, by specifying in advance, what directly the Malaysian economy will take and where major allocation of funding will be. In the year 2000, the government announced the ‘Knowledge Economy Master Plan’ to create a knowledge and information-driven economy through nurturing high tech and knowledge-driven businesses (Mohamad 2002). This information process enabled the entrepreneurs to focus their attention on specific areas that best suited their situation and reducing their risks of investing in future technologies (www.EntrepreneurMalaysia.com).

The establishment of the New Economic Policy (NEP), the New Development Policy (NDP), the National Vision Policy (NVP) and the New Economic Model (NEM) focused on the restructuring of the Malaysian society, mainly for the Bumiputras to own 30% of the corporate wealth of the country to achieve rapid growth, industrialisation, structure change, eradication of poverty (Jomo 2004), and the focus was on entrepreneurship development through institutional development and agencies towards a developed nation (Malaysia 2001c). This was discussed in the Country Context, Section 2.1 in detail.

Majlis Amanah Rakyat (MARA) is one of the main agencies created to improve the status of the Malays (Bumiputras) from rural areas to participate actively in the commercial sectors. Its
main functions include: project development, entrepreneurial development, consulting, credit infrastructure and other incentives, and dissemination of information. The Ministry of Domestic Trade and Industry became the ministry responsible for the development of Bumiputra entrepreneurs (Buang 2002).

2.7.3 Situation Analysis

The GDP growth was at an average of 6% as stated in the 9th Malaysia Plan (2005 – 2010). The priority areas were in the nation’s global competitiveness, human capital development, national integration and ethnic relations, distribution of income and wealth, and quality of life. Education and training received the biggest percentage of the allocation; at 20.6% in line with Government’s resolve to enhance the human capital quality. There was an increase for education and training from years 2000 – 2007 (refer Table 2.9). Recently, the Malaysian Government proposed a new allocation under the 10th Malaysia Plan for entrepreneurial development in the country. To-date, the government had allocated RM334.76 million for the scheme nationwide for the 25 years (www.parlimen.gov.my/news.rmk9).

<table>
<thead>
<tr>
<th>Table 2.9 The Knowledge-Based Economy Development Index: Malaysia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
</tr>
<tr>
<td>Knowledge-based industries</td>
</tr>
<tr>
<td><strong>Education &amp; Training</strong></td>
</tr>
<tr>
<td>Infrastructure</td>
</tr>
<tr>
<td>R &amp; D Technology</td>
</tr>
</tbody>
</table>

Source: Department of Statistics Malaysia

Under the 9th Malaysia Plan, the Ministry of Entrepreneurship and Co-operative Development (MECD) planned various activities and programmes in the institutions of higher learning in order to produce 150,000 entrepreneurs among the graduates (‘MECD statistics’ 2008). The programmes arranged by the MECD and the Ministry of Higher Education (MOHE) were the ones that involve the development of entrepreneurship culture in public higher learning institutions. All these programmes were implemented in the 17 public universities in Malaysia, with its main purpose of exposing and encouraging greater involvement among graduates in entrepreneurship. In addition, the government
provided financial aid to graduates through the Graduate Entrepreneurship Fund to help graduates venture into new businesses (SME Bank Annual Report 2006). Having initiated these efforts, the focus of the government was on Malay graduates to be involved more in entrepreneurship (Ninth Malaysia Plan 2006 - 2010).

The Malaysian government started to promote entrepreneurship education as a career choice among students, to reduce the current unemployment problem as outlined in the Ninth Malaysian Plan (Malaysia 2006b).

2.8 Entrepreneurship Education in Malaysian Universities

This section reviews the entrepreneurship education in Malaysian universities. The importance of entrepreneurship to the Malaysian economy was seen through the historical development. This was proven by the various supporting mechanisms and policies that exist for entrepreneurs including setting up of various entrepreneurial bodies, physical infrastructure and business advisory services. Its focus towards an entrepreneurial society is through entrepreneurial education among the younger generation (Ismail et al. 2009).

2.8.1 Perspectives of Entrepreneurship Education

Many universities and higher education institutions in Malaysia introduced courses related to entrepreneurship or majors in entrepreneurship. Following the global transformation, Malaysia has made its efforts to transform the economy from a production-based economy to a knowledge-based economy. It was said that without entrepreneurs, there was no knowledge economy (Sivapalan 2001). After realising the importance of entrepreneurs in the knowledge-based economy, efforts were undertaken to nurture entrepreneurship in all ways. Seminars, courses and training on entrepreneurship are some of the most common activities organised by various organisations along with the formal entrepreneurship education offered by the higher educational institutions (Cheng & Chan 2004).

The universities have to provide the best learning and training models to ensure graduates acquire the necessary entrepreneurial knowledge, skills, attributes and behaviour. Most of the universities currently are offering courses in entrepreneurship and small business in faculties or departments, but most of these courses take place as an adjunct of the education system.
and, in most cases where the entrepreneurial environment and business development are not clinically supported by the university administration (Mahmood & Ali 2008).

The concern of the Malaysian government is to promote an enterprise culture among the schools and university graduates to meet the objectives of creating entrepreneurial and innovative society. The process is through inculcating the entrepreneurial culture by introducing entrepreneurship programs at schools, colleges and university levels. They also provide support to the ‘young entrepreneurs’ to start their own businesses while studying. The ‘young entrepreneur’ program set up in selected secondary schools is being adopted by the multinational corporations and universities (refer Fig. 2.17).

**Fig. 2.17 Multinational Firms/ Local Firms participationin ‘Young Entrepreneur Programs in Schools’**

<table>
<thead>
<tr>
<th>Multinational Firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applied Magnetics Solectron</td>
</tr>
<tr>
<td>MotorolaDellComputers</td>
</tr>
<tr>
<td>Intel IBM World Trade Corporation</td>
</tr>
<tr>
<td>Seagate KPMGPeat Marwick</td>
</tr>
<tr>
<td>Advance Micro Devices QTOptoelectronics</td>
</tr>
<tr>
<td>Agilent Technologies Readrite</td>
</tr>
<tr>
<td>Komag TexasInstrument</td>
</tr>
<tr>
<td>National Semi Conductor Osram(Siemens)</td>
</tr>
<tr>
<td>Integrated Device Technology Mattel</td>
</tr>
<tr>
<td>Harris Advance Technology WesternDigital</td>
</tr>
<tr>
<td>American-Malaysian Chamber of Commerce</td>
</tr>
</tbody>
</table>
Entrepreneurial development centres, such as the Malaysian Entrepreneurship Development Centre and the Ministry of Urban Development organise many entrepreneurship development activities. The programmes are implemented to inculcate and strengthen the value of entrepreneurship among the youths.

The programmes are as follows:

i) The young entrepreneur programs – implemented by the MECD at the secondary school levels to create awareness on entrepreneurship activities amongst the students.

ii) Undergraduate entrepreneur development programmes – extended to students in higher institutions of learning to create awareness on entrepreneurial activities.

iii) Undergraduate training programmes – to expose undergraduates on entrepreneurship acculturation from an early stage.

iv) Basic courses for undergraduates on entrepreneurship – targeted at final year students to encourage and prepare and groom the undergraduate students for entrepreneurship and enhance entrepreneurship programmes (Norasmah, Othman & Faridah 2010).

2.8.2 The Development of Academic Entrepreneurship

The development of science and technology in Malaysia is policy-driven and strategically triggered by the government which is quite common in any developing economy. However, based on the findings of the National Survey of Research and Development conducted by the Malaysian Science and Technology Information Centre, Malaysia seemed to be slow in the science and technology development process compared to its Asian counterparts.

One of the differentiation factors between Malaysia and other East Asian countries is the level of academic entrepreneurship in the national innovation system, which is found to be policy driven. There is a necessity to see whether this policy driven approach has been effective in enhancing academic entrepreneurship in higher educational institutions in Malaysia (www.the edgedaily.com).

Within the last two decades, there were various programmes and initiatives undertaken to facilitate the country’s transition from a production-based to an innovation-based economy. This led to the transformation towards becoming a developed society through vision 2020. Among the key initiatives were the Third Outline Perspective Plan (2001 – 2010), the Knowledge-Based Economy Master Plan 2002, (Mohamad 2002) and the Malaysian Knowledge Content (MyKe) Survey 2003(www.epu.gov.my). Under the Ninth Malaysia Plan (2006 – 2010), the government’s research funding at 1.5% GDP was a three-fold increase from the Eight Malaysia Plan (2001 – 2005) at 0.49% GDP.

Further, the significant developments were the designation of the four public universities as research universities, with a RM5.3 billion allocation for science, technology and innovation initiatives. Focus was directed at biotechnology, advanced materials, manufacturing, nanotechnology, and information and communication technology to generate 300 science and technology-based companies through public funded research and development, and 50 companies with global partnerships.

Hence, a world-class national higher education system was the solution in the quest to become a sophisticated knowledge-based economy as a prerequisite to improve the national innovation system through the development of academic entrepreneurship. The higher educational institutions proposed a plan called the National Higher Education Action Plan (2007–2010), which was supposed to trigger the higher education transformation and consequently, the science and technology development (www.the edgedaily.com).
The institutions of higher education adopted entrepreneurship education as a challenge and introduced many innovative programmes. Firstly, curricula played an important part in addressing the initiation and commercialisation of the business activity. Secondly, pertaining to the question, whether ‘entrepreneurship can be taught’, the teaching methodologies of entrepreneurship have been reviewed (Kuratko 2005). Thirdly, the university teaching environment was found to have influential factor in students’ perception of an entrepreneurial career and entrepreneurial inclination (Autio et al. 1997). These are significant factors in entrepreneurship education and they are now discussed in detail relating to Malaysian entrepreneurship education.

a) Entrepreneurship Curricula in Malaysian Universities

In Malaysia, there are an increasing number of academic courses offered in the universities and higher education institutes as core or elective subjects (Hashim & Wafa 2002). The Malaysian universities are offering ‘entrepreneurship’ as a core subject at the first degree level for business courses. Entrepreneurship education studies are also offered to students in the universities and higher education institutes in the forms of co-curriculum activities and programmes financed by the Ministry of Entrepreneurship and Corporation Development, such as graduate entrepreneurship trainings, graduate basic entrepreneurship courses and graduate entrepreneur development programmes (Norasmah, Othman & Faridah 2010).

The programs that are being offered by Malaysian universities and colleges expose the students to the concept and theories of business and management, which include the following functions. First, analysing the business strategies through acquiring concrete knowledge on concepts initially, as tools of analysis for business situations. Second, acquiring and understanding the operations of the various business environments. Third, performing operations by acquiring skills and knowledge through learning, and adapting the analytical, planning and communication. Fourth, operating the skills that can be applied to various complex business situations (www.Entrepreneurship in university curriculum.com). The government in Malaysia is continuously promoting entrepreneurial culture in the schools, colleges and universities towards creation of an entrepreneurial and innovative society. Many entrepreneurial programs are introduced at schools, colleges and universities. The support is given to individuals at schools, at a young age itself to have the interest and motivation to start businesses while studying, e.g. the ‘Young Entrepreneurs’ Program’ in Malaysian schools (Mahmood & Ali 2008).
Other than being taught as an academic subject in the curriculum as compulsory and elective subject for business and other related courses, the students are exposed to many entrepreneurial activities organised by the entrepreneurship development centres. The student affairs department of the university with the assistance of the Malaysian Entrepreneurship Development Centre jointly carry out these programs successfully (Mahmood & Ali 2008).

b) Teaching Methodologies of Entrepreneurship Programs

Some Malaysian universities are still using the traditional methods of teaching which include lectures, handouts, materials and video presentations. Some programs try to develop the effectiveness of students as entrepreneurs where they acquire relevant information through learning and practising. Some of the programs like B. ENT (Hons) are using the traditional instructor-centred approaches in program facilitation. The programs are delivered through lectures, handout materials and discussion of case studies (Zainal Abidin & Bakar 2004). It was suggested that effective learning methods should involve students practising hands-on learning (Dale 1969). The literature stated that in order to develop successful teaching methods, it was important to develop a basic understanding of how individuals and groups of students actually learn (Gibb 2002). When students take ownership of their learning, they can participate in setting their learning goals and tasks, and only then generic entrepreneurial competencies are practiced and developed (Lope Pihie & Sana 2009).

In Malaysia, the entrepreneurial university’s academic processes and activities are embedded in the university system, encultured in its academic faculties, embodied in its community of practice and embraied in each individual academic. The entrepreneurial activities in academic entrepreneurship are focused towards exploiting perceived opportunities in the knowledge-based economy. Previous research of academic entrepreneurship tended to be equated with technology transfer, with the creation and development of new organisations, or technology based spin-offs. It is not only interpreted as organisational creation, but also strategic renewal, transformation and innovation within the university systems itself. In view of this, the process of transferring technology to the industry or the commercialisation of the technology or invention, through licensing agreements and university-based start-ups are entrepreneurial activities. Though universities have been successful in teaching and research of academic entrepreneurship, they need to go further to train skilled undergraduates to contribute towards a knowledge-based innovation system and economies. They have to participate in problem-solving activities in industry and community through contract
research, cooperative research with industry, technology licensing and faculty consulting, as well as provide access to specialised instrumentation, equipment and incubation services (www.the edge daily.com).

**c) University’s Role in Promoting Entrepreneurship Education.**

There are four public universities as research universities in Malaysia namely; National University of Malaysia (UKM), Science University of Malaysia (USM), University Utara Malaysia (UUM) and Putra University of Malaysia (UPM). The private universities are; University Tun Abdul Razak, University Kuala Lumpur and University College of Binary Institute, whose main focus is also on entrepreneurship education and promoting entrepreneurship activities. The impact of the National Higher Education Action Plan (2007-2010) which is triggering the higher education transformation is that:

- Malaysian universities are expected to contribute more to economic development through research and development, and commercialisation activities;
- Universities must seek closer relationships with the government and industry; and
- Universities need to drive resource efficiency and quality management approaches through all aspects of their business, requiring a high level of both financial and outcome accountability (www.the edgedaily.com).

Another major role which the universities undertake is where they integrate internship programs in the business curricula. Business internship programs give the students, prior to graduation, hands-on experience in the company, so that they can fit in to the careers for the future. The goals of business internship programs are; to provide challenge, stimulation, responsibility, learning, growth, experience and prestige to the students. Through the internship programs, an awareness of the business world is beneficial to all students and they learn the fundamental skills, of starting a business gained in these programs, which will be valuable to them in future (Cheung 2008). The programs in the universities are in line with the government policies, such as the New Economic Policy, National Development Policy and the New Economic Model, that emphasise the importance of entrepreneurship towards achieving the objectives of the national development. The universities introduced entrepreneurship programs for the students called ‘student enterprise program’ to increase the number of entrepreneurs in Malaysia by inculcating entrepreneurial values among the students. The universities achieve their objectives through training students to become business entrepreneurs, to allow them to experience real world business practices, inculcating
entrepreneurial skills, and train them to be independent and confident to start their own businesses (Zainal Abidin & Bakar 2004).

2.8.3 Demographic Characteristics of Students in the Malaysian Universities

This section discusses the demographic characteristics of students in the Malaysian universities, the labour force of the ethnic groups and student population in the universities.

With a population of 28.3 million in Malaysia as at 2009 (refer Table 2.10), 68% fell into the age category of 15 – 65, thus showing that the teenagers and the middle age group of working population were the majority group compared to the other age categories (refer Table 2.11). The majority of the age group of students in the higher educational institutions fell into the category of 17-23 years. In the year 2000, the age cohort’s access to higher education was 23% and it increased to 29.9% in 2006. The Malaysian government is planning to increase the ratio to 40% in 2010 (www.mohe.Malaysia.com).

Table 2.10 Area, Population and Labour Force (2004 – 2009)

<table>
<thead>
<tr>
<th>Area</th>
<th>Sq. Km.</th>
<th>Population</th>
<th>Unit</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malaysia</td>
<td>330,252</td>
<td>Malaysia</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P. Malaysia</td>
<td>131,805</td>
<td>No. Mid Yr.</td>
<td>Million</td>
<td>26.4</td>
<td>26.9</td>
<td>27.2</td>
<td>27.9</td>
<td>28.3</td>
</tr>
<tr>
<td>Sabah &amp; Labuan</td>
<td>73,997</td>
<td>Growth</td>
<td>% p.a.</td>
<td>2.8</td>
<td>1.6</td>
<td>1.4</td>
<td>2.4</td>
<td>0.7</td>
</tr>
<tr>
<td>Sarawak</td>
<td>124,450</td>
<td>Density</td>
<td>per sq.km.</td>
<td>80.1</td>
<td>81.4</td>
<td>82.5</td>
<td>84.4</td>
<td>85</td>
</tr>
</tbody>
</table>

Table 2.11 Population and Age Structure (2007 – 2009)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% of</td>
<td>% of</td>
<td>% of</td>
<td>Average</td>
</tr>
<tr>
<td>Population Structure</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 – 14</td>
<td>7,772.00</td>
<td>28.50</td>
<td>7,738.40</td>
<td>27.80</td>
</tr>
<tr>
<td>15 -64</td>
<td>18,921.20</td>
<td>67.10</td>
<td>18,921.20</td>
<td>67.90</td>
</tr>
<tr>
<td>65 above</td>
<td>1,222.70</td>
<td>4.30</td>
<td>1,222.70</td>
<td>4.40</td>
</tr>
<tr>
<td>Total</td>
<td>27,882.40</td>
<td>100</td>
<td>28,073.20</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Economic Planning Unit Malaysia
The labour force survey indicated that those with tertiary education increased from the year 2000. There was an increase of 0.4% in the labour force between the quarters of 2008 and 2009 (refer Table 2.12). This increase and the growing population of Malaysia, with the fact that half of the labour force were in urban areas bode well for the development of entrepreneurship and business (Mohamed Ali 2001).

Table 2.12 Principal Statistics of Labour force, Malaysia

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Labour force (‘000)</td>
<td>11,170.8</td>
<td>11,442.5</td>
<td>11,420.7</td>
</tr>
<tr>
<td>Employed (‘000)</td>
<td>10,819.8</td>
<td>11,032.8</td>
<td>11,025.6</td>
</tr>
<tr>
<td>Unemployed (‘000)</td>
<td>351.0</td>
<td>409.7</td>
<td>395.1</td>
</tr>
<tr>
<td>Outside labour force (‘000)</td>
<td>6,625.6</td>
<td>6,649.6</td>
<td>6,801.0</td>
</tr>
<tr>
<td>Labour force participation rates (%)</td>
<td>62.8</td>
<td>63.2</td>
<td>62.7</td>
</tr>
<tr>
<td>Unemployment rate (%)</td>
<td>3.1</td>
<td>3.6</td>
<td>3.5</td>
</tr>
</tbody>
</table>

Source: Economic Planning Unit Malaysia

In both the public and private higher education institutions in the country, there was a total student enrolment of 921,548 in the year 2008. The public universities and colleges had an enrolment totalling 491,354, out of which the male population was 40% and female population was 60%. The private educational sectors enrolment totalled to 399,852, where male population was 44.6% and female population was 55.4%. The female student population outnumbered the male student population in the higher educational institutions (refer Table. 2.13). This created a gender issue in practically all fields of education including entrepreneurship, where the field which was dominated by the males could be overtaken by the females in future (www.mohe.edu.my).

Family history of business is another aspect to be reviewed in entrepreneurship. The family ownership in Malaysia constituted over 43% of the main board companies of the Bursa Malaysia from 1999 through 2005. About 59% of the businesses in Malaysia were still managed by the founder, while 30% were run by the second generation or the founder’s children. The business activities were dominated by the Chinese in Malaysia, prior to independence. The foremost characteristic of Chinese enterprise was the centrality of family ties and obligations, which was demonstrated through the studies of nepotism in Chinese business firms (Gomez 2007). There was statistically a prominent difference between
ethnicity and entrepreneurship, i.e. where more entrepreneurs are Chinese (Othman et al. 2005), but the majority were Malay population in the country. Out of the 65% of the Malay population, only 60% were in the labour force; whereas 64% out of the Chinese population were in the labour force. It became a crucial factor to even out the imbalances in entrepreneurship development among the future generation (refer Table 2.14).

**Table 2.13 Male and Female Population in the Private Universities and Colleges**

<table>
<thead>
<tr>
<th>Gender</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>178,334</td>
<td>221,518</td>
<td>399,852</td>
</tr>
<tr>
<td>Percentage</td>
<td>44.6%</td>
<td>55.4%</td>
<td>100%</td>
</tr>
</tbody>
</table>

*Source: Ministry of Higher Education Malaysia*

**Table 2.14 Labour Force Participation Rates by Ethnic Group, Malaysia, Q3/2009 and Q4/2009**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>63.2</td>
<td>62.7</td>
</tr>
<tr>
<td>Total Malaysian Citizens</td>
<td>61.9</td>
<td>61.3</td>
</tr>
<tr>
<td>Bumiputra</td>
<td>60.7</td>
<td>60.4</td>
</tr>
<tr>
<td>Malay</td>
<td>60.1</td>
<td>60.0</td>
</tr>
<tr>
<td>Other Bumiputra</td>
<td>63.0</td>
<td>62.3</td>
</tr>
<tr>
<td>Chinese</td>
<td>65.2</td>
<td>64.0</td>
</tr>
<tr>
<td>Indian</td>
<td>60.9</td>
<td>59.7</td>
</tr>
<tr>
<td>Others</td>
<td>60.3</td>
<td>61.9</td>
</tr>
<tr>
<td>Non-Malayesian citizens</td>
<td>79.5</td>
<td>79.4</td>
</tr>
</tbody>
</table>

*Source: Economic Planning Unit Malaysia.*

The enrolment in the public and private universities from the years 2002 to 2007 was 491,314 students for business and economics programs at tertiary levels (refer Table 2.15 and Fig. 2.18). The output from both the universities from 2002 to 2007 for these programs was 128,502 students (refer Table 2.16 and Fig. 2.19).
Table 2.15 Enrolment in Public and Private Universities-Business & Economics degrees

<table>
<thead>
<tr>
<th>Year</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public</td>
<td>35,313</td>
<td>44,302</td>
<td>37,941</td>
<td>43,082</td>
<td>53,381</td>
<td>44,177</td>
<td>258,196</td>
</tr>
<tr>
<td>Private</td>
<td>25,995</td>
<td>36,220</td>
<td>44,895</td>
<td>35,934</td>
<td>43,881</td>
<td>46,193</td>
<td>233,118</td>
</tr>
<tr>
<td>Total</td>
<td>51,308</td>
<td>80,522</td>
<td>82,836</td>
<td>79,016</td>
<td>97,262</td>
<td>90,370</td>
<td>491,314</td>
</tr>
</tbody>
</table>

Fig. 2.18 Enrolment in Public and Private Universities – Business & Economics degrees

Source: Ministry of Higher Education Malaysia
Table 2.16 Output of Graduates from Public and Private Universities (Business Economics degrees)

<table>
<thead>
<tr>
<th>Year</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public</td>
<td>10,092</td>
<td>13,585</td>
<td>13,910</td>
<td>12,083</td>
<td>14,140</td>
<td>12,766</td>
<td>76,576</td>
</tr>
<tr>
<td>Private</td>
<td>9,603</td>
<td>9,382</td>
<td>9,585</td>
<td>7,015</td>
<td>9,071</td>
<td>7,270</td>
<td>51,926</td>
</tr>
<tr>
<td>Total</td>
<td>19,695</td>
<td>22,967</td>
<td>23,495</td>
<td>19,098</td>
<td>23,217</td>
<td>20,036</td>
<td>128,502</td>
</tr>
</tbody>
</table>

Fig. 2.19 Output of Graduates from Public and Private Universities (Business and Economics degrees)

Source: Ministry of Higher Education Malaysia
2.9 Malaysian Entrepreneurial Intentions

This section discusses the entrepreneurial intentions among Malaysian university students through entrepreneurship education and other related factors.

2.9.1 Entrepreneurial Intentions through Entrepreneurship Education

There had been empirical research in the field of entrepreneurship education connected with self-employment and where the university students involved in business after their studies showed strong entrepreneurial intentions (Karr 1985; Hart & Harrison 1992). However, some research documented evidence for lower entrepreneurial intentions (Brenner, Pringle & Greenhaus 1991). One of the issues still questionable was; what determines the entrepreneurial intent among the university students? Not many studies were conducted in Malaysia compared to the Western countries in determining entrepreneurial intent, but looking into the empirical studies conducted one could gauge some evidence (Ismail et al. 2009).

A study conducted by Norasmah (2006), found that students preferred to be employed elsewhere rather than becoming entrepreneurs. A survey conducted by MECD in 2004, showed that only 30 out of 2,275 graduate respondents chose to get involved in entrepreneurship (MECD statistical report 2008). It revealed that the majority of the students preferred to be hired rather than be self-employed. In another study among ex-participants of the ‘Basic Course in Entrepreneurship for Graduates’ between 2002 and 2005 conducted in University Utara Malaysia, it was found that only 32.8% of the participants turned out to be entrepreneurs after their graduation. Both the studies indicated a low involvement in entrepreneurial activities among students even with formal education and training in entrepreneurship. The findings reflected that the government’s expectation of high involvement in entrepreneurship had not materialised yet, revealing the existing gap of what was expected of the students by the government and the actual level of students involved in entrepreneurship, especially the Bumiputra students (Ariff & Abubakar 2005).

A research conducted on students of a private university owned by a Government-linked company found that there was a high degree (86% of 279 respondents) of entrepreneurial intention among its students. A high degree of entrepreneurial intention was found among students across programmes and was not confined to business students. Students’ exposure to entrepreneurial courses was found to have a significant relationship
with entrepreneurial intentions in another study (Kamariah, Yaacob & Wan Jamaliah 2004). Similar results were found by Nor Aishah & Yufiza (2004) in their study of contractors in Malaysia (95.8% of their respondents were found to have taken some kind of entrepreneurial course). Another study by Jumaat, Ishak & Salehuddin (2001) conducted at a local youth skill development institute also found a strong positive relationship between the types of entrepreneurial courses and entrepreneurial intentions (Yusof et al. 2008).

Comparing the relationship between entrepreneurship education and entrepreneurial intentions, some studies did not produce positive results. Logically, education should influence entrepreneurial inclination, since it prepares students and provides them with the much needed confidence to venture into business. Nor, Ezlika & Ong (2004) in a study of urban Malaysian entrepreneurs found that a majority of the male Malay entrepreneurs did not have a tertiary education compared to the Chinese entrepreneurs. Another study of contractors found that only 11.3% of the respondents had a tertiary education (Yusof et al. 2008). There are other factors affecting entrepreneurial intentions which are discussed below.

Some studies were found to have a significant relationship between family background and entrepreneurial intentions (Crant 1996; Matthews & Moser 1996; Abd. Hadi 2002). It was found that family involvement in business tends to involve the children in business (Hisrich 2000). However, there were some studies that refute the findings. In one study of contractors conducted in Malaysia, it was found that 73.2% of the respondents became entrepreneurs because of their own interest and 66.2% were not from families of business background (Nor Aishah & Yufiza 2004). The majority of past studies revealed that males were more inclined towards entrepreneurship than females (Crant 1996; Nor, Ezlika & Ong 2004).

2.9.2 Entrepreneurial Intentions among Malaysian University Students

Universiti Utara Malaysia is one of the universities set up by the government for entrepreneurial development in Malaysia. It conducts entrepreneurial programmes for the university students who wish to start up their own businesses after completion of their studies. These programmes confirmed that the students benefited greatly through increased knowledge and understanding of businesses. The students who participated in the entrepreneurial programmes had intentions of starting up their own businesses, and they were encouraged by the University to register with the Registrar of Business with their business
plans, and upon acceptance they were given financial assistance in the form of loans by the University (Mahmood & Ali 2008).

In Universiti Utara Malaysia, it was found that 75% of the students were interested in the self-employment programmes organised by the university. The majority of the students were from the Bachelor of Business Administration programmes and the businesses which they started through their programmes included: photocopy services, computer electronics workshops, photoshops, entertainment centres, food stalls, gift shops and bakeries (Zainal Abidin & Bakar 2004). The entrepreneurial directed approach of an entrepreneurial education course and a good teaching technique involving running of a real business, and business visits and interviews with entrepreneurs enabled the students to have positive entrepreneurial mindsets toward entrepreneurship and entrepreneurial intentions (Lope Pihie & Sana 2009).

The exposure to entrepreneurship environment had the implication of developing the attitude and intention towards entrepreneurship, and this led to perceived behavioural control in entrepreneurship. In a research conducted between the Libyan and Malaysian students in Universiti Utara Malaysia, the Libyan students were influenced by entrepreneurship education and its culture in the university’s environment, which showed a more positive result towards entrepreneurial intentions compared to the students studying at the Garyounis University in Libya, where it was found that the students were not having high intentions in entrepreneurship (Otman aniezi et al. 2009).

However, other researchers found that education did have a significant influence on entrepreneurial inclination (Storey 1982; Crant 1996). This again could be debated since the relationship may depend on the nature of the business, where some may require the theoretical knowledge provided by a university degree. However, some businesses emphasise practical skills, and they were found to be more relevant than a university qualification. According to the GEM Report (2003), those with post secondary or graduate education were twice as likely to be involved in entrepreneurship compared to those with less education (Yusof et al. 2008).

The review continues with the research issues and development of the hypothetical model for the research.
2.10 Identification of Research Issues and Gap

Unemployment among the graduates is the main concern of the Malaysian government with the increasing number of students graduating from the universities. The increased figure of unemployment rate showed that 24% of the graduates were reported unemployed nationwide as at 2008 (Economic Planning unit). The preference of graduates to be wage earners over becoming self-employed and the universities’ education system are some of the contributing factors to the current problem of graduate unemployment (Yusof et al. 2008). As the academic qualifications can no longer guarantee immediate employment upon graduation (Morshidi et al. 2004), it was proposed that graduates widen their career scope by investigating entrepreneurship as a possible basis for a career.

Entrepreneurship would help the students to develop their own career and ease the current unemployment issue by expanding the job market (Norasmah 2004). Entrepreneurship was acknowledged by many entrepreneurship researchers, as a solution to the problem of unemployed graduates (Kamariah et al. 2004; Salmah 2006). The universities and other institutions of higher learning in Malaysia were given the mandate to play a leading role in solving the graduate unemployment problem, by introducing entrepreneurship education to provide the students with the necessary entrepreneurial skills for their future undertakings in business ventures (Staff 2006b, 2007b).

Most of the previous research on entrepreneurship in Malaysia focused on the field of entrepreneurship in general, the success factors of actual entrepreneurs, and to a certain extent the characteristics of entrepreneurs (Nor, Ezlika & Ong, 2000; Ariff & Abubakar 2003; Noor & Ali 2004; Nor Aishah & Yufiza 2004). There is still a paucity of empirical research on students’ perception and intentions towards entrepreneurship in Malaysia through entrepreneurship education (Kamariah, Yaacob & Wan Jamaliah 2004).

The research propositions proposed are as follows:

i) To determine the effectiveness of entrepreneurship education towards developing entrepreneurial intentions among Malaysian university students through entrepreneurship education by examining curricula, teaching methodologies and universities roles.

ii) To determine the Malaysian university students’ intentions to become future entrepreneurs through examining attitude as a mediating factor.
iii) To determine the Malaysian university students’ intentions to become future entrepreneurs through examining stakeholder support systems as a mediating factor.

A model was developed to test the hypotheses from the research issues and gaps. The independent variable classified in the research is; entrepreneurship education with the components of curricula, teaching methodologies and universities roles in promoting entrepreneurship. The dependent variable is the entrepreneurial intentions of students in the Malaysian universities. Attitude and stakeholder support systems act as mediating variables (refer Fig. 2.20).

**Fig. 2.20– Hypothesized Model of the Theoretical Framework**

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>Mediating variables</th>
<th>Dependent variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entrepreneurship curricula (H1)</td>
<td>Attitudes towards money H4 (i)</td>
<td>Entrepreneurial Intentions</td>
</tr>
<tr>
<td>Teaching methodologies (H2)</td>
<td>Attitude towards change H4 (ii)</td>
<td></td>
</tr>
<tr>
<td>Universities roles (H3)</td>
<td>Attitude towards competitiveness H4 (iii)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Government H5(i)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Financial institutions H5(ii)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Parents of students H5 (iii)</td>
<td></td>
</tr>
</tbody>
</table>

*Proposed Model of Entrepreneurial Education towards Entrepreneurial Intentions among Malaysian University Students*
2.10.1 Hypothesis Development

The following hypotheses are unproven propositions or suppositions that tentatively explain certain facts or events. Therefore, these propositions are empirically testable by analysing the relationship between a single dependent (criterion variable and several independent) predictor variables (Sekaran 2006, p. 103).

i) According to several existing research studies (Gartner & Vesper 1994; Kourilsky 1995; Gottlieb & Ross 1997; Gibb 2002), it has been demonstrated, that entrepreneurship curricula is a critical factor in providing the best learning and training models. The following hypothesis is proposed (refer Fig. 2.21).

**H1: Entrepreneurship curricula have a direct positive effect on entrepreneurial intentions among the Malaysian university students.**

**Fig. 2.21 Model of Entrepreneurship Curricula with Entrepreneurial Intentions**

![Model of Entrepreneurship Curricula with Entrepreneurial Intentions](image)

*Source: Developed for the Research*

The integrated nature, specific skills and business life cycle issues in business ventures differentiate entrepreneurship education from a traditional business education (Solomon 2007). Entrepreneurship education is viewed as skills taught to individuals, to enable them to develop new and innovative plans, and focus on expertise to initiate and commercialise a business opportunity.

Curriculum should address important functions of running a business, rather than the elements of creating one (Gibb 2002). Kourilsky (1995) stated that curriculum components were divided into three groups: opportunity recognition, marshalling and commitment of resources, and the creation and operation of a business organisation. Opportunity recognition requires observation of the market, customer needs, invention and innovation. Marshalling
resources involves a willingness to take risks. Creation and operation of a business organisation is to deliver products and services which include: financing, marketing and management skills. Gottlieb and Ross (1997) stated that Bhide and Hart (1992) at Harvard Business School focused on three main concepts: evaluating opportunities, securing resources, growing and sustaining an enterprise in their entrepreneurship courses. The three categories suggested by Kourilsky (1995) and Bhide and Hart (1992) were similar in their intentions to teach the skills that were necessary to create a new business enterprise (Noll 1993).

ii) Consequently, the research will explore the role of teaching methodologies of entrepreneurship, as an important variable and as a potential to influence entrepreneurial intentions. The research hypothesis proposed in relation to teaching methodologies is as follows (refer Fig. 2.22).

**H2: The approach of teaching methodologies has a direct positive effect on entrepreneurial intention among the Malaysian university students.**

![Fig. 2.22 Model of Teaching Methodologies with Entrepreneurial Intentions](image)

**Source: Developed for the Research**

The debate whether we can teach students to become entrepreneurs is still ongoing (Fiet 2000a). Entrepreneurship ‘can be taught and many global institutions are teaching entrepreneurship programs’. Individuals may be born with the propensities toward entrepreneurship, but the level of entrepreneurship activity will be higher if entry-level entrepreneurial skills are taught (Kuratko 2003).

Entrepreneurship educators now have found non-traditional and alternative approaches of teaching, giving the students an academically rigorous learning experience, such as testing entrepreneurship theories, models, or methods that translate into real-world value with live
‘case studies’. Instead of increasing the number of courses offered in programs, the books advocate the incorporation of all areas of the entrepreneurial experience, from start-up to growth and maturity, adopting an interdisciplinary perspective from business, economics and management. Many support programs have been encouraged, e.g. establishing an incubator program that allows new entrepreneurs to achieve better formal or informal conditions with banks, or venture capital investors and intensive mentoring programs (Fayolle 2008).

The facilitation of learning to support the entrepreneurial process found that the traditional teaching methods, lectures, literature reviews, examinations and so on, did not activate entrepreneurship (Gibb 2002; Sogunro 2004). To equip students adequately for their future careers, there is a need to expand pedagogies and introduce innovative approaches, by encouraging student-led activities in the classroom to foster involvement in the learning process stressing the importance of the underlying theories (Fiet 2000b).

iii) The universities roles are of prime importance in developing the students’ entrepreneurial careers and inclination. The third hypothesis is therefore proposed as the universities roles in promoting entrepreneurship among the Malaysian university students (refer Fig. 2.23).

H3: The Universities roles in promoting entrepreneurship have a direct positive effect on entrepreneurial intentions among the Malaysian university students.

![Fig. 2.23 Model of Universities Roles with Entrepreneurial Intentions](image)

Source: Developed for the Research

It was noted that the university teaching environment is the most influential factor in students’ perception of an entrepreneurial career and entrepreneurial inclination (Autio et al.
Students who gain entrepreneurial experience were seen to be more likely to consider starting their own businesses, because of self-selection into an entrepreneurship program (Storey 2000). The primary goal for entrepreneurship education in universities is to increase the awareness and understanding of entrepreneurship as a process. Secondly, it is to increase students’ awareness as a career possibility and how different management disciplines, such as marketing, finance and accounting can be integrated when focusing on the development of new ventures. Previous research indicated that not enough was known about the effects of different entrepreneurship programs on students’ subsequent entrepreneurial behaviour, although participation in such programs did seem to raise entrepreneurial intentions. Therefore, it is crucial for the universities to investigate what specific parts of the university education programs are most effective to raise entrepreneurial intentions (Yar Hamidi et al. 2008).

The universities promote entrepreneurship by participating in various technology transfer spin-off activities, developing existing enterprises, and by commercialising university-based research results (Nurmi & Paasio 2007). Most of the universities today focus on three major areas of entrepreneurship education. First, entrepreneurial education; secondly, outreach activities with entrepreneurs, and thirdly, entrepreneurial research. The trend in most universities is to develop or expand entrepreneurship programs, and design unique and challenging curricula, specifically designed for entrepreneurship students, which are more significant and with national recognition (Kuratko 2005).

iv) The second research proposition identifies the mediating factor of attitude and is discussed below.

The variable of attitude has become widely in use for the prediction of the likelihood to start an enterprise (Douglas 1999; Robinson et al. 1991). The attitude towards money, attitude towards change and attitude towards entrepreneurship are examined and reflected in Fig. 2.24.
H4: Attitude has a direct positive effect on entrepreneurial intentions among the Malaysian university students.

**Fig. 2.24 Model of Attitude and Entrepreneurial Intentions**

![Model of Attitude and Entrepreneurial Intentions](image)

*Source: Developed for the Research*

**H4(i) Attitude towards money**

The relationship between the intention to start one’s own business and individual’s attitudes toward income, independence and risk, and work effort were examined by Douglas (1999). Results of the empirical study suggested that individuals with a more positive attitude towards independence (autonomy) and risks were characterised by a higher willingness to become entrepreneurs. However, people’s attitudes to work efforts correlate negatively with the intent to be self-employed. A favourable attitude towards money refers to individuals who view high incomes as a symbol of success (achievement), and as a means to attain autonomy, freedom and power (Lim & Teo 2003). Such features are often inclined towards successful entrepreneurs. Thus, individuals with a positive attitude towards money are likely to have or want to be self-employed.
H4 (ii) Attitudes towards change

Individuals’ general attitudes in particular, the need for achievement, a positive attitude to autonomy and change, emerge as influential attitudinal moderators of entrepreneurial conviction (Autio et al. 1997). Individuals possessing a positive attitude towards change are characterised primarily; by the propensity to view as attractive, rather than threatening those situations that are ambiguous, changing rapidly, or unpredictable (Shane et al. 2003). The challenges associated with new venture creations are unpredictable and individuals tend to view company formation as attractive.

H4 (iii) Attitude towards competitiveness

Attitude towards competitiveness pertains to the willingness to win. Individuals might tend to fulfil their desires to win by finding their own firms. A favourable attitude towards competitiveness is viewed as a factor influencing entrepreneurial motivation positively (Autio et al. 1997). The desire to be competitive influences the attitude towards entrepreneurship to act as a primary determinant of students’ willingness to be self-employed. This factor reflects to the individual’s perception of the personal desirability of performing the behaviour that corresponds to the attitude in the ‘theory of planned behaviour’ (Fishbein & Ajzen 1975; Krueger et al. 2000). Through this behaviour the students value the entrepreneurship career path stronger and their interest to start a business (Franke & Luthje 2004).

v) The third research proposition identifies the mediating factor of stakeholder support systems and is discussed below.

The interdependency of all stake holders, the government, financial institutions and parents’ of students are crucial to ensure that entrepreneurship flourish in the current revolution and are discussed below (Mohamed Ali 2001), refer Fig. 2.25.

H5: Stakeholder support systems have a positive effect on entrepreneurial intentions among Malaysian university students.
H5 (i) Government

Public policies and programs consider financing as one of the principal means of achieving higher rates of entrepreneurial activity (Reynolds et al. 2005; Stevenson & Lundstrom 2005). They are geared towards support financing (Storey 2005, p. 483), as a means by which government intervenes as a ‘funding gap’. The government intervenes when the businesses are unable to obtain access funds, because of imperfect formation and due to the losses incurred. They finance small and medium firms by means of equity and loans. Through the creation of institutional frameworks, the government regulates the creation of emerging stock markets for small and medium enterprises, and promote an entrepreneurial culture (Romani et al. 2009).

H5 (ii) Financial Institutions

Financial resources are an essential ingredient for the development of new ventures (Dollinger 1995). Specifically, academic entrepreneurs who involve in innovation have a high need for financing availability, because innovative activities are often costly (Greene & Brown 1997). Micro-financing is a powerful tool for poverty alleviation and entrepreneurship activities. The principle source of funding in micro-financing is from grants and highly subsidised loans from multilateral banks, government aid agencies, foundations and apex
organisations. Other sources are capital financing used by corporations, equity and certain quasi-equity structures, e.g. enterprise equity funds and private placement funds. The equity investments typically contain contractual repayments (Fehr & Hishigsuren 2006).

H5 (iii) Parents of students

Parents of students are external stakeholders who have a vested interest in the welfare and future employment prospect of their children. Parents are increasingly called to provide financial support to their children during their study in the higher educational institutes. This can impact on the welfare and responsibilities of the rest of their family (Matlay 2009). Another point to note is when parents are self-employed. The individuals who originate from those families have an increased chance of having entrepreneurial intentions, as they have a tendency to follow the parent’s footsteps in becoming entrepreneurs (Dyers 1992).

2.11 Summary

This chapter reviews the pertinent literature on the research topic identifying the key issues on the research problem, developing a theoretical framework for the study and identifying the gaps in the body of knowledge on the research problem.

The review continues with the discussion of the parent discipline on the development of entrepreneurship, entrepreneurship education and entrepreneurial intentions including theories and models. The research problem theory discusses the historical perspective of entrepreneurship, entrepreneurship education and the roles of the government in promoting entrepreneurship education, entrepreneurial intentions among the students in the Malaysian universities.

The research gaps were identified, resulting in the development of five hypotheses for testing by this research. The next chapter discusses the research methodology and the research design adopted for the research.
CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The first chapter of the research introduced the research problem, research issues and the development of hypotheses.

Chapter two examined the literature review relevant to the research topic, the country context, together with the parent and immediate disciplines. The research gaps were identified in the literature review. This identification resulted in designing a theoretical framework and developing the hypotheses for the research. This chapter describes the research design and the methodology adopted to test the hypotheses.

Section 3.1 links the methodology to the literature review to provide an overview of the chapter. Section 3.2 gives an outline of the research paradigms giving a justification for the preferred paradigm. Section 3.3 describes the type of research for the study and giving a justification of the chosen type of research. It also discusses both the quantitative and qualitative approaches by giving a justification of the methodology chosen. Section 3.4 discusses the data collection methods, primary and secondary data collection techniques relating to the survey method. Section 3.5 describes the different data collection tools used for the research methodology namely; the survey sample and survey questionnaire, questionnaire administration, sampling techniques and justification of the chosen sample.

A pre-test was suggested to be conducted at this stage. The discussion includes the criteria used for the selection of the participants for the survey and administration of the questionnaires. Section 3.6 focuses on the measures taken to obtain the trustworthiness of the research. These include the usage of multiple sources of evidence to test the validity and reliability of the findings. Section 3.7 presents the procedures for data analysis, the data that emerged from the questionnaire sample surveys. It also discusses the methods used to analyse the data through SPSS and Structural Equation Modelling (SEM) techniques.

Section 3.8 addresses the ethical issues to protect the rights of the respondents and lastly, section 3.9 gives the summary of the chapter.
Fig 3.1 Outline of Chapter Three

3.1 Introduction

3.2 Methodological Approaches

3.3 Research Methods

3.4 Data Collection Methods

3.5 Data Collection Tools

3.6 Quality of Data

3.7 Data Analysis

3.8 Ethical Issues

3.9 Summary

Source: Developed for the Research
3.2 Methodological Approaches

This section explains the methodological approaches relating to the theoretical paradigms and justification of the paradigm.

A researcher starts the research from a particular paradigm or view of the world. An appropriate paradigm is essential for a good research, as this is the first methodological issue that has to be addressed (McMurray 2009).

There are many definitions for ‘paradigms’ by researchers and scholars (refer Table. 3.1). A paradigm is defined as, ‘a general organising framework for theory and research that includes basic assumptions, key issues, models of quality research and methods for seeking answers’ (Neuman 2006, p. 81).

<table>
<thead>
<tr>
<th>Date</th>
<th>Name of Author</th>
<th>Definitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994</td>
<td>Guba &amp; Lincoln (p.107)</td>
<td>A paradigm is a basic belief system or worldview that guides researchers and deals with ultimate or first principles.</td>
</tr>
<tr>
<td>1995</td>
<td>Babbie (p. 48)</td>
<td>A paradigm is a point of view and provides researches with a way of looking at life.</td>
</tr>
<tr>
<td>1998</td>
<td>Perry, Riege &amp; Brown (p.3)</td>
<td>A paradigm is an overall conceptual framework within which a researcher may work and it may be explicit or implied.</td>
</tr>
</tbody>
</table>

Paradigm issues are crucial to the researcher. A researcher must be clear about the paradigm that is best suited to guide his or her approach (Neuman 2006). The paradigm consists of assumptions about ontology (the nature and social world), epistemology (the relationship between the researcher and the research) and the methodological issues (the process of the research (McMurray 2009).

All social researches are conducted with certain paradigmatic assumptions that determine how the research will be conducted (Gilbert 1991). Paradigms in social sciences are unlike physical sciences, as they cannot be proved to be true or false but only more or less useful (Babbie 2001). The methodology depicts the ontological, epistemological assumptions of the researcher as shown in Table 3.2. They influence the research design and type of data required for the research (Ardebili 2001; Bryman & Bell 2007).

<table>
<thead>
<tr>
<th>Issue</th>
<th>Positivism Paradigm (1)</th>
<th>Constructivism Paradigm (2)</th>
<th>Critical theory Paradigm (3)</th>
<th>Realism Paradigm (4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ontology (a)</td>
<td>Naive realism- ‘real’ reality but apprehensible.</td>
<td>Relativism- local and specific constructed realities.</td>
<td>Historical realism – virtual reality shaped by social, political, cultural, economic, and ethnic and gender values; crystallised over time.</td>
<td>Reality is ‘real’ but only imperfectly and probabilistically apprehensible.</td>
</tr>
<tr>
<td>Epistemology (b)</td>
<td>Dualistic/objectivist; findings true.</td>
<td>Transactional/subjectivist; created findings.</td>
<td>Transactional/subjectivist; value-mediated findings.</td>
<td>Modified dualist/objectivist; critical tradition/community; findings probably true.</td>
</tr>
<tr>
<td>-----------------</td>
<td>-------------------------------------</td>
<td>---------------------------------------------</td>
<td>-----------------------------------------------------</td>
<td>----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Methodology (c)</td>
<td>Experimental/manipulative; verification of hypotheses; chiefly quantitative methods; experiments/surveys.</td>
<td>Hermeneutical/dialectical; ‘passionate participant’; consensus/dialogues.</td>
<td>Dialogic/dialectical ‘transformative intellectual’; action research/focus groups.</td>
<td>Modified experiments/manipulative; critical multipism; falsification of hypothesis may include qualitative methods; Case studies/ convergent interviewing, structural equation modelling.</td>
</tr>
</tbody>
</table>

*Source: Guba & Lincoln (1994); Alizadeh, Perry & Riege (1997); Perry, Riege & Brown (1998)*

The answers to the three questions on ontology, epistemology and methodological issues will place the researcher’s position in a particular paradigm which constitutes the beliefs that guide the process of research (McMurray 2009).

The definitions of the following terms: ontology, epistemology and methodology are given below in Table 3.3.
### Table 3.3 Definitions of Ontology, Epistemology and Methodology in Research

<table>
<thead>
<tr>
<th>Terms</th>
<th>Definitions</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ontology</td>
<td>Fundamental assumption that is made about the form and nature specifying ‘what’ and ‘how’ it exists</td>
<td>Parkhe (1993); Guba &amp; Lincoln (1994); Bryan &amp; Bell (2007).</td>
</tr>
<tr>
<td>Epistemology</td>
<td>It is the study of the ‘nature of knowledge and process by which knowledge is acquired and validated</td>
<td>Gall et al. (1996, p. 758).</td>
</tr>
<tr>
<td>Methodology</td>
<td>It is a process of how the researcher goes about, investigating what is known and techniques used to acquire the data required for the research</td>
<td>Guba &amp; Lincoln (1994); Zikmund (2003).</td>
</tr>
</tbody>
</table>


#### 3.2.1. Research Paradigms

Guba and Lincoln (1994) summarised the different types of paradigms into four research paradigms of positivism, constructivism, critical theory and realism, which are discussed below.

**a) The Positivist Paradigm**

The positivist paradigm predominates in science and assumes that science quantitatively measures independent facts about a single apprehensible reality (Guba & Lincoln 1994). It has an ontology that is naïvely realistic and asserts that only science is able to discover the true
nature of reality (Alizadeh, Perry & Riege 1997). The data and its analysis are value-free and data do not change as they are being observed (column 1, row a, table 3.2).

The perspective on epistemology in this positivist paradigm takes a dualistic approach, where the researcher is separate from those researched (column 1, row b, in table 3.2), (Cameron & Miller 2008). It is more concerned with the confirmation of the theory, rather than discovery or development of a new theory (Guba & Lincoln 1994).

The methodology used is a quantitative approach which is objective. It involves statistical and experimental methods to test hypothetical-deductive generalisations for theory development (column 1, row c, in table 3.2), (Leedy & Ormrod 2005). It uses the measurement and analysis of diverse causal variables (Flick 1998, Neuman 2006) through the collection of hard, reliable and objective data (Easterby, Thorpe & Lowe 1991; Denzin & Lincoln 2003).

The positivist paradigm is not so appropriate for this research. The topic presents a pre-paradigmatic body of knowledge that required deductive theory building which emphasises testing the relevant hypotheses, but one cannot be positive about claims of knowledge when studying the behaviour and actions of humans. The variables in the research such as entrepreneurial intentions are ‘latent’ or ‘unobservable’ behaviour. This supports the methodology using a ‘structured equation modelling’, where the situation requires complex phenomena to be understood to support the generalisation of the population by using the survey analysis techniques (Healy & Perry 2000).

b) The Constructive Paradigm

The constructive paradigm views the truth as subjective rather than objective, in which the truth refers to a particular belief system held in a particular context (Alizadeh, Perry & Riege 1997). Constructivism inquires about the ideologies and values that lie behind a finding, so that reality actually consists of ‘multiple realities’ that people have in their minds (column 2, row a, table 3.2), (Guba & Lincoln 1994).

From the epistemological perspective, researching this constructed reality depends on interactions between interviewer and respondent, and is a subjectivist approach (column 2, row b, table 3.2). This paradigm brings the researcher and the researched interacting closely, and bound together to explore a deeper understanding of complex situations for theory building (Leedy & Ormrod 2005).
The methodology of constructivism involves gathering a large amount of rich data of relatively small number of people in organisations (Ticehurst & Veal 2000). It proposes a triangulation method to have an in depth understanding of the phenomena in question (Flick 1998). As the analysis involves more words than numbers (column 2, row c, table 3.2) (Bryman 2004), this will result in judgment based on subjective findings (Denzin & Lincoln 2003).

This paradigm is not appropriate for this research. The researcher deals with operational processes in an educational environment rather than human thoughts and emotions. The researcher and the respondents are not interactively linked, and the system does not influence the research inquiry. The methodological approach is more towards qualitative and this does not support the research.

c) Critical Theory Paradigm

The ontology of critical theory holds virtual reality and shaped by social, political, economic, ethnic and other factors (column 3, row a, table 3.2). Thus research inquiries are often long-term ethnographic and historical studies of organisational processes, and structures.

This theory may be defined as both postmodernism and poststructuralism, as the epistemology supports the notion and inquiry. This paradigm supports an inductive approach which is more subjective and qualitative (Parkhe 1993), where these methodologies are better suited to compare the results with previous research (column 3, row b, table 3.2).

This paradigm is not suitable for the research. There is an interactive link between the researcher and the object being researched. The positivist research involves well-structured methods where the researcher has no intervention in the process (Alizadeh, Perry & Riege 1997). The methodological process used in this type of research is transformative intellectual as in action research, observation and focus groups, unlike the verification of hypotheses and survey methods in the positivist approach. The critical theory focuses on a particular organisation or body and it does not allow the findings to be generalised.

d) Realism Paradigm

The realism paradigm is concerned with a ‘real world’ that actually exists out there (Alizadeh, Perry & Riege 1997), or with a phenomenon of factual nature (Hassard 1991). Unlike positivism which reflects that reality is apprehensible, this paradigm argues that due to
a researcher’s limited mental capacity, reality can only be imperfectly and probabilistically apprehensible (column 4, row a, table 3.2). This paradigm acknowledges that although there is only one reality, an objective account of events depends on the triangulation of several perceptions of that reality for a better picture of the phenomena (Alizadeh, Perry & Riege 1997). Epistemologically, it has a modified dualistic approach with the dichotomies of objectivism and a critical approach, using both quantitative and qualitative techniques (column 4, row b, table 3.2), possibility of a triangulation (Perry, Riege & Brown 1999).

The methodologies could be used towards qualitative, such as case studies and convergent interviewing to investigate what is real (Guba & Lincoln 1994; Healy & Perry 2000). Its qualitative approach with a small survey sample results in the findings which are not suited to meet the criteria of reliability and validity. In view of this, a larger sample size and collection of quantifiable data approach is used. The quantitative methodology of structural equation modelling is within the realism paradigm (column 4, row c, table 3.2). This method is an appropriate survey analysis technique in complex phenomena situations because of its two features, where it models structures with complex interdependencies allowing for multi-item scales and some measurement errors in its ‘unobservable’ constructs (Hair et al. 1995, Hunt 1991, p. 397).

This paradigm is appropriate for the research as it involves critical realism with reality, but apprehensible. Though this paradigm proposes a triangulation method including both quantitative and qualitative approaches, but the research is purely quantitative. It consists of both observable and unobservable elements as realistically as possible. As the research involves structural equation modeling techniques, the paradigm is appropriate for the research.

3.2.2 Justification of the Paradigm

Based on the above review, the research is most appropriate for a realism approach. It is most suitable for the research, as unlike positivists, realism is concerned with the ‘real world’ that exists out there (Alizadeh, Perry & Riege 1997). Realism is appropriate for this research, because it deals with an external reality that can only be known fallibly (Perry, Reige & Brown 1998) that is how entrepreneurial behaviour and intentions are constructed. This was addressed in two ways. Initially, the data was collected across multiple sources including
literature (sections 2.2, 2.3 and 2.4), exploratory research and the pilot study (section 3.4), and finally, the major survey study (section 3.3). Secondly, the use of structural equation modelling of survey data is carried out in the research to measure the latent or unobservable variables (Godfrey & Hill 1995).

The realism paradigm maintains that knowledge development is based on careful observation and measurement of objective reality that exists in the real world, developing numeric measures of observations and studying the behaviour of individuals becomes important.

Furthermore, as highlighted by Healy & Perry (2000, p. 120), ‘structural equation modelling’ is within the realism paradigm. In those research situations when complex phenomena have already been sufficiently understood to warrant an attempt at generalisation to a population, structural equation modelling may be the only appropriate survey analysis technique for a realism researcher to use.

Hence the realism paradigm is acceptable, as it permits building theory and hypotheses for testing using in-depth surveys and multi-item probe questions to determine latent factors of entrepreneurial intentions through entrepreneurship education. Structural equation modelling techniques can then be applied to the data collected to either support or refute the hypotheses (Creswell 2003).

3.3 Research Methods

The previous section discussed the typology approaches to social research, i.e. the different paradigms justifying the realism paradigm as appropriate for the research. This section looks into the different approaches and purposes of social research that are reflected in the study, mainly; exploratory, descriptive and explanatory as discussed below (Hart 1998, pp. 46 - 47).

3.3.1 Types of Research

a) Exploratory Research

An exploratory research is undertaken when there is insufficient information available about the research subject, or driven out of uncertainty. Its purpose is seen to illuminate some process or problem and suggest a method to deal with an ambiguous situation, or where there is uncertainty (Zikmund 2003). Exploratory research is flexible, unstructured and qualitative (Aaker, Kumar & Day 2000; Burns & Bush 2000) and is used as input to further research (Malhotra 1997). In this research, exploratory research is included in the literature review as
shown in sections 2.2, 2.3 and 2.4, to gain insights into the research problems and to identify the main issues in the research.

b) Descriptive Research

Descriptive research studies are undertaken to describe the characteristics of the variables of interest in a situation. Its outcomes are the awareness of the characteristics of a group or a situation able to gauge aspects of a situation, provide information for further research and assemble data around possible changes (Cavana, Delahaye & Sekaran 2001). Descriptive research is used in the study to describe the perspectives of entrepreneurship education in the literature review. It is used to determine the occurrence of the study through a survey method, with a structured questionnaire to maximise reliability and minimise errors with a large sample population (Kinnear et al. 1993). The descriptive research fails to establish a direct cause and effect relationship between the variables. Therefore, a causal research is included for the purpose (Zikmund 2003).

c) Causal or Explanatory Research

A causal approach is used to set out a hypothesised relationship between two or more variables in a given situation (Malhotra 1997; Zikmund 2003). This involves constructing and testing research hypotheses to establish the theory’s worth and its ability to make predictions about social phenomena. The research uses statistical testing to explain relationships among variables (Hoyle 1995). It is appropriate where the research problem has already been narrowly and clearly defined (Malhotra 1997; Zikmund 2003). Causal research is used in this research to provide evidence of a relationship, or an association of the independent or dependent variables through a survey. In a controlled environment, the independent variables are manipulated to test the hypotheses about a dependent variable (Zikmund 2003).

3.3.2 Justification of the Research Type

The study initially answers questions like ‘how and what’ questions, thus it is exploratory in nature and is conducted in first stage to study the literature review (chapter 2, section 2.2, 2.3 and 2.4).

Descriptive research aims to gather a large sample of data of respondents, in order to put forward a general theory to test the hypotheses, rather than from an individual perspective. It
describes the characteristics of data collected from the survey, such as frequency of occurrence of phenomena, charts and standard deviations. A structured questionnaire and an appropriate sample are used in the survey (Kinnear et al. 1993). Descriptive research however has its limitations, as it fails to establish direct cause-and-effect relationship between the research variables. Hence, causal research is carried out as to provide the researcher with a controlled environment to test the hypotheses (Zikmund 2003).

The causal research identifies the cause and effect relationship between the independent variables and the dependent variables (Zikmund 2003). It conducts statistical testing to analyse and explain the variables (Hoyle 1995). Causal modelling has its limitations where it has to be related to the context, concepts and theories. The empirical generalisations through causal modelling are always conditional (Kline 1998). Causal research involves a well-planned structured design (Malhotra 1997). Causal research is conducted involving statistical tools like correlation and regression techniques; and structural equation modelling to analyse the data. The research uses SPSS version 14.0 and AMOS version 16.0 to test the hypotheses and analyse the data.

The research design proposed was exploratory initially, followed by descriptive and explanatory. Based on the underpinning and the underling theory (Theory of Planned Behaviour), the present study has an objective to investigate the ‘impact’ of entrepreneurship education in developing entrepreneurial intentions. When ‘impact’ is investigated through the configuration of hypothesised model, entrepreneurship education and entrepreneurial intentions were examined as cause and effect relationship.

‘True experimental design’ for future research is recommended using current valid items or measurements as results from the present study. Quasi-experiments are good and are recommended to be conducted in the future to compare the success of universities to conduct this research.

3.3.3 Research Methodology

There are two approaches of methodology, qualitative and quantitative research methods in academic research as shown in Table 3.4 (Neuman 2006; Zikmund 2003; Ticehurst & Veal 2000). The methods are described below and the appropriate methodology has been justified.
Table 3.4 Distinction between Quantitative and Qualitative Research

<table>
<thead>
<tr>
<th>Quantitative Research</th>
<th>Qualitative Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measure objective facts</td>
<td>Construct social reality, cultural meaning</td>
</tr>
<tr>
<td>Focus on variables</td>
<td>Focus on interactive processes and events</td>
</tr>
<tr>
<td>Reliability is key</td>
<td>Authenticity is key</td>
</tr>
<tr>
<td>Value free</td>
<td>Values are present and explicit</td>
</tr>
<tr>
<td>Theory and data are separate</td>
<td>Theory and data are fused</td>
</tr>
<tr>
<td>Independent of context</td>
<td>Situationally constrained</td>
</tr>
<tr>
<td>Many cases, subjects</td>
<td>Few cases, subjects</td>
</tr>
<tr>
<td>Statistical analysis</td>
<td>Thematic analysis</td>
</tr>
<tr>
<td>Researcher is detached</td>
<td>Researcher is involved</td>
</tr>
</tbody>
</table>

*Source: Adapted from Neuman (2006); Denzin & Lincoln (2003); Cresswell (2003); Tashakkori & Teddie (2003); Guba & Lincoln (1994).*

a) Qualitative Research Approach

Qualitative research is an inductive approach. It involves an in-depth exploration of issues in a less-structured format with a small number of respondents (Ko de Ruyter & Scholl 1998). It is subjective in nature. Compared to quantitative approach, it uses different methods to collect information, mainly; individuals, focus groups and in-depth interviews (Perry, Riegs & Brown 1998; Zikmund 2003; Sarantakos 2005; Neuman 2006). The nature of this type of study is exploratory and open-ended.

The findings of a qualitative study is done not to test a theory or make generalisations about a population, but to build a theory for further testing through quantitative or other methods (Maykut & Morhouse 1994; Marshall & Rossman 1995). The characteristics of qualitative research allows for gathering in-depth and rich information (Deshpande 1983) for developing new insights and perspectives (Aaker & Day 1990; Easterby-Smith 1991; Maykut & Morhouse 1994). Qualitative research is characterised by small sample sizes of between 15 – 40 respondents (Ko de Ruyter & Scholl 1998). The research depth insight is power of words and
not measures, but provides insight (Ko de Ruyter & Scholl 1998) thus, the representation of the research population is not the issue, and rather the relevance to the research problem is the issue. Qualitative research is an exploratory study of what is assumed to be a dynamic reality and does not claim what is discovered is universal but replicable.

**b) Quantitative Research Approach**

Quantitative research adopts a more objective approach, aims at causal explanations and the establishment of general laws and principles. The method creates knowledge through objective, controlled, statistical tests, simulated exercises, model and statistical tests with a larger number of respondents. Quantitative method states that the measurement must be objective and statistically valid. Basically, it involves numbers, objectivity and hard data gathered by empirical methods to provide information about comparisons and predictions (Zikmund 2003; Kumar 2005).

The methodological tools employed are experiments and surveys. It establishes a causal relationship between the independent and dependent variables. It uses surveys or questionnaires to generalise the findings from a large sample size from a given population to achieve findings and to calculate the sample size with an acceptable degree of accuracy (Blaxter & Hughes 1996; Neuman 2006).

It generalises the findings to some larger population through testing the theory that is developed. The quantitative approach stresses objectivity and seeks to ensure replicability through the adoption of standard methodological processes (Zikmund 2003; Neuman 2006). It establishes internal validity from the true value of the implied causal relationships between the independent and dependent measures. External validity is established through generalisability of the presumed cause-effect relationship between the two variables to new settings with other subjects (Zikmund 2003).

**3.3.4 Justification of the Quantitative Research Method**

Quantitative methodology is most suitable for this research, because it aims to gather data from a large number of subjects in order to measure and validate the model on entrepreneurial intentions that was established from previous research as shown in Fig. 3.2. A quantitative approach is appropriate as the given research investigates the influence of certain variables and explores how the independent variables (curricula, teaching methodologies and universities roles) and mediating variables (attitude and stakeholder support systems)
influence the dependent variable (entrepreneurial intentions) as shown in the model in Fig. 2.4, in chapter 2. The current study does not aim at discovering or developing a theory (Lincoln & Guba 1985), but rather aims at testing the application of existing theory or confirmation of the theory (Deshpande 1983).

Another reason for the choice of the methodology is its approach to data analysis through statistical methods by using tables and charts. Its aim is to measure the relationship of the variables (Creswell 2003; Neuman 2006). The aim of the study is to predict the response of the independent variables and the mediating variables on the impact of the dependent variable. Its aim is to test the hypotheses and the model through a survey questionnaire to gather data from a large number of respondents (Zikmund 2003; Neuman 2006).

Fig. 3.2 Quantitative Research Approach

Source: Quantitative Research Methods by McMurray (2009)
3.3.5 Research Propositions and Hypotheses Development

Entrepreneurship education is seen as an important influence among students’ entrepreneurial intentions in universities (Gibb 2002; Peterman & Kennedy 2003; Kuratko 2005; Matlay 2005; Fayolle & Gailly 2008). Entrepreneurship curricula are one of the predictors in providing a good training model for entrepreneurship education (Noll 1993; Gartner & Vesper 1994; Kourilsky 1995; Gottlieb & Ross 1997; Bechard & Toulouse 1998; Roach 1999). The research on academic entrepreneurship states that, through the teaching methods and training they will develop entrepreneurial intentions (Peterman & Kennedy 2003; Timmons 2003; Bechard & Gregoire 2005; Fayolle & Gailly 2008; Matlay 2009). The university’s environment is also an influential factor in determining entrepreneurial intentions among the undergraduates (Autio et al. 1997; Gibb 2002; Shane et al. 2003; Hegarty 2006; Weaver et al. 2006; Yar Hamidi, et al. 2008).

Other variables that influence entrepreneurial behaviour and intentions among the university students are: demographic factors that examine the age, gender, personal background, family background and career stage (Robinson et al. 1991; Green et. al. 1996; Kourilsky & Walstad 1998; Alstete 2002; Wilson, Marlino & Kickul 2004; Shay & Terjensen 2005). The personality characteristics of the individuals’ attitudes have an effect on behaviour and intentions, as explained in the theory of planned behaviour (Section 2.2.3, in Chapter two). The components examined in the mediating variable attitude are: attitude towards money (Robinson et al. 1991; Douglas 1999), attitude towards change (Autio et al. 1997; Shane et al. 2003) and attitude towards competitiveness (Autio et al. 1997; Krueger et al. 2000). The stakeholder’s support system is the other mediating variable that is examined and its components are: the role of government (Reynolds et al. 2005; Stevenson & Lundstro¨m 2005; Storey 2005), financial institutions (Dollinger 1995; Greene & Brown 1997; Fehr & Hishigsuren 2006) and the parents of students (Reavil 1998; Koksal & Egitman 1998; Matlay 2009). Entrepreneurial intention is the dependent variable that is tested in the research (Bird 1988; Krueger & Carsrud 1993; Boyd & Vozikis 1994; Autio et al. 1997; Peterman & Kennedy 2003; Frank & Luthje 2004; Fayolle & Gailly 2008).

The above-mentioned research issues resulted in the development of a number of hypotheses and a model as shown in Fig. (3.3). The links to the literature from the previous studies to propose the hypotheses for this study are stated below and the research supporting the hypotheses is shown in Table 3.5.
**Hypothesis 1:** Entrepreneurship curricula have a direct positive effect on entrepreneurial intentions among the Malaysian university students.

**Hypothesis 2:** The teaching methodologies have a direct positive effect on entrepreneurial intentions among the Malaysian university students.

**Hypothesis 3:** The Universities roles in promoting entrepreneurship have a direct positive effect on entrepreneurial intentions among the Malaysian university students.

**Hypothesis 4 (i):** Attitude towards money has a direct positive effect on entrepreneurial intentions among the Malaysian university students.

**Hypothesis 4 (ii):** Attitude towards change has a direct positive effect on entrepreneurial intentions among the Malaysian university students.

**Hypothesis 4 (iii):** Attitude towards competitiveness has a direct positive effect on entrepreneurial intentions among the Malaysian university students.

**Hypothesis 5 (i):** Government support systems have a positive effect on entrepreneurial intentions among Malaysian university students.

**Hypothesis 5 (ii):** Financial institutions have a positive effect on entrepreneurial intentions among Malaysian university students.

**Hypothesis 5 (iii):** Parents of students have a positive effect on entrepreneurial intentions among Malaysian university students.
Table 3.5 Summary of Research Support for Hypotheses

<table>
<thead>
<tr>
<th>Hypotheses</th>
<th>Empirical Support</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hypothesis 3</strong>: The Universities roles in promoting entrepreneurship have a direct positive effect on entrepreneurial intentions among the Malaysian university students.</td>
<td>Storey 2000; Davenport et al. 2002; Shane 2004a; Kuratko 2005; Rothaermel &amp; Thursby 2005; Powers &amp; McDougall 2005; Nurmi &amp; Paasio 2007; Yar Hamidi et al. 2008.</td>
</tr>
<tr>
<td><strong>Hypothesis 4(i)</strong>: Attitude towards money has a direct positive effect on entrepreneurial intentions among the Malaysian university students.</td>
<td>Robinson et al. 1991; Autio et al. 1997; Douglas 1999; Lim &amp; Teo 2003; Schwarz et al. 2009.</td>
</tr>
<tr>
<td><strong>Hypothesis 4(ii)</strong>: Attitude towards change has a direct positive effect on entrepreneurial intentions among the Malaysian university students.</td>
<td>Autio et al. 1997; Shane et al. 2003; Schwarz et al. 2009.</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Hypothesis 6(i): Financial institutions have a positive effect on entrepreneurial intentions among Malaysian university students.</td>
<td>Dollinger 1995; Greene &amp; Brown 1997; Tan &amp; Peng 2003; Fehr &amp; Hishigsuren 2006.</td>
</tr>
<tr>
<td>Hypothesis 6(i): Parents have a positive effect on entrepreneurial intentions among Malaysian university students.</td>
<td>Reavil 1998; Koksal &amp; Egitman 1998; Matlay 2009.</td>
</tr>
</tbody>
</table>

*Source: Developed for the Research*
Fig. 3.3 Proposed Hypothesised Research Model

Curricula

Teaching methodologies

Universities roles

Attitude factors

Entrepreneurial Intention

H1

H2

H3

H4

H4i

H4ii

H4iii

Money

Change

Competitiveness

Stakeholder support system

Parents

Government

Financial institutions

H5

H5i

H5ii

H5iii

Independent variables

Mediating variables

Dependent variable

Source: Reproduced from Fig. 1.2
3.4 Data Collection

This section discusses the various sources of data and the ways in which data can be gathered for purposes of analysis, testing the hypotheses and answering the research questions. The choice of data collection instruments depends on availability of facilities, time, costs, degree of accuracy required, the expertise skills of the researcher and the resources required for gathering the data. Both primary and secondary data collection methods are discussed and justified with the appropriate method for the study (Sekaran 2006, p. 219).

A Research Master Plan was developed for the study, which specifies the chosen research methods defining the sampling strategy and data analysis process (Emory 1991) as shown in Fig. 3.4

**Fig. 3.4 Research Master Plan**

![Research Master Plan Diagram](image)

*Source: Developed for the Research*

3.4.1 Primary Data Collection

Primary data collection refers to data gathered and assembled specifically for the project (Zikmund 2003). Some of the sources of primary data are individuals, focus groups, interviews, surveys or panels of respondents, specifically set up by the researcher and from
whom opinions may be sought on specific issues from time to time, or some unobtrusive sources. The internet also could serve as a primary data source when questionnaires are administered over it (Sekaran 2006, p. 219).

Data collection methods are an integral part of the research design. There are several data collection methods, each with its advantages and disadvantages. Primary data can be collected in a variety of ways; in different settings, field or lab and from different sources. The methods include: interviews, face to face, telephone, computer-assisted and electronic-media questionnaires, either personally administered, observation of individuals and events with or without videotaping, or audio recording and a variety of other motivational techniques (Sekaran 2006, p. 223). The present research involves the collection of primary data through questionnaire survey method.

3.4.2 Secondary Data Collection

Secondary data can also be referred to as historical data, i.e. is data previously collected and assembled for some project other than the one at hand. Secondary data can often be found in the library, on the internet, inside the company, or other secondary resources (Zikmund 2003). For most organisational research the secondary data is indispensable. It refers to information gathered by someone, other than the researcher conducting the study and such data can be internal or external to the organisation. The sources of secondary data provide a lot of information for research and problem solving and mostly they are qualitative in nature. The advantages of seeking secondary data are savings in time and costs of acquiring the information (Sekaran 2006).

Secondary data collected through the literature review was described in chapter two. They comprised of published journals, books and periodicals, government publications, internet sources, archival records, written and non-written documents (Sekaran 2006). The secondary data collected were used on the discussion of prior research and other available literature on the research issues. These included: entrepreneurship development, entrepreneurship education and entrepreneurial intentions, both in parent and immediate disciplines. Following this, the review proposed a theoretical framework for the research and the research gaps in the existing body of knowledge, resulting in the formulation of hypotheses development for testing the theory.
3.4.3 Research Design

A research design is a plan to investigate and answer the research questions and problems (Cooper & Scindler 2001; Bryman & Bell 2003; Kumar 2005). There are three main types of research designs namely; experiments, observation and surveys.

a) Experiments

Experiments control one independent variable and establish cause and effect relationship (Zikmund 2003). They are conducted in a natural environment, or in laboratories to test the hypotheses of the cause and effect relationships between the variables (Veal 2005; Bordens & Abbott 2005). Researchers control the independent variable to determine what effect they have on the dependent variables (Aldridge & Levine 2001) and manipulate the other variables to observe the changes in the cause and effect relationships. This type of research is not suitable to administer for a large sample size (Bordens & Abbott 2005).

b) Observations

Observations are conducted in the natural environment. They can produce a detailed record of events of what people actually do and the relationships between the variables. The observer is in no position to control or manipulate the situation (Spector 1990; Zikmund 2003). The observation research has validity because the researcher could collect a depth of the information, and it is less flexible and less formal (Montgomery & Duck 1991). This research is not suitable, as it takes a long time and may be affected by bias from the researcher (Bordens & Abbott 2005).

c) Questionnaire Surveys

Questionnaire surveys are a common and inexpensive way of gathering primary data (Zikmund 2003) and could be defined as a ‘method of primary data collection based on communication with a representative sample of people’. They are one of the most popular methods of primary data collection using written questionnaires (Kumar 2005). The procedure involves asking respondents to supply information in a quick, inexpensive, efficient and accurate way of assessing information about the target population (Zikmund 2003). The survey method is suitable for collection of information from a large sample of people and using sensitive questions. It is a useful measure of behaviour for measuring a large population after collecting the summarised information (Krueger 2002).
The researcher has to send the questionnaires to the respondents for them to read and answer the questions, which are possible even without face-to-face interactions. The questions in the questionnaires must be clearly understood (Kumar 2005). It is essential to make the questions interesting, and not have too many questions to avoid a low response rate (Cooper & Schindler 2003; Zikmund 2003; Kumar 2005; Veal 2005). This survey method helps to quantify the events (Zikmund 2003; Sarantakos 2005).

The questionnaire survey data can be collected in a number of ways such as: face-to-face, mail, telephone, drop off and pick up (Ticehurst & Veal 2000; Veal 2005). The method of questionnaire survey involves collection of information from the respondents. The information is later coded, analysed, translated and presented in a statistical form (Zikmund 2003; Veal 2005; Kumar 2005). The survey methods are a good method of quantitative methodology, but it has advantages and disadvantages (Ticehurst & Veal 2000) and they are listed in Table 3.6.

Table 3.6 Survey Method – Advantages and Disadvantages

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Useful for situations where structured data are obtained from a sample.</td>
<td>Low response rate from participants.</td>
</tr>
<tr>
<td>Is ideal for providing quantified information.</td>
<td>Inappropriate selection of participants.</td>
</tr>
<tr>
<td>Provides complex information but in an understandable manner.</td>
<td>Timing of survey and time burdens on the respondents.</td>
</tr>
<tr>
<td>Effective means of gathering a wide range of complex information.</td>
<td>Poor or complex questionnaire design.</td>
</tr>
<tr>
<td>Provide a transparent set of research procedures on how information is</td>
<td>Respondents giving misappropriate answers in the content of</td>
</tr>
<tr>
<td>collected and analysed.</td>
<td>the survey.</td>
</tr>
</tbody>
</table>

Source: Ticehurst & Veal (2005)
### 3.4.4 Justification of the Questionnaire Survey Method

The research method in the present study is justified as purely quantitative involving the hypotheses testing of the theory. It involves gathering of information from a large group of respondents administering through the survey questionnaires, to measure the behaviour, attitudes, opinions and characteristics (Zikmund 2003; Kumar 2005; Veal 2005). The researcher does not manipulate the situation or work in a controlled condition to see how people react. The respondents are selected through a random sampling technique, so that they could generalise information from the few respondents and the results from the survey are summarised by statistical means. The research design involves mainly descriptive and explanatory, so a survey methodology has been justified (Neuman 2006).

Questionnaire surveys provide a convenient, efficient, inexpensive and accurate method of data gathering (Zikmund 2003; Bryman 2004; Leedy & Ormrod 2005). The survey method reveals the flexibility in the type of questions asked and the distribution of questionnaires (Butler, Lorna Michael, De Phelps & Gary 1995; Barribeau et al. 2005). The study draws conclusions about how the respondents are influenced by deducing their responses from the sample and by obtaining the answers quickly through the specific questions (Kumar 2005). There are many methods of conducting the survey and the administration methods of the survey are discussed in the following section.

### 3.4.5 Types of Survey Administration Methods

A researcher needs to know the advantages and disadvantages of the different types of survey administration methods to gather the data accurately and quickly. The different survey administration methods are discussed below.

**i) Mail surveys** – This methodology involves where the questionnaires are sent directly to the respondents via mail. The respondents have to read, understand and return the completed questionnaires to the researcher through mail (Aaker, Kumar & Day 1998; Burns & Bush 2000; Ticehurst & Veal 2000; Bordens & Abbott 2005; Veal 2005).

**ii) Telephone surveys** – They use interviewers who directly interact with the respondents through the telephone. There is no observation of personal responses such as eye contact and body language. This can reduce the pressure and tension experienced by the respondents (Bordens & Abbott 2005; Veal 2005).
iii) **On-line surveys** – They can be used to contact respondents via e-mail or websites (Bordens & Abott 2005). The respondents have a choice of printing the survey questionnaire and return it by mail, or reply the questionnaire to the e-mail. Transfer codes can be used by the researcher to analyse the data instantly. These surveys are suitable for a large sample of people, and help to easily contact the respondents directly and quickly (Roberts, Konczak & Macan 2004; Bordens & Abbott 2005; Veal 2005).

iv) **Personally administered surveys** – This method is suitable if the survey is confined to a local area, and the organisation is willing and able to assemble groups of employees to respond to the questionnaires at the workplace (Sekaran 2006). This procedure gives the researcher the opportunity to ‘debrief’ subjects without spending a great deal of time and effort (Zikmund 2003).

v) **Drop off and pick up surveys** – They are a form of self-completion surveys which are distributed by the researcher to the respondents, and subsequently, collected at a mutually agreeable time (Steele et al. 2001). The researcher is able to contact the respondents through telephone, mail or face-to-face, or through research assistants in the organisation who are able to assist in the collection of data from the respondents, prior to distribution of the questionnaires and pick up the completed questionnaires later (Steele et al. 2001). The ‘drop-off-method’ has some cost savings (Zikmund 2003) and it is easy to collect data from a database selected randomly (Aaker, Kumar & Day 1998). If some pre-selected respondents ignore the questionnaire, the next respondent in the list is then selected (Burns & Bush 2000).

In summary, all survey instruments have advantages and disadvantages which are summarised in Table 3.7. A researcher can select whichever survey method best suits the research.

<table>
<thead>
<tr>
<th>Survey Administration Methods</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mail surveys</td>
<td>High anonymity.</td>
<td>Response rate is always low. A 30% rate is quite acceptable.</td>
</tr>
<tr>
<td></td>
<td>Wide geographic regions are reached.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Respondents have more time at</td>
<td>Cannot clarify the questions.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table 3.7 Advantages and Disadvantages of Survey Administration Methods**
<table>
<thead>
<tr>
<th>Method</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>their convenience.</td>
<td>Can be administered electronically.</td>
<td>Follow-up procedures are required for non-responses.</td>
</tr>
<tr>
<td>Can be administered electronically.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Telephone surveys</td>
<td>Speedier and less costly, than personal administered surveys.</td>
<td>Non-verbal cues cannot be read.</td>
</tr>
<tr>
<td>Can reach a wide geographic area.</td>
<td></td>
<td>The questions should be kept short.</td>
</tr>
<tr>
<td>Greater anonymity than personal surveys.</td>
<td></td>
<td>Obsolete telephone numbers could be contacted and unlisted ones omitted from the sample.</td>
</tr>
<tr>
<td>Easy to administer.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>On-line surveys</td>
<td>Can reach globally.</td>
<td>Computer literacy is a must.</td>
</tr>
<tr>
<td></td>
<td>Inexpensive.</td>
<td>Respondents must have access to the facility.</td>
</tr>
<tr>
<td></td>
<td>Fast delivery.</td>
<td>Respondents must be willing to complete the survey.</td>
</tr>
<tr>
<td></td>
<td>Respondents can answer at their convenience, like the mail questionnaire.</td>
<td></td>
</tr>
<tr>
<td>Personally administered Questionnaire</td>
<td>Can establish rapport and motivate respondents.</td>
<td>Organisations may be reluctant to give up company time for the survey with the respondents assembled for the purpose.</td>
</tr>
<tr>
<td></td>
<td>Doubts can be clarified.</td>
<td>Respondents have to be available and have the time to complete the surveys.</td>
</tr>
<tr>
<td></td>
<td>Less expensive, when administered to the groups of respondents.</td>
<td>Respondents have to be literate.</td>
</tr>
<tr>
<td></td>
<td>Almost 100% response rate is ensured.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Anonymity of respondents is high.</td>
<td></td>
</tr>
<tr>
<td>Drop off and pick up surveys</td>
<td>Can use self administration.</td>
<td>Missing questionnaires, since respondents take the questionnaires back home and may forget to bring them back.</td>
</tr>
<tr>
<td></td>
<td>Easy to collect data. High response rate since respondents have plenty of time to complete their questionnaires.</td>
<td>Respondents have to be available when the researcher visits the</td>
</tr>
<tr>
<td></td>
<td>Low cost - Respondents have time to formulate answers.</td>
<td></td>
</tr>
</tbody>
</table>
Safe method.

The research assistants appointed have to co-operate with the researcher.

Method is inflexible. Limited ability of respondents who are illiterate. Privacy of respondents is not assured.

Source: Adapted from Sekaran (2006); Bordens & Abbott (2005); Kumar (2005); Leedy & Ormrod (2005); Veal (2005); Ko de Ruyter et al. (2004); Steele, Bourke et al. (2001); Burns & Bush (2000); Ticehurst & Veal (2000); Schwarz (1999); Aaker, Kumar et al. (1998)

3.4.6 Justification for Personally Administered Questionnaire Survey and Drop-off and Pick-up Survey

This study involves the researcher to choose, deliver and collect the survey using the personally administered questionnaire survey method, and the drop off and pick up survey methods due to its convenience, response rates and time.

Personally administered questionnaire survey is a suitable method for this research, as structured data is required from a representative sample and is an ideal means of providing quantified information. Further to this, it is able to analyse complex information in an understandable form and gather a wide range of complex information (Ticehurst & Veal 2000). The disadvantages of the personally administered survey method is not many, unless the questionnaire is not worded properly or has complex questions in it, there will be a low response rate (Sekaran 2006). The researcher is able to establish rapport and motivate the respondents. This method enables the respondents to clarify the questions, clear doubts and the use of visual aids to answer the questions diligently (Burns & Bush 2000; Steele et al. 2001; Sekaran 2006). The respondents have sufficient time to answer the questionnaires without pressure. Questionnaires given out personally enable rich data to be obtained with almost 100% response rate and anonymity of respondents are high (Sekaran 2006).
The drop off and pick up survey method is another method used in this research, as it allows respondents to answer the survey at their convenience (Kish 1987; Burns & Bush 2000; Sekaran 2006). It is convenient for the researcher to conduct this survey, as it could be arranged to drop off and pick up the completed questionnaires later. This method allows the respondents sufficient time to complete their questionnaires without pressure, but there is not a 100% response rate (Steele et al. 2001).

3.5 Data Collection Tools

The research method employed in this research is quantitative, thus the main data collection tools are questionnaire surveys derived from a sample survey and pilot testing. This section discusses the sample design, sample strategy, sample administration and design of the questionnaire.

3.5.1 Survey Techniques

a) Sample survey

A sample survey emphasises that the purpose of contacting the respondents is to obtain a sample from the target population. A population is ‘the total collection of elements about which we wish to make some inference’ (Cooper & Schindler 2003, p. 179). The sample survey success depends on the sample size and representation of the sample, the respondents’ cooperation and degree of bias. Before selecting a sample, it is important to find out as much as possible about the target population (Babbie 1992). Based on the type of sampling and information about the population, a sample size which leads to inferences that are valid for the target population as a whole is chosen (Stevens 2001). The sample is a subset of the target population (Babbie 1992; Hair, Anderson, Tatham & Black 1998; Aldridge & Levine 2001; Zikmund 2003).

b) Pilot testing

Pilot studies collect data from the ultimate subject of the research projects to serve as a guide for the larger study. It can be defined as ‘any small-scale exploratory research technique that uses sampling but does not apply rigorous standards’ (Zikmund 2003, p. 63). The data from the pilot study are useful for the conduct of a situational analysis and pre-testing the survey questionnaires.
c) The selected data collection techniques

The techniques chosen for the research are influenced by the objectives of the research, hypotheses developed and the nature of the education industry in Malaysia. There are a lot of developments in the educational sectors in Malaysia. As such, the sample survey is adopted as the principal data collection technique and pilot testing method is used to frame the pre-tested questionnaires (refer Fig. 3.5).

**Fig. 3.5 Data Collection Techniques**

![Data Collection Techniques Diagram]

**Source: Developed for the Research**

3.5.2 Survey Questionnaire

One of the commonly used methodologies in quantitative business research is the questionnaire survey administration. It is designed to obtain large amount of information from respondents. There are many methods of questionnaire survey administration which have been discussed. The initial stage in the questionnaire survey administration is designing the questionnaire which is discussed below.

(i) Questionnaire Design

The design of the questionnaire is one of the priority items in a survey method. A ‘questionnaire’ is a pre-formulated written set of questions to which respondents record the answers within closely defined ‘alternatives’. They are an efficient data collection
mechanism, when the researcher knows exactly, what is required and how to measure the variables of interest (Sekaran 2006).

A good questionnaire design is important to minimise bias in research (Sekaran 2006), and a valid and reliable questionnaire should be used (Creswell 2003; Leedy & Omrod 2005). Every question should be linked to the research questions and hypotheses (Ticehurst & Veal 2000; Kumar 2005). The factors taken into consideration when designing the questionnaire are as follows:

a) Layout and wording of questionnaire

The layout of the questionnaire is important for the respondents (Neuman 2006). The questions in the questionnaire should be clear, numbered and in the appropriate language which is easy to understand (Zikmund 2003; Kumar 2005; Veal 2005).

b) Type of form of questions

To minimise bias it is good for the researcher to select closed-ended questions. The items included in the questionnaire can be nominal, ordinal, Likert, or ratio scale. These types of questions help the respondents to make quick decisions to choose among the several alternatives before them (Zikmund 2003). Ambiguous and leading questions should be avoided to minimise the possibility of bias (Sekaran 2006).

c) Sequencing of questions

The questions should have a good and smooth flow as the order of the questions presented may influence the respondents’ answers (Neuman 2006). It is good for the researcher to use a funnel sequence, which organises the questions in the questionnaire from general to specific questions (Neuman 2006, p. 294).

d) Accuracy of the questionnaire

The information obtained in the questionnaire survey must be valid and reliable (Zikmund 2003). Thus, the researcher could include the respondents’ educational background, field of study, cultural characteristics, and the literacy in English, the language that is used in the questionnaire in phrasing the questions together. Loading questions that have emotional and bias responses, double barred questions that lend it to possible responses, which lead to confusion should be avoided (Sekaran 2006).
(ii) Operational Definitions of Constructs

The operational definitions of constructs in the research model are examined to measure the hypothesised relationships and explain how the interval scale is devised for the questionnaire (Perry 2002).

The development of well-constructed measurement procedures is critical to the process of collecting the research data. The measurement procedure consists of two processes: construct development and scale measurement (Hair, Bush & Ortinau 2003). The construct development process identifies what has to be measured including dimensionality traits. Operationalisation is the process whereby the research explains a construct’s meaning in measurement terms, by specifying the activities or operations necessary to measure it (Hair, Bush & Ortinau 2003; Sekaran 2006). The constructs such as entrepreneurial intentions cannot be directly observed or measured. Researchers attempt to indirectly measure them through operationalisation of their components (indicators). The operationalisation of the constructs in the hypothetical model were taken from the empirical support sources mentioned in Table 3.5 in Section 3.2.5, and adopted or modified to suit the research context.

(iii) Scale Design

Research projects of this kind normally use measurement on a Likert Scale because it is easy to construct (Zikmund 2003; Kumar 2005). Likert scales are used to indicate respondents’ attitudes or opinions by measuring their level of agreement or disagreement (Kumar 2005; Veal 2005). Closed-end questions are asked sometimes where the respondents select the appropriate answers from specific answers or multiple choices (Zikmund 2003). In the Likert scale, a categorical scale is used; which has a three-point, five-point, seven-point, or ten-point numerical range, depending on how finely researchers need to rate the intensity of respondents’ attitudes (Cohen & Cohen 1983; Kumar 2005).

A range of more than a three-point scale is more accurate (Cohen & Cohen 1983). The using of a five-point scale limits the response choice, but a seven-point scale reduces inaccuracy (Burns & Bush 2000). The highest is the ten-point scale which allows more discrimination than a seven-point scale, but it is complicated for the respondents to answer (Vavra 1997). Compared to all the Likert scale ranges, the seven-point scale is the most appropriate one to measure the entrepreneurial intentions as shown in Fig. 3.6. It provides more alternatives for respondents and provides a less-skewed distribution (Burns & Bush 2000). This study uses
the seven-point Likert scale for appropriate distribution and measurement (Bass, Cascio & O'Conner 1974; Cohen & Cohen 1983; Vavra 1997; Burns & Bush 2000). Table 3.8 illustrates the Likert scales used in previous research.

![Figure 3.6 Seven-point Likert Scale](source)

Source: Adapted from Zikmund (2003); Kumar (2005) & Veal (2005)
<table>
<thead>
<tr>
<th>Variables</th>
<th>Scale type</th>
<th>Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Guerrero et al.2006; Souitaris et al. 2007; Aptfelthaler et al. 2008.</td>
</tr>
<tr>
<td></td>
<td>Seven-point Likert</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Seven-point Likert</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Seven-point Likert</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Seven-point Likert</td>
<td></td>
</tr>
<tr>
<td>c) Universities roles in promoting entrepreneurship</td>
<td>Seven-point Likert</td>
<td>Whiteley 1995; Fallow &amp; Steven 2000.</td>
</tr>
<tr>
<td></td>
<td>Seven-point Likert</td>
<td></td>
</tr>
<tr>
<td>d) Attitude towards:</td>
<td>Five-point Likert</td>
<td>Autio et al. 1997; Lee &amp; Wong 2004; Liňań &amp; Chen 2006</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Robinson et al. 1991; Kolvereid 1996</td>
</tr>
<tr>
<td>ii) Change</td>
<td>Seven-point Likert</td>
<td>McClelland 1961; Baumol 1983; Begley &amp; Boyd 1987; Davidsson 1989</td>
</tr>
<tr>
<td></td>
<td>Nine-point Likert</td>
<td></td>
</tr>
</tbody>
</table>
(iv) Design of Study Measurements

The questionnaire design should be set out sequentially by the researcher, so that the respondents are able to understand the information required that would encourage them to complete the questionnaire and return to the researcher in time (Zikmund 2003). The researcher designs the questionnaire on their own for convenience and saving time. The self-administered questionnaire is designed with the relevant questions according to the development of the hypotheses. A self-administered questionnaire is one that is filled in by the respondent rather than by an interviewer (Zikmund 2003, p.212).

In this process, the researcher distributes the questionnaires directly to the respondents or mails them to the respondents who read the instructions and questions, then record their answers. This survey method has many advantages. It is the cheapest method and it can be conducted by a single researcher. The survey permits fast data gathering and can cover a wide geographical area. The respondents can complete the questionnaire when it is convenient and check personal records if necessary.
Self-administered questionnaires offer anonymity and avoid interview bias. Its effectiveness is seen with a high response rate for a target population that is well educated with a strong interest in the topic (Neuman 2006).

In the present study, the questionnaire was prepared in such a way where it led the respondents from questions of a general nature to those that were more specific. This is referred to as a ‘funnel approach’ (Festinger & Katz 1966). It facilitated the easy flow and progress for the respondents through the items in the questionnaire. The questions were mostly positively worded and a few negatively worded questions. The language and wording of the questionnaire focused on types, forms of questions asked and included closed-ended questions. The demographic questions section did not include any names of respondents and it ensured complete anonymity of the respondents. The questions designed for the study were simple; there was not much ambiguity, leading questions, or jargon to confuse the respondents. Content, construct validity and reliability measures were strictly adhered to in preparing the questionnaire to reduce biasness. The questionnaire was designed to use nominal, ordinal scale and Likert scale. Questions were carefully selected and designed properly to avoid a poor response. Problems of unreachable did not arise and anonymity of the participants was maintained for ethical reasons (Sekaran 2006).

The data was collected by the researcher via self-administered questionnaires distributed to the respondents, i.e. students from the four entrepreneurship-focused universities. The questionnaire was printed in a booklet form (Dane 1990), so that it looked well-organised and professional. In addition, the questionnaire was developed in order to ensure validity, reliability and free from bias. The questions in the questionnaire were prepared both in English and in Malay versions to accommodate some of the respondents who were not so proficient in English. The questionnaires were distributed with the help of the academic staff to the students at the selected classes, and were given 20 – 30 minutes to answer the questions. The academic staff instructed the students to return the completed questionnaires at the reception desks nominated at the respective faculties or to be collected at a later date. This method of self-administered questionnaires yielded a higher response rate among the students as a sample (Lee et al. 2005). A more detailed overview of the survey administration method is discussed in section 3.5.

The study used a questionnaire design structure that consisted of seven parts. The seven sections in the questionnaire consisted of questions related to entrepreneurship
education (entrepreneurship curricula, teaching methodologies and universities roles), mediating variables of attitude and stakeholder support system factors, demographic characteristics and the dependent variable of entrepreneurial intentions. The questionnaire was designed on a 7 point Likert scale, with nine - twelve questions in each section. Reversal questions were used to test the awareness and concentration. In total, the questionnaire consisted of 78 questions for the respondents to answer. The students were provided with written instructions on the first page, briefly explaining the purpose of the study. They were also notified that it was an academic project pertaining to the effectiveness of entrepreneurship education on Malaysian University students and their entrepreneurial intentions after the program of study. The survey was conducted with the approval of the University authorities and the academic staff concerned (refer Appendix 1).

When the students returned their questionnaires, they were assumed to have taken part in the study and their identities were treated with strict confidentiality and not revealed for any purposes. The illustration of the operationalisation of constructs, indicators, measurement variable description in the questionnaire and empirical support for the research model is shown in table 3.9.

**Table 3.9: Summary of Operationalisation of Constructs, Indicators and Empirical support for Research Model**

<table>
<thead>
<tr>
<th>Construct – Entrepreneurship curricula (H1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q#</td>
</tr>
<tr>
<td>-----</td>
</tr>
<tr>
<td>2.1</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>2.2</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Q#</th>
<th>Indicator Label</th>
<th>Measurement Variable Description</th>
<th>Empirical Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1</td>
<td>Relevant</td>
<td>Instructor made the course <strong>relevant</strong> to the real world.</td>
<td>Katz 2003; Peterman &amp; Kennedy 2003; Kuratko 2005.</td>
</tr>
<tr>
<td>3.2</td>
<td>Experience</td>
<td>Instructors have <strong>experience</strong> in teaching.</td>
<td>Gibb 2002; Cooper et al. 2004; Matlay 2005.</td>
</tr>
<tr>
<td>3.3</td>
<td>Not interesting</td>
<td>Methodologies are <strong>not interesting</strong>.</td>
<td>Henderson &amp; Robertson 1999; Zainal Abidin</td>
</tr>
</tbody>
</table>
### 3.4 Gain more knowledge
Students’ visits to industries to **gain more knowledge** on the subject.

### 3.5 Business plan models
Lecturers teach comprehensive **business plan models**.

### 3.6 Practical sessions
**Practical sessions** help in understanding.

### 3.7 Excellent presentations
Lecturers show **excellent presentations**.
- Gibb 2002; Peterman & Kennedy 2003; Menzies & Taroff 2006.

### 3.8 Stimulate interest
Lecturers stimulate **interest** in the subject.

### 3.9 Motivate
**Motivate** by telling stories of great entrepreneurs by showing video clippings.

---

<table>
<thead>
<tr>
<th>Q#</th>
<th>Indicator Label</th>
<th>Measurement Variable Description</th>
<th>Empirical Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.2</td>
<td>Focus</td>
<td>University focus is in entrepreneurship.</td>
<td>Jones &amp; English 2004; Kuratko 2005; Gibson et al. 2006.</td>
</tr>
<tr>
<td>4.3</td>
<td>Entrepreneurial</td>
<td>Entrepreneurship course</td>
<td>Etzkowitz, 2002; Klapper</td>
</tr>
<tr>
<td>spirit</td>
<td>stimulates entrepreneurial spirit.</td>
<td>2004; Landstrom 2005; Edwards &amp; Muir 2005</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>4.5 Adequate facilities</td>
<td>University does not have adequate facilities to promote the entrepreneurship.</td>
<td>Bygrave 2004; Hannon 2005; Smith 2008</td>
<td></td>
</tr>
<tr>
<td>4.6 Innovative ideas</td>
<td>The university environment inspires to develop innovative ideas.</td>
<td>Ang &amp; Hong 2000; Grebel 2004; Yar Hamidi et al. 2008</td>
<td></td>
</tr>
<tr>
<td>4.7 Best place</td>
<td>The university is the best place to train for entrepreneurship.</td>
<td>Gartner &amp; Vesper 1994; Autio et al. 1997; Fayolle 2003</td>
<td></td>
</tr>
<tr>
<td>4.8 Resources</td>
<td>The university provides resources to assist students in entrepreneurship.</td>
<td>Dollinger 1995; Greene &amp; Brown 1997; Shane et al. 2003</td>
<td></td>
</tr>
<tr>
<td>4.9 Business ideas</td>
<td>At the university I can meet people with good business ideas.</td>
<td>Pianko 1996; Franke &amp; Luthje 2004</td>
<td></td>
</tr>
</tbody>
</table>

### Construct – Attitude factors (H5)

<table>
<thead>
<tr>
<th>Q#</th>
<th>Indicator Label</th>
<th>Measurement Variable Description</th>
<th>Empirical Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1</td>
<td>Rich</td>
<td>Like to be an entrepreneur because can become rich.</td>
<td>Autio et al. 1997; Dana 2001</td>
</tr>
<tr>
<td>5.2</td>
<td>Earn more</td>
<td>Self-employed person earn more than a paid employee.</td>
<td>Douglas 1999; Franke &amp; Luthje 2004</td>
</tr>
</tbody>
</table>
Successful in life
A high income means successful in life.

Make a lot of money
Important to make a lot of money in my career.
Ang & Hong 2000; Lim & Teo 2003.

Boring
Working in a stable and routine environment is boring.
Shane et al. 2003.

Enlarge circle of friends
Being an entrepreneur will enlarge my circle of friends.

Many challenges
Entrepreneur faces many challenges than working for others.

Higher uncertainty
Need constant change to be stimulated even if it means higher uncertainty.

Compete with others
University programs have developed me well to compete with others.
Shane et al. 2003; Gray et al. 2006.

Work very hard
I work very hard in situations, when my performance is compared to others.

Perform better
It annoys me if people perform better than me.
Laukkanen 2000; Gray et al. 2006.

Competitive nature
Liking to be an entrepreneur is because of its competitive nature.

<table>
<thead>
<tr>
<th>Q#</th>
<th>Indicator Label</th>
<th>Measurement Variable Description</th>
<th>Empirical Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.3</td>
<td>Government support</td>
<td>I like the way the government support the entrepreneurial activities.</td>
<td>Reynolds et al. 2005; Storey 2005; Stevenson &amp; Lundstro¨m 2005.</td>
</tr>
<tr>
<td>6.6</td>
<td>Burdened with loans</td>
<td>As an entrepreneur I do not want to be burdened with loans.</td>
<td>Greene &amp; Brown 1997; Fehr &amp; Hishigusuren 2006; Mahmood &amp; Ali 2008.</td>
</tr>
<tr>
<td>6.7</td>
<td>Interest rates</td>
<td>Financial institutions give out loans for reasonable interest rates.</td>
<td>Fehr &amp; Hishigusuren 2006; Mahmood &amp; Ali 2008.</td>
</tr>
<tr>
<td>6.8</td>
<td>Credit</td>
<td>Financial institutions do not give credit to start-up companies.</td>
<td>Frank &amp; Luthje 2004; Gasse &amp; Tremblay 2006.</td>
</tr>
<tr>
<td>6.10</td>
<td>Assist parents</td>
<td>Assist parents in business has changed the desire to become an entrepreneur.</td>
<td>Dyers 1992; Linan &amp; Chen 2006; Danes et al. 2008.</td>
</tr>
<tr>
<td>6.11</td>
<td>Provision of</td>
<td>Parents are willing to provide</td>
<td>Hynes 1996; Luthje</td>
</tr>
</tbody>
</table>
funds for the entrepreneurship activities.

**6.12 Role models**

Parents are role models in cultivating entrepreneurship.

<table>
<thead>
<tr>
<th>Q#</th>
<th>Indicator Label</th>
<th>Measurement Variable Description</th>
<th>Empirical Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.6</td>
<td>Risk</td>
<td>Not happy to take the risk as an entrepreneur.</td>
<td>Ang &amp; Hong 2000; Wang &amp; Wong 2004.</td>
</tr>
<tr>
<td>Section</td>
<td>Topic</td>
<td>Description</td>
<td>References</td>
</tr>
<tr>
<td>---------</td>
<td>-------</td>
<td>-------------</td>
<td>------------</td>
</tr>
<tr>
<td>7.7</td>
<td>Money</td>
<td>Do not have <strong>money</strong> to start business</td>
<td>Garavan &amp; O’Cinneide 1994; Dana 2001.</td>
</tr>
<tr>
<td>7.8</td>
<td>Born or made</td>
<td>Entrepreneurs <strong>born and not made</strong>.</td>
<td>Garavan &amp; O’Cinneide 1994; Gottlieb &amp; Ross, 1997; Douglas 1999.</td>
</tr>
<tr>
<td>7.9</td>
<td>Successful entrepreneur</td>
<td>Admire those who are <strong>successful in business</strong>.</td>
<td>Laukkanen 2000; Aldrich &amp; Martinez 2001; Lim &amp; Teo 2003; Kuratko &amp; Hodgetts 2009.</td>
</tr>
</tbody>
</table>

**Source: Developed for the Research by various authors**

### 3.5.3 Sampling Design

Sampling can be defined as the ‘process of selecting a sufficient number of elements from the population, so that a study of the sample and an understanding of its properties or characteristics would make it possible for us to generalize such properties or characteristics to the population elements’ (Sekaran 2006, p. 266).

The purpose of sampling design is to ensure that the group of people selected for the study is representative of the whole population of interest (Cooper & Scindler 2001). Sampling also involves determining the population and sample sizes (Zikmund 2003; Sekaran 2006). Sampling design is an important means of controlling the budget and the amount of time taken to complete the study (Zikmund 2003).

**a) Sample population**

The population is a group of potential respondents to whom the results of a study can be generalised (Salkind 2005). Population is defined as, ‘the entire group of people, events or things of interest that the researcher wishes to investigate’ (Sekaran 2006, p. 265).
The population for this study were students from one public university and three private universities in Malaysia. The students were taught ‘entrepreneurship’ as a core subject, as part of their study programmes in the areas of business, computing and information technology. The student population of these universities were mainly from three racial groups that consist; of Malays, Chinese and Indians reflecting the dominant ethnic groups of the Malaysian society. The population sample consisted of final year university students in the disciplines of business, computing and information technology. In total, the population for this study was 464 (refer Table 3.10).

Table 3.10 shows the distribution of the respondents in the study. In this study, 600 questionnaires were distributed to the following groups of students using a random sample of classes and using a stratified sampling approach. In the analyses that follow a group access method was employed. This method of inquiry was supported by Burns (1997) and a common research method used in university student studies (Gurol & Atsan 2006; Lena & Wong 2003).

**Table 3.10 – Distribution of the Respondents for the Study**

<table>
<thead>
<tr>
<th>Programmes of study/Universities</th>
<th>Student population in the respective courses in the final year</th>
<th>No. of students chosen for the sample</th>
<th>Total completed respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- 84</td>
<td>- 60</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- 198</td>
<td>- 80</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- 105</td>
<td>- 50</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- 765</td>
<td>- 150</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1,952 students</td>
<td>600 students</td>
<td>464 students</td>
</tr>
</tbody>
</table>

*Source: The Departments of Academic Affairs from the Respective Universities*
b) Non-response bias

Very few surveys have 100 percent response rates. The researcher must be confident that those who did respond to the questionnaires were representative of those who did not, to utilise the results. Some of the respondents failed to return the questionnaires, or returned them later than the stipulated time. This is known as non-response bias. When a high non-response rate occurs it may affect the reliability of the results. The researcher had to check the reasons for non-response. This needs to be done only if the return rate is less than 70 percent (Macmillan & Schumacher 2006). Respondents who respond late have similar characteristics to non-respondents, which mean that the characteristics of the respondents who respond early or late have to be compared. If the two groups do not differ in their responses then, the non-response bias does not exist. In the study, more than fifty percent of the respondents returned the questionnaires on the same day or less than a week.

The table below (Table 3.11) shows the non response bias of the survey conducted for the study.

<table>
<thead>
<tr>
<th>Questionnaires</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distributed</td>
<td>600</td>
<td>100%</td>
</tr>
<tr>
<td>Collected</td>
<td>464</td>
<td>77.33%</td>
</tr>
<tr>
<td>Usable</td>
<td>396</td>
<td>66%</td>
</tr>
</tbody>
</table>

Source: Developed for the Research

c) Sample size

Many researchers have discussed suitable methods for choosing the appropriate sample size (Butler, Lorna Michael, DePhelps & Gray 1995; Zikmund 2003; Sekaran 2006). A small sample size is less than 30 persons and it is too small to be useful, while a survey of 100 or more is considered to be the minimum sample size if the population is large (Butler, Lorna Michael, DePhelps & Gray 1995, Sekaran 2006).
The larger the sample size, the more accurate is the research (Zikmund 2003; Sekaran 2006) and the smaller the sample size, the higher the margin of error.

A researcher must judge in determining what sample size to use (Zikmund 2003; Sekaran 2006). The appropriate sample size will be determined by whatever factor requires the largest sample. The cost of data collection is a major consideration and judgment must be exercised considering this factor. A degree of accuracy (95%) to estimate sample sizes provided for a range of population sizes (Zikmund 2003). The sample included students representing the business, computing and information technology courses. The sample size is important in the interpretation of SEM results, as it provides a basis for the estimation of sampling error. The sample size in this study is 464 respondents. In conducting SEM, the size of the sample is important and should be more than 200 and less than 500 (Hair et al. 1995). If the sample size is too large, the method becomes too sensitive making the goodness-of-fit measures indicate poorly. There is no possibility of sampling frame error unless there are non-response errors (Sekaran 2006).

d) Sampling techniques

Sampling techniques fall into two main categories (Saunders, Lewis & Thornhill 2003).

i) Probability or representative sampling which includes; simple random sampling, stratified sampling and cluster sampling.

ii) Non-probability or judgmental sampling which includes; purposive sampling, self-selection sampling and convenience sampling.

In probability sampling design, known as simple random sampling, every element in the population has a known and equal chance of being selected as a subject. Probability sampling can be either unrestricted (simple random sampling), or restricted (complex probability sampling) in nature. It reflects a more technical superiority and reduces sampling bias and sampling error (Sekaran 2006). The probability sampling techniques are shown in Table 3.12.
Table 3.12 Types of Probability Sampling Techniques

<table>
<thead>
<tr>
<th>Types</th>
<th>Nature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simple Random Sampling</td>
<td>Every element of the population has a known and equal chance of being included in the sample. It is the simplest and least biased.</td>
</tr>
<tr>
<td>Stratified Sampling</td>
<td>It involves a process of stratifying or segregating the population into equally mutually sub-groups known as strata.</td>
</tr>
<tr>
<td>Cluster Sampling</td>
<td>The units in the population are aggregated into larger sampling units called clusters. It includes systematic sampling.</td>
</tr>
</tbody>
</table>

*Source: Zikmund (2003); Sekaran (2006)*

Compared to probability sampling techniques in non-probability sampling designs, the elements in the population do not have any probabilities attached to their being chosen as sample subjects. The findings from the study of the sample cannot be confidently generalised to the population.

Researchers are not concerned about generalisability, but obtain some form of information in a quick and inexpensive way. They would resort to non-probability sampling and this method could be the only way to obtain data. Some of the non-probability sampling plans are dependable than others and could offer some important leads to potentially useful information of the population. The non-probability sampling methods are shown in Table 3.13 (Sekaran 2006, p. 276).
Table 3.13 Non-probability sampling methods

<table>
<thead>
<tr>
<th>Types</th>
<th>Nature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Convenience sampling</td>
<td>It refers to the collection of information from members who are conveniently available to provide them.</td>
</tr>
<tr>
<td>Judgmental sampling/Purposive sampling</td>
<td>Selection of the respondents is advantageously placed in a position to provide information, based on their knowledge and expertise.</td>
</tr>
<tr>
<td>Quota sampling</td>
<td>It has a fixed quota for each subgroup, low probability, that the results represent the population.</td>
</tr>
<tr>
<td>Snowball sampling</td>
<td>The initial set of respondents is selected by the probability method, and additional respondents are referred by the initial respondents.</td>
</tr>
</tbody>
</table>

Source: Zikmund (2003); Sekaran (2006)

3.5.4 Justification of the Chosen Sampling Method

The research aims to gather data from a sample chosen by using statistical analysis to be well-represented of the population. For accuracy, time and convenience, the researcher decides to use probability sampling.

When probability sampling is used, each unit in the population has a chance to be selected randomly and independently (Buckingham & Saunders 2004; Kumar 2005; Sekaran 2006). This sampling technique helps the researcher to reduce bias from the selection sample, as unequal sampling will affect accuracy of the study (Zikmund 2003). Probability sampling techniques are often associated with quantitative research tradition and as it
involvemore generation of numeric data, so the study will use simple random sampling and stratified sampling methods.

The study needed accurate results to draw inferences about the target population. The simple random sampling could be used as it is the simplest technique of all the sampling methods to reduce bias (Kumar 2005; Sekaran 2006). Simple random technique is a suitable method for population that are not highly differentiated (Zikmund 2003; Bryman 2004; Kumar 2005). This is the most convenient method, but errors such as chance variation and non perfection in the sample population would arise. Random sampling error is affected by the sample size. A small sample is preferable and the study design should be executed correctly to reduce the non-response error. The population for the study comprised of the university students who are studying entrepreneurship education in the Malaysian universities. However, as the university students population in the Malaysian universities is very large, random sampling technique alone will be very expensive, difficult and time consuming (Zikmund 2003).

Stratified sampling is a more efficient and suitable sampling method. Some of its characteristics are illustrated in quota sampling. In stratified sampling, a subsample is drawn utilizing simple random sampling within each stratum which is not true in quota sampling (Zikmund 2003). The disciplines of university students consist of business, computing and information technology students to fit into the typical profile of entrepreneurship education. Compared to simple random sampling, stratified sampling method has a more efficient sample and random sampling error will be reduced. It may result in smaller standard error, but this method will produce accurate results as it reflects the population based on criteria used for stratification (Sekaran 2006).

3.5.5 Pretesting the Questionnaires

Pretesting or pilot testing of the questionnaires involves formally testing the questionnaires or survey on a small sample of respondents (Zikmund 2003; Malhotra 1997). It is conducted to assess the efficacy of the questionnaires, allows the comparisons of the alternative questionnaires, and to ensure that each meaning of the question in the questionnaire is clear to all the respondents so that the variables are easily measured (Neuman 2006; Zikmund 2003).

The pre-testing method also ensures all instructions and questions are understood in the manner intended before they are distributed to the target population. The pre-testing of the
questionnaire provides preliminary results to further validate and improve the proposed scales, and the participants’ feedback which are used to refine the final questionnaire (Zikmund 2003). In addition, the reliability of the questionnaire is ensured by using the cronbach alpha coefficient (α). In this study, initial measurement model was pilot tested in a survey of 30 students, who were final year university students from business and information technology background and enrolled in the entrepreneurship program. The feedback obtained from the participants was used in the combination with the results of the pre-test to improve the final version of the questionnaire.

After the pre-testing, the researcher used the Cronbach alpha coefficient to measure the reliability of the questionnaire. If the result is less than 0.6, reliability is considered to be poor, between 0.7 and 0.8, the result is considered acceptable, and if it is over 0.80, reliability is considered to be good and if it is over 0.90, it is considered to be excellent (Hair et al. 1998).

In this pre-testing the completed questionnaires were returned by all the 30 candidates (100%). Some of the items in the questionnaire were found be repetitive and were deleted, and the total number of questions were reduced from 82 to 78 after the pre-test. With the analysis of the reliability tests, it was found that the educational variables of entrepreneurship curricula, teaching methodologies, universities roles in promoting entrepreneurship and the mediating factors of attitude and stakeholder support systems resulted in a cronbach alpha above 0.9, proving it to be excellent. The dependent variable of entrepreneurship intentions resulted in a cronbach alpha above 0.8, proving it to be good. The demographic characteristics that consisted of the 18 items were tested using descriptive statistics. The results showed a positive inclination for entrepreneurship in the pre-test study. The following section outlines the procedures used in the pre-test and the main study, to ensure good reliability and validity of the survey measures were achieved.

3.6 Quality of Data

In quantitative research, reliability and validity are important to measure the degree of consistency and validate the intended concept (Hair et al. 1998; Sekaran 2006).
3.6.1 Reliability

Reliability is defined as the degree to which measures are free from error and therefore, yield consistent results (Zikmund 2003). The reliability of a measure indicates the extent to which it is without bias (error free) and hence, ensures consistent measurement across time and across the various items in the instrument. It indicates the stability and consistency with which the instrument measures the concept and helps to assess the ‘goodness’ of a measure (Sekaran 2006).

There are imperfections in the measuring process that affect the assignment scores or numbers in different ways each time a measure is taken, e.g. if the respondent misunderstands a question or not aware of the reason for giving untruthful response, or can be affected by other transitory factors such as moods, whims or contextual situations. These measures will not be error-free and stable over time (Zikmund 2003). To test the stability measures there are three dimensions as follows:

i) Test retest reliability – it is a method where the reliability coefficient obtained with a repetition of the same measures on a second occasion. If the questionnaire containing the same items of the concept is measured to a set of respondents at two different times, it is called the test-retest coefficient. The higher it is the better the retest reliability and the stability of measure across time.

ii) Parallel form reliability – when two comparable sets of measures measuring the same construct are highly correlated there is parallel-form reliability (Sekaran 2006). Using two separate times to distribute, the questionnaire is important to ensure the meanings of the questions are the same and that the questions are easy to understand (Lewis 1999; Kitchenham & Pfleeger 2002). Both should have the same items and response format. The changes are the wordings and order of sequence of the questions which result in error variability. If the two comparable forms are highly correlated (8 or more), it is certain that the measures are reasonably reliable with minimal error variances (Sekaran 2006).

iii) Split-halves method – this reflects the correlations between two halves of an instrument. The estimates would vary depending on how the items in the measures are split into two halves. Split-half reliabilities could be higher than Cronbach’s alpha in circumstances of there
being more than one underlying response dimension tapped by the measure and when certain conditions are met.

This study did not assess reliability by using standard test-retest, as it did not allow the respondents access to the same questions twice. Moreover, the study had limited time to collect data thus, this method was not suitable. This study did not use alternative questionnaire formats, to ask the same respondents the same questions twice as in parallel-form reliability. In addition, there was a possibility that respondents would not return some of the questionnaire forms making reliability difficult to measure.

The split-halves method of testing reliability requires asking questions only once and by self-administration, a researcher can measure the reliability of the questionnaire with this method. It is advantageous as it helps the researcher to measure the internal consistency of the study. The internal consistency is measured by assessing how highly inter-correlated items are to each other according to a scale using Cronbach’s alpha coefficient (Hair et al. 1998; Kitchenham & Pfleeger 2002). Cronbach’s alpha coefficient is a measure of consistency that test how well a set of items measure a single unidimensional latent construct (Hair et al. 1998). It also measures the homogeneity of a group of items in a questionnaire (Carmines & Zeller 1990). The reliability of the scale will be higher if the items are highly correlated. If each item measured in the questionnaire for the study has a Cronbach’s alpha of less than 0.70, that item has a low value signifying a low consistency (Hair et al. 2008).

The cronbach alpha coefficient measuring the overall reliability of the questionnaire in this pilot testing was (α = 0.90). However, some questions were deleted or refined because their wording in the pre-test study was ambiguous or unclear. It was revealed by a low correlation for these particular items (Hair et al. 2008). The reliability of the questionnaire was increased (Hair et al. 2008).

3.6.2 Validity

In research there are two types of validity to be assessed. The first one is (internal validity), the issue of the authenticity of the cause-and-effect relationship; and the second one is (external validity), the generalisability to the external environment (Zikmund 2003; Sekaran 2006). Internal validity measures the relationship between variables that are real, whereas external validity determines the extent to which inferences in the research can be made about the external environment. Validity is examining the measuring instrument itself when a set of
questions are asked with the hope of tapping the concept, does indeed measure the concept that has been set out to do and not, something else (Siniscalco & Auriat 2005; Sekaran 2006). Validity analysis is used in the research design either during or after data collection (Miles & Huberman 1994; Maxwell 1996). The types of validity considered are content validity, criterion-related validity, constructs validity and face validity (Carmines & Zeller 1990; Hair et al. 1998; Lewis 1999; Kitchenham & Pfleeger 2002; Siniscalco & Auriat 2005).

Content validity ensures that the measure includes an adequate and representative set of items that tap the concept. The more the scale items represented in the domain of the concept being measured, the greater the content validity. It involves an organisational review of survey contents to ensure that it includes everything it should and eliminate what it should not. When it is evident to experts that the measure provides adequate coverage of the concept with clear, understandable questions it has face validity. In scientific studies, researchers usually prefer strong evidence because of elusive nature of measuring attitudes and other cognitive phenomena (Zikmund 2003). Criterion validity is established when the measure differentiates individuals on a criterion it is expected to predict. This is done by establishing concurrent validity or predictive validity. Concurrent validity is established when the scale discriminates individuals who are known to be different that they should score differently on the instrument. Predictive validity indicates the ability of the measuring instrument to differentiate among individuals with reference to a future criterion (Sekaran 2006).

Construct validity is measured by confirming a network of related hypotheses generated from a theory based on the concepts and is established during the statistical analysis of the data. It implies that the empirical evidence generated by a measure is consistent with the theoretical logic about the concepts. If the measure behaves the way it is supposed to in a pattern of intercorrelation with a variety of other variables, there is evidence for construct validity, indicating consistency between the questions in the questionnaire and accepted theoretical constructs that relate to the study. The results of the statistical analyses show that the questionnaire items indicate a high degree of internal consistency, when it is concluded that different questions do indeed refer to the intended construct (Zikmund 2003).

The first step in this study was to establish the face validity, as the initial inspection can strongly detect patterns in the questionnaire (Lewis 1999). It also tested the questionnaire by performing the pre-testing before distribution to the target respondents. From this procedure, many opinions were received from the respondents who completed the pre-testing. This step
made it easier to assess and improve the questionnaire. In addition to this, the content validity of the questionnaire was measured with the review of the questionnaire with the literature on previous studies in the field. Each of the questions was matched with the topic of the study. Finally, factor analysis was used to analyse and measure the construct validity in order to measure the consistency between the questions and the theoretical constructs in the study.

3.7 Data Analysis

The research model was tested by conducting a survey of 464 respondents from four entrepreneurship-focused Malaysian universities. Prior to entering the data, all the questionnaires returned by the respondents were checked and filtered. It was ensured that the respondents met the research criteria namely; completion of one entrepreneurship course at the university and participation in entrepreneurial activities. All the responses were checked, missing responses discarded and later checked for outliers and this resulted in 396 usable responses. The data was entered into SPSS 14 and AMOS 16.0 to test the fit of the model. The data was analysed subject to descriptive and inferential analysis (Malhotra 1997).

3.7.1 Descriptive Data Analysis

Descriptive analysis transforms raw data into a form that will make them easy to understand and interpret. It calculates averages, means, standard deviations, frequency distributions, percentage distributions and finally summarising the data. In this research, descriptive analysis is computed to analyse the respondents’ demographic characteristics that consisted of 18 items, such as gender, age, race, origin of place, birth order, educational level, family history, working experience, interest in program of study, choice of study program, parents working status, interest in entrepreneurial career, motivation in entrepreneurship and skills development. Information on these variables is used to describe the characteristics of the respondents. The summarised data of the analysis is presented in Section 4.2.2 in Chapter 5.

3.7.2 Inferential Data Analysis

The technique used in this research is Structural Equation Modelling (SEM), using AMOS 16 to test the goodness-of-fit of the model and the hypotheses (Kline 1998; Byrne 2001).

Confirmatory factory analysis is used in this research, as the researcher has some knowledge of the underlying latent variable structure (Byrne 2001). Based on the knowledge of theory and empirical research, the researcher postulates relations between the observed measures
and the underlying factors, *a priori* and then tests these in the hypothesized model statistically (refer to Fig. 4.3 in Chapter 4). The standard CFA measurement models have some of the characteristics stated below: i) a single arrow-head line points from a factor to an indicator representing the presumed direct causal effect of the latent variable on the observed measure. The statistical estimates of these direct effects are called factor loadings and in CFA are interpreted as regression coefficients and normally shown in standard for easy of comparison; ii) the measurement error terms are independent of each other and of the factors.

Structural Equation Modelling (SEM) is able to measure the relationships among the latent and observed variables through the analysis of covariance among observable variables by forming the basis for estimating a structural relationship that describes the relationship of constructs stated in the questions. In SEM, the researcher can assess the contribution of each indicator variable in representing its associated construct and measure, how well the combined set of indicator variables represent the constructs in terms of reliability and validity. This is the measurement assessment component of SEM. After the constructs have met the required measurement standards, the relationship between the constructs can be estimated and this is the structural assessment component of SEM (Hair, Black, Babin & Anderson 2006). SEM is composed of two models; the measurement model and structural model. The measurement model consists of exogenous and endogenous variables. Endogenous latent variables are synonymous with dependent variables and are influenced by the exogenous variables in the model, directly or indirectly. The model explains the fluctuations, because all latent variables that influences them is included in the model specification. In contrast, the structural model defines relations among the unobserved variables and it specifies the manner by which the latent variables influence directly or indirectly, the other latent variables in the model (Kline 1998; Byrne 2001). The specified model proposed by the researcher is based on the knowledge of the related theory and empirical research in the area of study tested on the sample data of 396 respondents.

The model testing procedure is to determine the goodness of fit between the hypothesized model and the sample data. The difference between the hypothesized model and the observed data is termed the ‘residual’. The hypothesised model uses AMOS 16.0 graphics program using path diagrams depicting an SEM model, where the observed latent variables and the observed variables are measured errors which reflect on their adequacy in measuring the related underlying factors. The model is said to fit the observed data to the extent that the covariance matrix implied is equivalent to the observed covariance matrix, i.e. the elements
of the residual matrix are near zero. When the error items are eliminated, a re-specified model and a competing model will emerge, that is the final hypothesised model (Hoyle 1995). The five hypotheses are also tested using AMOS 16.0 to show their significance in the study.

3.8 Ethical Considerations

The chapter elaborated the research methodology, described the approach to theory construction and justified the choice of the research design. Consequently, it described the questionnaire design, administration and data analysis strategy. In this section, the ethical considerations are involved in the research. There are no general agreements about answers to ethical questions in social research. There are social norms that include code of conduct that are appropriate in certain circumstances. The three concerned parties in this research are the researcher, the respondents and the respective organisations. Each party have their own rights and obligations.

The research together with the respective organisations took reasonable measures to protect the interest of parties in the research. Steps were taken to uphold the organisations ‘privacy’ by not having the organisations’ name appearing in the questionnaire, or any other document pertaining to the research. Further to this, to protect the interest of the respondents the research methodology complied with the guidelines provided by the Human Research Ethics Committee, Southern Cross University, where approval was obtained before the data collection process. The first page of the questionnaire gave clear instructions to the respondents with regard to anonymity and privacy, stated that it was voluntary and they can withdraw from the survey at any time. The questionnaires were designed in two languages (English and Bahasa Malaysia) and the time given to the respondents for completion was 30 minutes. All completed questionnaires were kept under lock and key in a secluded place after the data had been keyed in into the software for data analysis.
3.9 Summary

This chapter discusses the methodology employed to empirically test the hypothetical model proposed for the research. It describes the research paradigms and the research design. The methodology approach being purely quantitative suggests using a survey method. The questionnaire design, questionnaire administration, the pre-test of the questionnaire and assessment of the reliability and validity measures are described.

A brief description is given justifying how the sample data would be collected and analysed using descriptive and inferential statistics, through the Structural Equation Modelling technique using the software AMOS 16.0.

Lastly, ethical considerations pertaining to data collection methods are discussed. The next chapter on data analysis, examines the collection of preliminary data, data screening procedures, descriptive statistics, inferential statistics and the application of confirmatory factor analysis in SEM on the sample data to test the goodness-of-fit of the hypothetical model and the hypotheses.
CHAPTER FOUR
DATA ANALYSIS

4.1 Introduction

The methodology used to collect data through survey questionnaire method was explained and justified in the previous chapter. This chapter presents the results of the data analysis relating to responses from the Malaysian university students, who enrolled in the universities and who have taken up the subject of ‘entrepreneurship’ as a core subject in their programs. The four universities selected for the study are all entrepreneurship-focused. The students who participated in the questionnaire survey were those enrolled in business, computing or information technology disciplines, and strict confidentiality and privacy was maintained while collecting the data with the approval obtained from the ethics committee of the researcher’s university.

This chapter comprises of 7 sections and shown in Fig. 4.1. An introduction with a structure outline is presented in Section 4.1. Section 4.2 describes the preliminary examination of data, data cleaning, screening of data including questionnaire return, recoding data, missing data, outliers and normality. The profile of the respondents are analysed through descriptive analysis and described in Section 4.3.

The hypotheses for testing the model using structural equation modelling (SEM) are tested and explained in Section 4.4. In Section 4.5, reliability and validity (homogeneity) testing of factors are presented. Section 4.6 explains the confirmatory factor analysis with the model specification, giving the results of the model testing procedures to determine the goodness of fit between the hypothesised model and the sample data obtained and hypotheses testing. Section 4.7 gives a summary of how the model is said to fit the observed data to the extent that the covariance matrix is implied and equivalent to the observed covariance matrix.

The outline of this chapter is reflected in Fig. 4.1.
Fig. 4.1 Outline of Chapter Four

4.1 Introduction

4.2 Preliminary Examination

4.3 Profile of Respondents

4.4 Structural Equation Modelling (SEM)

4.5 Homogeneity Testing of Factors

4.6 Data Analysis using SEM

4.7 Summary

Source: Developed for the Research
4.2 Preliminary Data Examination

This section presents the cleaning and screening of raw data before they are analysed. The two broad categories of problems discussed are case-related issues; such as the accuracy of data input, missing observations, outliers and distribution issues, such as normality and linearity (Bentler & Dudgeon 1996; Hair et al. 1998; Tabachnick & Fidell 2001).

4.2.1 Non-response Rate

In order to keep the non-response rate to a minimum, instructions were given to the academic staff that assisted the respondents in filling the questionnaires in a correct manner. The questionnaires were given out to the respondents and were instructed to complete and return them immediately. Some academic staff from the departments assisted in clarifying queries from the respondents and helped to check the questionnaires for completeness and legibility. However, in cases where the respondents were unable to complete the questionnaires, it was arranged to collect them later that week.

The respondents had some difficulty in answering the questions in Sections 3, 4 and 7, due to the negative wording of the questions. This problem was solved when the researcher and research assistants explained the negative worded questions to the respondents. As 464 questionnaires (77.3%) were returned, it was found that the reliability of the study will not affect the overall results (Macmillan & Schumacher 2006).

4.2.2 Dealing with Missing Responses

When the data was inspected, it revealed that there were incomplete responses in Sections 3, 4 and 7 of the questionnaire and these were reversal questions that led to some confusion. Hence, these missing responses were discarded immediately. This procedure is known as case wise deletion (Malhotra 1999) and is preferred to other methods of analysing missing responses. In case wise deletion, only cases with complete records are included, and all analyses are conducted with the same cases (Kline 1998) and hence, consistency is maintained.

Although the deletion of cases resulted in a substantially smaller than the original sample size, the number of cases of 464 was more than adequate for further analysis (refer to Section 4.2).
An alternative approach is pair wise deletion of cases which excludes the missing responses of variables involved in a particular computation. The pair wise deletion feature has a major drawback to Structural Equation Modelling (SEM), or any other multivariate analysis with grouped data because of the out-of-range correlations or covariances that occur (Kline 1998).

Imputation is another method used for analysing missing responses. This technique involves pattern matching, which replaces a missing observation with a score from another case with a similar profile of scores across other variables’ (Kline 1998, p. 75). In the current study, there were 8 missing responses scattered across items in Sections 3, 4 and 7 of the questionnaire. Since these missing responses were less than 10% of the data set, imputation was found to be appropriate and was performed.

4.2.3 Data Cleaning and Screening

After collection of the questionnaire surveys, the data was entered into the SPSS statistical software version 14.0. A total of 600 questionnaires were distributed and the questionnaires returned to the researcher for analysis were 464 questionnaires (77.33%). In most cases, questionnaires use positive questions to extract data from respondents (Zikmund 2003; Kumar 2005; Veal 2005). In the study, for positive related questions, the Likert scale recorded as 1 – strongly disagree, and 7 – strongly agree. In the questionnaire there were negative worded questions in Section 3 (3.3), Section 4 (4.5) and Section 7 (7.1, 7.3, 7.4, 7.5, 7.6), a total of seven questions (refer Questionnaire in Appendix 2). These negative worded questions were reversely coded.

The screening of the data sets was conducted through an examination of basic descriptive statistics and frequency distributions. Values that were improperly coded or out of range were detected with straightforward checks (Kassim 2001). A frequency test was run for every variable to detect any illegal, incorrect and missing response. The illegal responses were noted and corrected using the multivariate outlier discussed in the next section.

4.2.4 Outliers

Having treated the missing responses, the next step was to examine outliers. Outliers are unreasonable observations with extreme values on one variable, or combination of variables that are distinct from the rest of the data set (Hair et al. 1998; Tabachnick & Fidell 2001). Multivariate assessment of outliers using the Mahalanobis distance was measured for the research, using AMOS 16 outlier options that identified cases that had observed scores
markedly from the centre of scores for all the 464 cases. AMOS 16 uses Mahalanobis $d^2$ values as the measure of distance and is reported with the probability of $p<0.001$ (Byrne 2001). The results of the Mahalanobis distance analysis showed that out of the 464 cases, only 396 cases had an observation within the centre of scores that is Mahalanobis $d$ of 99.62. The cases that were discarded from the total scores were 68 leaving 396 cases to be analysed for the study using Structural Equation Modelling.

4.2.5 Normality

Normality can be determined by skewness and kurtosis in a distribution. A distribution is said to be normal when the values of skewness and kurtosis is equal to zero. Normality of the distribution of the scores of the variables was investigated. The value of skewness and kurtosis was calculated to identify the distribution of scores for each item in the variables. The value of skewness could also be obtained by dividing the standard error of the skewness.

In the study all the variables were tested for normality, for the values of skewness and kurtosis. This yielded a $z$-score or critical ratio of 2.58, showing that all constructs in the variables were normal as the critical score of <2.58 fell within the skewness, value lower than 2.0. Kurtosis value was smaller than 7.0 (Tabachnick & Fidell 2007). Thus, it was concluded that all items in the variables of entrepreneurship education, entrepreneurial intentions, attitude towards goals and family roles were normally distributed.

In summary, through data cleaning, the accuracy of data input was ensured that the observations were entered accurately for analysis. The issues of missing responses, outliers and normality were identified and addressed accordingly.

4.3 Profile of Respondents

This section discusses the profile of the respondents using descriptive analysis. Descriptive analysis is used to calculate averages; means, standard deviations, frequency distributions and percentage distributions, finally summarising the data (refer Appendix 3).
4.3.1 Profile of Respondents from Sample

Descriptive statistics is used in the study to analyse the demographic variables. The demographic variables measured in the study consisted of 18 items namely; gender, age, ethnicity, place of origin, order of birth, educational qualification, current program of study, educational funding, working experience, working sector, father’s working status, mother’s working status, choice of study program, family history of entrepreneurship, interest in the area of study, growth in the interest of entrepreneurship, motivation to become an entrepreneur and how the entrepreneurship program in the university increased the skills.

4.3.2 Analysis using Descriptive Statistics

The 18 items in the demographic sector in the profile of respondents were analysed using descriptive statistics. The profile included a total of 464 respondents, out of which 238 (51.3%) were females and 226 (48.7%) were males. The age group of respondents revealed that 417 (89.9%) fell in the category of 21-25 years, which is the normal age range of students in the university; 47 (10.1%) students were more than 26 years. Ethnicity revealed that 276 (59.5%) were Malays, 112 (24.1%) were Chinese, 47 (10.1%) were Indians and 29 (6.3%) were others. The ratios showed the proportionate ratios according to the distribution of races among the total population. The place of origin from where the respondents originated revealed that 297 (64%) were from urban areas, while 167 (36%) were from rural areas. The birth order range showed that 154 (33.2%) fell into the eldest child category, 133 (28.7%) fell into the youngest child category and 177 (38.2%) as others in the group.

The educational qualifications revealed that 255 (54.9%) had STPM (Higher School Certificate) and Matriculation, while 209 (45.1%) had Diploma and other qualifications. Most of the students were qualified to study the degree program in the universities.

Educational funding for the programs revealed that 325 (70%) were on study loans, 50 (10.8%) were on scholarships and 89 (19.2%) were on sponsorship, or self-financing. In the total of 464 respondents, 306 (66%) had working experience, and 158 (34%) had no working experience.

With regard to working experience, it revealed that 211 (46.8%) worked in the private sector, 45 (9.7%) worked in the public sector, and 50 (10.7%) worked for parents, relatives or friends. Father’s working status showed that 116 (25%) were involved in business, 220 (47.4%) were working full-time and 128 (27.6%) were working part-time, not working or
deceased. Mother’s working status showed that 49 (10.6%) were involved in business, 133 (28.7%) were working full-time and 282 (60.8%) were working part-time, not working or deceased. The other items of program study, program choice, family history of entrepreneurship, student’s interest in entrepreneurship, increased interest in entrepreneurship, motivation in entrepreneurship and increased skills are shown in Fig. 4.2.1 to 4.2.7 and discussed below.

**Table 4.1.1 Program Study**

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Business</td>
<td>249</td>
<td>53.7</td>
</tr>
<tr>
<td>Valid Computer/IT</td>
<td>215</td>
<td>46.3</td>
</tr>
<tr>
<td>Total</td>
<td>464</td>
<td>100.0</td>
</tr>
</tbody>
</table>

**Fig. 4.2.1**

![Bar chart showing Business and Computer/IT frequencies](image)

*Source: Analysis of Sample results by SPSS*

Fig 4.2.1 shows that 249 (53.7%) were Business students and 215 (46.3%) were Computer/IT students. The study included Business and Computer/IT students only.
Table 4.1.2 Program Choice

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Parent's choice</td>
<td>34</td>
<td>7.3</td>
</tr>
<tr>
<td>Own choice</td>
<td>415</td>
<td>89.4</td>
</tr>
<tr>
<td>Others</td>
<td>15</td>
<td>3.2</td>
</tr>
<tr>
<td>Total</td>
<td>464</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Fig. 4.2.2

Source: Analysis of Sample results by SPSS

Fig. 4.2.2 shows that students who have selected entrepreneurship program as their own choice as 415 (89.4%), whereas parent’s choice and others show 49 (10.5%). This indicates that the students’ intentions in choosing the entrepreneurship program were their own.
Table 4.1.3 Family History

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Parents</td>
<td>131</td>
<td>28.2</td>
</tr>
<tr>
<td>Siblings</td>
<td>36</td>
<td>7.8</td>
</tr>
<tr>
<td>Relatives</td>
<td>129</td>
<td>27.8</td>
</tr>
<tr>
<td>None</td>
<td>168</td>
<td>36.2</td>
</tr>
<tr>
<td>Total</td>
<td>464</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Fig. 4.2.3

Source: Analysis of Sample results by SPSS

Fig. 4.2.3 shows that students with family history of entrepreneurship as 296 (63.8%) and who do not have family history of entrepreneurship as 168 (36.2%). This also reveals that the majority of students have a family history of entrepreneurship.
Table 4.1.4 Students’ Interest in Entrepreneurship

<table>
<thead>
<tr>
<th>Valid</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job-employment</td>
<td>151</td>
<td>32.5</td>
</tr>
<tr>
<td>Self-employment</td>
<td>227</td>
<td>48.9</td>
</tr>
<tr>
<td>To form a company with friends</td>
<td>62</td>
<td>13.4</td>
</tr>
<tr>
<td>To help parents in business</td>
<td>24</td>
<td>5.2</td>
</tr>
<tr>
<td>Total</td>
<td>464</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Fig. 4.2.4

Source: Analysis of Sample data by SPSS

Fig. 4.2.4 illustrates the student’s interest in entrepreneurship showing that those who want to go into self-employment, form a company with friends or help parents in business are 313 (67.5%) and those who are interested in job employment were 151 (32.5%). These figures again reveal the students’ intentions in entrepreneurship.
Table 4.1.5 Increased Interest in Entrepreneurship

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hands on learning approach</td>
<td>96</td>
<td>20.7</td>
</tr>
<tr>
<td>Internship programs</td>
<td>110</td>
<td>23.7</td>
</tr>
<tr>
<td>Entrepreneurship activities</td>
<td>234</td>
<td>50.4</td>
</tr>
<tr>
<td>Entrepreneurship clubs</td>
<td>24</td>
<td>5.2</td>
</tr>
<tr>
<td>Total</td>
<td>464</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Fig. 4.2.5

Source: Analysis of Sample data by SPSS

Fig. 4.2.5 illustrates the students’ increased interest in entrepreneurship activities, clubs and internship programs as 368 (79.3%) while students’ interest in hands on learning approach is 96 (20.7%), revealing increased interest in entrepreneurship.
Table 4.1.6 Motivation in Entrepreneurship

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I like the program</td>
<td>109</td>
<td>23.5</td>
</tr>
<tr>
<td>I enjoy the entrepreneurial activities</td>
<td>144</td>
<td>31.0</td>
</tr>
<tr>
<td>I have started a business with my friends</td>
<td>39</td>
<td>8.4</td>
</tr>
<tr>
<td>I like to be self-employed</td>
<td>172</td>
<td>37.1</td>
</tr>
<tr>
<td>Total</td>
<td>464</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Fig. 4.2.6

Source: Analysis of Sample data by SPSS

Fig. 4.2.6 shows the students’ motivation in entrepreneurship. Students who liked the program were 109 (23.5%), who enjoyed the entrepreneurial activities 144 (31.0%), who started business with their friends 39 (8.4%) and who liked to be self-employed 172 (37.2%). Overall the results revealed the students motivation to become entrepreneurs.
Table 4.1.7 Increase in Skills

<table>
<thead>
<tr>
<th>Skill Type</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication</td>
<td>186</td>
<td>40.1</td>
</tr>
<tr>
<td>Problem-solving</td>
<td>87</td>
<td>18.8</td>
</tr>
<tr>
<td>Job-related</td>
<td>46</td>
<td>9.9</td>
</tr>
<tr>
<td>Self-development</td>
<td>145</td>
<td>31.3</td>
</tr>
<tr>
<td>Total</td>
<td>464</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Fig. 4.2.7

Source: Analysis of Sample data by SPSS

Fig. 4.2.7 illustrates the increase in skills from entrepreneurship programs. It revealed that 145 (31.3%) were favouring self-development skills, while 186 (40.1%) were favouring communication skills, 87 (18.8%) were favouring problem-solving skills and 46 (9.9%) were favouring job-related skills. Most of them favoured communication, problem-solving and self-development skills.
4.4 Structural Equation Modelling

This section discusses the structural equation modelling technique used in this research. Structural Equation Modelling is the core statistical analytical technique applied in the present study, to find out the factors influencing entrepreneurial intentions among the Malaysian university students. Structural Equation Modelling measures relationships among the observed and latent variables, through the estimation of multiple regression equations to test the overall fit of the models (Byrne 2001; Tabachnick & Fidell 2001).

4.4.1 Structural Equation Modelling Technique

Structural Equation Modelling (SEM) is the methodology that is best suited for this research compared to multivariate analysis procedures. Multivariate procedures are basically descriptive in nature, such as general factor analysis, whereas structural equation modelling technique uses the data for analysing inferential purposes, which requires the pattern of inter-variable relations be specified, a priori. Multiple regressions, factor analysis, multivariate analysis of variance (MANOVA), share the same limitations; each technique can examine only one single relationship at a time. SEM is a multivariate technique that combines the aspects of multiple regression analysis (examining dependant relationship) and factor analysis (representing unmeasured concepts with multiple variables) to estimate a series of interrelated dependence relationships (Hair et al. 1998). The SEM methodology takes the confirmatory (hypotheses-testing) approach to analyse a structural theory bearing on some phenomenon. This structural theory is suitable for ‘causal’ processes that generate observation on multiple variables (Bentler 1988).

SEM allows the researcher to determine the effects of systematic and random measurement error (Bagozzi & Phillips 1982). The parameter estimates from bivariate, multiple regressions and those from simultaneous equations can be biased where the observed variables are assumed to be measured without error. According to Bagozzi and Phillips (1982), the estimation of parameters in models where measurement error is present but not explicitly represented will not provide useful estimates. Structural equation models can be accessed through partitioning error variance and structural prediction errors from explained variance. The argument is traditional data analysis methods are used only on observed measurements and SEM procedures involve both observed and unobserved (latent) variables.
In the present study, the construct of entrepreneurial intentions are behavioural in nature and cannot be observed directly. They are considered as unobserved constructs (latent variables), which are hypothesised to be determined by several sub-constructs that are unobserved latent variables, such as attitudes and stakeholders support systems.

The term ‘Structural equation modelling’ conveys two aspects of procedures; firstly the causal processes under the study are represented by a series of structural (i.e. regression) equations and secondly, these structural relations can be modelled pictorially to get a clearer conceptualisation of the theory under study. The hypothesised model could then be tested statistically, in an analysis of the entire system of variables to determine the extent to which it is consistent with the data. If the model fits adequately, it is found to be plausible of postulated relations among the variables, if it is inadequate, then the testability of the relation is rejected (Byrne 2001). The characteristics of the SEM model can be summarised as follows:

i) Estimation of multiple and interrelated dependence relationships.

ii) An ability to represent unobserved concepts in these relationships and account for the measurement error in the estimation process.

iii) Defining a model to explain the entire set of relationships (Hair et al. 2010).

The Structural Equation models in this research are schematically portrayed with configurations of four geometric symbols – a circle or ellipse, a rectangle, single headed arrows and double headed arrows. The circles or ellipse represent unobserved latent variables, rectangles represent observed variables, single headed arrows (→) represent the impact of one variable on another and double headed arrows (↔) represent co-variances or correlations between pairs of variables. The error terms (e) unique factors to a variable represent residual variance within variables not accounted for path ways in the hypothesised model. Measurement error is associated with an observed variable and residual error predicting an unobserved variable (Byrne 2001).

The next section describes the process employed to test and develop a theory, or to predict about the outcomes based on the theoretical framework developed from literature review in Chapter 2 and sample data obtained in Chapter 3, of this research. SEM assumes that the sample obtained 396 (66%) as fairly large, the distribution of the observed variables is
multivariate normal, the hypothesised model is valid and the scale of the observed variable is continuous (Byrne 2001).

4.4.2 Model Construction

The aim in building a path diagram or other structural equation model is to find a model that fits the data well to serve as a useful representation of reality and a parsimonious explanation of the data (Ullman 1996). The steps involved in the SEM model construction are as follows:

a) Structural model

The first part of the SEM analysis is conceptualising the structural model based on the theoretical causal relationship hypothesised amongst the latent variables developed from the review of the literature and indicator variables discussed in chapters 2 and 3. The SEM model consists of: a) the measurement model that links observed variables to latent (or unobserved) variables, and b) the structural model that shows the relationships between the unobserved or latent variables. The independent variables can also be named ‘exogenous’ latent variables and they cause variations either directly or indirectly in other latent variables called ‘endogenous variables’. One of the advantages to SEM is that the latent variables are free of random errors, because the random error has been estimated and removed leaving only a common variance (Byrne 2001).

After conceptualising the theoretical structure model, the next process is specifying the model.

b) Model specification

Model specification in SEM involves formulating a statement about a set of parameters. In the SEM context, the parameters that require specification are constants that indicate the nature of the relation between two variables. Parameters are specified as fixed or free parameters. Fixed parameters are not estimated from the data and their value is fixed at zero. Free parameters are estimated from the data and those the researcher believes to be nonzero. The various indexes of model adequacy, especially the $\chi^2$ goodness-of-fit test indicate the degree to which the pattern of fixed and free parameters in the model is consistent with the pattern of variances and covariances from a set of observed data. The pattern of fixed and free parameters in a structural equation model defines the two components of the general
structural equation model: the measurement model and the structural model that was described in 4.3.2 a (Hoyle 1995).

In the present study, confirmatory factor analysis is used which makes use of only the measurement model component of the general structural equation model. The structural model is the component that prescribes relations between latent variables and observed variables that are not indicators of latent variables. When the structural and measurement components are combined, the result is a comprehensive statistical model used to evaluate relations among variables that are free of measurement error (Hoyle 1995). The statistical procedure used for investigating relations between a set of observed and latent variables is referred to as ‘factor analysis. This approach allows the researcher to examine the covariances among a set of observed variables, in order to gather information on their underlying latent construct (factors). There are two types of factor analysis namely; exploratory factor analysis and confirmatory factor analysis. Exploratory factor analysis is used when the links between the observed and latent variables are unknown or uncertain. The researcher need not use exploratory factor analysis in this research, as the researcher has some knowledge of the underlying latent variable structure based on the theoretical knowledge and empirical studies. It involves using a confirmatory factory analysis in which the relations between the observed measures and the underlying factors, a priori is tested with the hypothesised structure statistically (Byrne 2001).

The research uses a path diagram. The complexity of theories captured in the path diagram are related to i) the nature of causal relationships specified by the theory that is recursive or non-recursive, ii) to the number and nature of constructs employed in the theoretical framework. The theoretical model developed in Chapter 2 (Fig. 2.20) and operationalised in Section 3.2.4 (Fig. 3.3) was used as the specified model. A full latent variable model that specifies direction of cause from one direction only is termed a ‘recursive model’. One that allows for reciprocal or feedback effects is termed a ‘non-recursive model’.

In this research recursive model is used for the SEM analysis. Recursive models are straightforward because of the independent distances and there is no variable that is a cause and effect of another variable (Byrne 2001).
4.4.3 Model Estimation

After the model has been specified the next step is model estimation. It can be tested from the results of data screening (section 4.1.2) and the hypothesised model in Fig. 3.3. The model that is tested statistically from the analysis of all the variables determines the extent to which the model is consistent with the data.

a) Choice of estimation method

The structural equation model represents a series of hypotheses of how the variables are generated and related. The parameters are fundamental in interpreting the model, but they are not known and need to be estimated from the data. This process of estimation determines the statistical test of the adequacy of the model, or the goodness-of-fit test statistics. There is a number of estimation and testing methods, for example; the maximum likelihood index (MLI), generalised least squares (GLS), the asymptotic distribution free (ADF) method and Satorra-Bentler scaled static.

Compared to the various methods of estimation, the MLI method is the most commonly used approach in SEM. It is suitable for a large sample size (200 – 500); the distribution of the observed variables is multivariate normal, the hypothesised model is valid (Curran, West & Finch 1996) and the scale of the observed variables is continuous (Byrne 2001). All the characteristics are acceptable, except for scale of the observed variables which has a controversy evolving around the treatment of ordinally scaled variables, as if they are of continuous scale. However, a review of SEM applications over the past years revealed that most were based on Likert-type scaled data with estimation of parameters using MLI procedures (Breckler 1990). Other estimation methods, the GL and ADF have some restrictions, such as the need for very large sample sizes; the limited number of observed variables <25 (Bentler & Chou 1987; Mislevy 1986), and the very strong assumption underlying each categorical observed variable is an unobserved latent variable counterpart that has a continuous scale (Byrne 2001). Jöreskog & Goldberger (1972), and Browne (1974) found that the GLS estimates to be negatively biased and the ADF approach estimates have reported results that were not consistent and found to be biased (Browne 1984a; Chou et. al.1991; Harlow 1985; & Tanaka 1984). These assumptions are too strong and not acceptable in certain context (Hoyle 1995).
Comparisons of ML, GLS and ADF estimation methods are conducted in terms of test statistics, parameter estimates and standard errors under several non-normal distribution conditions with the scaled test statistic of Satorra and Bentler (1988a, 1994). The comparison of scaled test statistic of Satorra and Bentler (1988a, 1994), and robust standard errors provide promising results under some non-normal conditions (Chou et al. 1991).

The approaches used for the choice of model estimation are to have a good fit and relations among variables that are plausible. If it the model does not have a good fit, it is rejected (Tabachnick & Fidell 2001). The application of modification indices and Lagrange multiple tests for adding parameters to a model, and the use of z test statistics and Weld tests to eliminate parameters in terms of accuracy of estimates and standard errors, a good-fit parsimonious model can be obtained (Bentler 1980; Jöreskog & Sorbom 1996). In this research, AMOS 16 was selected as the SEM analytical tool in addition to the ML estimation approach for the model selection process.

b) Model identification

The process of model identification ensures that all models are tested statistically in the research. A model is identified, if it is theoretically possible to calculate a unique value for each and every free parameter that can be obtained from the observed data. It depends on the choice of the model and the specification fixed constrained and free parameters. The basic requirements are identifying the structural and the measurement models. There should be at least as many observations as free parameters that each variable has a scale (Kline 1998; Byrne 2001). The requirements were met when tested by AMOS 16.

Structural models may be just-identified, over identified, or under identified. A just identified model is one in which there is one-to-one correspondence between the data and the structural parameters and can be rejected if it has no degrees of freedom. An over identified model is one in which the number of estimable parameters is less than the number of data points (i.e. variances, covariances of the observed variables). It would result in positive degrees of freedom that allow for rejection of the model. SEM aims to specify a model that meets its criterion of over identification. An under identified model is one which the number of parameters to be estimated exceeds the number of variances and covariances (data points). This model contains insufficient information for the purpose of attaining a determinate solution to parameter estimation and an infinite number of solutions are possible for an under identified model. The model in this study is a just identified model.
c) Sample size

The sample size in SEM analysis must be sufficiently big to obtain stable and meaningful parameter estimates. Guidelines are given for absolute sample sizes available. Small sample size is less than 100, medium sample size is 100 to 200, and large sample size is more than 200 (Hair et al. 1995; Kline 1998). There are no clear guidelines as to the adequate sample size in SEM, but it is proposed in the literature that a sample size of 200 and more, but not exceeding 500 is appropriate (Bagozzi & Yi 1988; Baumgartner & Homburg 1996; Hair et al. 1998). The final sample size of 396 (66%) respondents was found to be appropriate for this research. Section 3.4.3 in Chapter 3, discusses the adequacy for choosing the appropriate sample size for the research model to be established according to guidelines (Butler, Lorna Michael, DePhelps & Gray 1995; Zikmund 2003; Sekaran 2006).

d) Input of data

The appropriate input of data in SEM research is covariance matrix relating to all variables specified in the hypothesised model compared to a correlation matrix (Byrne 2001). The covariance matrix has been recommended by many researchers, because it can deal adequately with differences in variability across the samples (Hair et al. 1995). The SEM approach focuses on multivariate relationships, thus a covariance matrix was used as the input in the research.

e) Approach used in model estimation

SEM is composed of two models; measurement model and structural model. A measurement model defines relations between observed and unobserved (latent) variables, whereas a structural model defines relations among the unobserved variables.

The single stage approach with simultaneous estimation of structural and measurement model is appropriate only, if the model has a strong theoretical rationale and high reliable measures.

A two stage approach was used in this research, where the measurement model was estimated first using factor analysis to assess the quality of the items of measurement before the structural model was estimated.
4.4.4 Goodness-of-fit Statistics

This section discusses the goodness of fit statistics. Various statistical indexes have been described in the determination of the goodness of fit statistics of the measurement model. The structural equation model represents a series of hypotheses about how the variables in the analysis are generated and related. The regression coefficients and the variances and covariances of independent variables are used and the parameters of the model are interpreted, but they are not known the need of estimation from the data. The statistical data of adequacy of a model, or the goodness-of-fit test statistic is simultaneously obtained with the estimation. A goodness-of-fit statistic indicates the similarity between the covariance matrix based on the estimated model, $\Sigma (\hat{\Theta})$ and the population covariance matrix $\Sigma$, from the sample drawn (Hoyle 1995).

To assess a fitting function for a good model fit, a value of close to ‘0’ is desired. In general, if the ratio between chi-square ($\chi^2$) and degrees of freedom is less than two, the model is a good fit (Ullman 1996). To obtain confidence in the goodness of fit test a sample size of 100 to 200 is recommended (Hoyle 1995). A model should contain 10 to 20 times as many observations as variables (Mitchell 1993).

The indices used to assess the goodness of fit are as follows:

a) Chi-square and chi-square/df (CMIN and CMIN/DF)

Chi-square test,($\chi^2$) CMIN is one of the basic measures of absolute fit (Hair et al. 1998). It indicates the extent to which the data (sample covariance) is incompatible with the hypothesis (implied covariances) with the ($\chi^2$) value, relative degrees of freedom is said to be significantly $p<0.05$ or $P<0.01$ (Schumacker & Lomax 2004). Its use is limited to the sample size (Hair et al. 1998). If the sample size is large, the ($\chi^2$) statistics may be significant even though there is a minor difference between observed and model implied covariances. The ($\chi^2$) limitations took a better approach in developing goodness-fit-indexes by addressing the ($\chi^2$) limitation to divide its value by the degrees of freedom CMIN/DF ($\chi^2$/df). This normed chi-squared test ratio ($\chi^2$/df) is regarded as the measure of absolute fit in SEM, as it is not affected by the sample size (Byrne 2001). Data that better fits the model gives small chi-square values and chi-square/df ratios; with values 2 or <2. The more the implied and sample covariances differ, the bigger the chi-square statistic and the stronger the evidence against the null hypothesis, than the data fits the model (Byrne 2001, Kline 1998). The range between $1.0<\chi^2$/df <2.0 was adopted in the research.
b) Goodness of fit index GFI, AGFI and PCFI

Goodness of Fit Index (GFI) and Adjusted Goodness of Fit Index (AGFI) are classified as absolute fit indexes. GFI measures the fit between observed and actual data (covariance or correlation) matrix. The AGFI differs from the GFI model as it adjusts for the number of degrees of freedom in the specified model. It also takes into account the number of degrees of freedom in the specified model and also addresses the issue of parsimony by incorporating a penalty for inclusion of additional parameters. The GFI and AGFI can be classified as absolute indexes of fit, when the hypothesised model is compared with no model at all (Hu & Bentler 1995). Both indexes range from 0 to 1.00, with values close to 1.00 being indicative good fit. Theoretically, it is possible for them to be negative (Joreskog & Sorbom 1993), but GFI and AGFI values can be overly influenced by sample size (Fan, Thompson & Wang 1999). This should not occur and would reflect that the model fits worse, than no model at all (Byrne 2001). Another index is the Parsimony Goodness of Fit Index (PGFI), introduced by James, Mulaik and Brett (1982), is the first in the series of parsimony-based indexes of fit in SEM. It takes into account the complexity (i.e. the number of estimated parameters) in the hypothesised model in assessing the overall model fit. In contrast to the above mentioned GFI and AGFI, the PGFI addresses both the goodness of fit and the parsimony of the model by a single index, thus providing a more realistic evaluation of the hypothesised model. The PGFI value ranges from 0 to 1.00, with a value closer to 1.00 as acceptable fit (Byrne 2001).

c) Root Mean Square Error of Approximation (RMSEA)

This is one of the first fit indexes proposed by Steiger and Lind (1980), but only recently it has been recognised as one of the most informative criteria in covariance structure modelling. The RMSEA takes into account the error of approximation in the population by checking how well the model with the chosen parameter values fit the population covariance matrix (Browne & Cudeck 1993). The discrepancy as measured by RMSEA is expressed per degree of freedom, thus making the index sensitive to the number of parameters in the model. Values of 0.5 indicate good fit and values as high as 0.8 represent reasonable errors of approximation in the population. RMSEA values ranging from 0.08 to 0.10 indicate as acceptable fit (MacCallum et al. 1996) and values ranging from 0.06 to 0.08 to be indicative of good fit between the hypothesised data and the observed data (Hu & Bentler 1999). Table 4.2 shows the summary of Fit indices used in the research.
Table 4.2 Summary of Fit Indices used in the Research

<table>
<thead>
<tr>
<th>Statistics</th>
<th>Acceptable level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Unidimensionality</td>
<td></td>
</tr>
<tr>
<td>Chi Square $\chi^2$ Statistics or CMIN</td>
<td>Non significant</td>
</tr>
<tr>
<td>Probability value ($p$)</td>
<td>$p &gt; 0.05$</td>
</tr>
<tr>
<td>2. Absolute fit measures</td>
<td></td>
</tr>
<tr>
<td>Root mean square error of approximation (RMSEA)</td>
<td>$&lt; 0.08$</td>
</tr>
<tr>
<td>3. Parsimonious fit measures</td>
<td></td>
</tr>
<tr>
<td>Goodness-of-Fit Index (GFI)</td>
<td>$&gt; 0.90$</td>
</tr>
</tbody>
</table>

Source: Summarised from Various Authors mentioned in this section

4.5 Homogeneity Testing of Factors

Homegeneity testing of factors is discussed in this section. A fundamental theory in management concept is evaluated through obtaining valid and reliable estimates of the construct of interest. Reliability and validity has to be established in order to standardise the measurement scales and to determine, whether they actually measure what they are intended to measure, or to test the consistency of the data (Sekaran 2006).

4.5.1 Reliability Analysis

There are many measures that can be used to test reliability, i.e. test-retest method, equivalent forms, split-halves method and the internal consistency method. The internal consistency method is considered to be most effect for field studies (Nunnally 1978). In this method, reliability is operationalised as internal consistency, which is the degree of intercorrelations amongst the items that constitute a scale. Internal consistency is estimated using a reliability coefficient called Cronbach’s alpha (Cronbach 1951; Cronbach & Meehl 1955; Crano & Brewer 1973).
Reliability is measured with Cronbach's alpha coefficient (\( \alpha \)) which indicates how well the items are correlated to others (Hair et al. 1998; Sekaran 2006). The Cronbach's alpha coefficient (\( \alpha \)) has a range from 0 to 1, where the highest alpha coefficient indicates a high level of reliability (Hair et al. 1998; Tabachnich & Fidell 2001; Sekaran 2006). If the result of Cronbach (\( \alpha \)) is less than 0.60, it is considered to be poor. If the result of Cronbach (\( \alpha \)) is from 0.60 to 0.79, it is considered to be acceptable and if the result of Cronbach (\( \alpha \)) is over 0.80, it is considered to be good. If the result of Cronbach's alpha's coefficient (\( \alpha \)) is over 0.90, it is considered to be excellent (Hair et al. 1998; Sekaran 2006).

The alpha values for all the six variables (observed and latent constructs) were tested in the research. They include: entrepreneurship curricula (2.1 – 2.9), teaching methodologies (3.1 – 3.9), universities roles (4.1 – 4.9), attitude (5.1 - 5.12), stakeholder support systems (6.1 – 6.12) and entrepreneurial intentions (7.1 – 7.9). All the six composite variables were considered to have acceptable to excellent analysis of reliability, to show that further analyses were worthwhile. The statistics of reliability analysis is shown in Appendix3 and a summary of the analysis is reflected in Table 4.3.

### Table 4.3 Reliability Analysis of the Composite Variables

<table>
<thead>
<tr>
<th>Composite variables</th>
<th>Cronbach’s alpha</th>
<th>No. of items</th>
<th>Acceptable Cronbach alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entrepreneurship curricula</td>
<td>0.926</td>
<td>9</td>
<td>Excellent</td>
</tr>
<tr>
<td>Teaching methodologies</td>
<td>0.886</td>
<td>9</td>
<td>Good</td>
</tr>
<tr>
<td>Universities roles</td>
<td>0.843</td>
<td>9</td>
<td>Good</td>
</tr>
<tr>
<td>Attitude factors</td>
<td>0.912</td>
<td>12</td>
<td>Excellent</td>
</tr>
<tr>
<td>Stakeholder support system factors</td>
<td>0.897</td>
<td>12</td>
<td>Good</td>
</tr>
<tr>
<td>Entrepreneurial intentions</td>
<td>0.702</td>
<td>9</td>
<td>Acceptable</td>
</tr>
</tbody>
</table>

*Source: Analysis conducted in SPSS version 14.0 to test reliability*
4.5.2 Validity Analysis

Validity as described in Chapter 3, Section 3.5.2, is measuring the instrument to tap the concept and measure it according to that which has been set out to and not anything else (Sekaran 2006). The research consists of comprehensive validity types that include; face, content, constructs, discriminant and criterion-related validity (Hair et al. 1998, Healy & Perry 2000, Siniscalco & Auriat 2005).

a) Face validity – Face validity shows that a measure is valid, i.e. by looking at the measure and see whether it shows a good reflection on the construct. It is not a good way of demonstrating construct validity, as the researcher relies on subjective judgement. The construct of ‘entrepreneurial intentions’ was identified from the hypotheses, as shown in Table 3.5 and through conducting the pilot test and improving the questionnaire it was justified to ensure face validity of the instrument.

b) Content validity – It refers to the extent to which the survey contains items that accurately reflect the areas of research, and how well the dimensions and elements of a concept have been delineated (Sekaran 2006). The theory of content validity suggests that a measurement scale has content validity, when its items are randomly chosen subset of the universe of appropriate items (Cronbach & Meehl 1955). If the items represent the various constructs of an instrument and substantiated by a comprehensive review of the relevant literature, content validity is ensured (Bohrnstedt 1983).

The survey instrument used in the research was based on a detailed analysis of the conceptual and empirical literature on previous studies in the field. All the questions in the survey questionnaire matched with the topic of study. The research involved planning the questions accurately and through pre-testing increased the content validity. The purpose of the pre-test was to validate all the variables used in the research to be measured and to ascertain that the questionnaire was directing the required response.

c) Convergent validity – It involves the evaluation of measures against one another instead of against an external criterion. A high correlation between a measure and other measures were believed to measure the same construct and convergent evidence for validity was obtained (Kaplan & Sacuzzo 2005).
**d) Construct validity** – It is established during the statistical analysis of the data and implies that empirical evidence generated by a measure is consistent with the theory. If the results of statistical analyses show that the questionnaire items indicate a high degree of internal consistency, it could be concluded that the questions refer to the intended construct (Zikmund 2003). The reliability testing for internal consistency of the sample data using cronbach’s alpha showed the results of more than 0.70 (acceptance level) to 0.90 (excellent level) for the composite variables, thus revealing that the items in the questionnaire refer to the intended construct. Factor analysis was used to analyse and measure the construct validity in order to measure the consistency between the questions and the theoretical constructs relating to the study.

**e) Nomological validity** – It means the validity of the entire model is measured by $\chi^2$ and degrees of freedom, the p-value of which should be above 0.05 for significance. A summary of the descriptive statistics and correlation of constructs are shown in Table 4.2. The nomological validity in the model was supported, by observing the correlation between the constructs and the direction of all relationship hypothesised in the model.

### 4.6 Data Analysis using Confirmatory Factor Analysis

This section discusses the data analysis using structural equation modelling (SEM). The present study is hypothesised and shows a correlation between the educational variables of curricula, teaching methodologies, universities roles and entrepreneurial intentions. Attitude and stakeholder support systems have a mediating effect in the relationship between the educational variables and entrepreneurial intentions. The hypothesised model of the present study is depicted in Fig. 4.3.

Factor analysis is the best-known statistical procedure for investigating relations between sets of observed and latent variables. The study uses confirmatory factor analysis, as the researcher has some knowledge of the underlying latent variables structure based on the theoretical knowledge and empirical studies (Byrne 2001).

Structural Equation Modelling is used to confirm the measurement as hypothesised in the structural model. SEM is a powerful statistical technique that combines the measurement model or CFA and the structural model into a simultaneous statistical test. SEM is valuable in
inferential data analysis and hypothesis testing where the pattern of inter-relationships among the constructs are specified a priori and grounded in established theory (Byrne 2001). It has the flexibility to model relationship among multiple predictors and criterion variables, and statistically tests a priori theoretical assumptions against empirical data through CFA (Chin 1998). The hypothesised model of the present study is depicted in Fig. 4.3.

The data were subjected to a CFA using AMOS 16.0, SEM software. Following the recommendations by Anderson and Gerbing (1988), the model was tested using a two-stage SEM. Firstly, CFA was performed to evaluate constructs validity on convergent and discriminate validity. All CFA on constructs were tested for goodness of fit indices, such as CMIN/df ratio (<2), p value (>0.05), goodness of fit index (GFI) of >0.90 and root mean square error of approximation (RMSEA) of value less than 0.08 (<0.08). Secondly, structural equation analysis was conducted to test research hypotheses empirically.

**Fig. 4.3 Hypothesised CFA Model**

*Source: Developed for the Research through AMOS 16*
4.6.1 Evaluation of the CFA Model
Here in SEM the CFA models have no causal paths (straight arrows in the diagram) connecting the latent variables (independent and dependent variables). The latent variables may be allowed to correlate (oblique factors), or be constrained to “0” covariance (orthogonal factors). The CFA analysis in SEM focuses on analysis of the error terms of the indicator variables. In a standard CFA model each indicator is specified to load only on one factor. Measurement error terms are specified to be uncorrelated with each other and all factors are allowed to correlate with each other. One-factor standard models are identified if the factor has three or more indicators (Hair et al. 2010). Multi-factor standard models are identified if each factor has two or more indicators. In CFA the chi-squares are significant in the presence of a large sample size, but based on the Maximum Likelihood Indicators (MLI) of factor loadings, goodness-of-fit indexes and normalised residuals. All model fit indices showed a good fit between the model and the raw data. CFA 1st order analysis was conducted on curricula, teaching methodologies, universities roles and entrepreneurial intentions, and CFA 2nd order analysis was conducted on attitude and stakeholder support systems as shown below.

4.6.2 CFA 1st order Analysis and Goodness-of-fit Results

i) CFA on Curricula

The result of CFA on curricula is shown in Table 4.4.1 below. The model fit indices show that the data fit of the measurement model fit perfectly (chi-square/df= 13.145, P=0.107, GFI =0.989, RMSEA= 0.040). All other fit indices are at the acceptable levels indicating a good fit of the variable ‘curricula’. The result takes into account the actual factor loadings rather than assuming that each item is equally weighted in the composite load determination. Refer Fig. 4.4.1 (a) and Fig. 4.4.1 (b).
Table 4.4.1 Goodness-of-fit of Curricula

<table>
<thead>
<tr>
<th>Exogenous variables</th>
<th>Dimension</th>
<th>Construct</th>
<th>Standardised Regression weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entrepreneurial Intentions</td>
<td>Curricula</td>
<td>S 2.1</td>
<td>0.76</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S 2.2</td>
<td>0.81</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S 2.3</td>
<td>0.84</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S 2.4</td>
<td>0.66</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S 2.5</td>
<td>0.86</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S 2.6</td>
<td>0.78</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S 2.7</td>
<td>0.85</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S 2.8</td>
<td>0.85</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S 2.9</td>
<td>0.81</td>
</tr>
</tbody>
</table>

Model Fit Indicator:
- CMIN ($\chi^2$): 13.145
- DF: 8
- CMIN/DF: 1.643
- P VALUE: 0.107
- GFI: 0.989
- RMSEA: 0.04

Source: AMOS 16

CFA on curricula was conducted on the nine items. The results showed that the factor loading exceeded or greater than 0.5. The data fitted the model well as displayed by the measurement model fit indices depicted in Figure 4.4.1 (b).
Fig. 4.4.1 CFA 1st Order - Curricula

Source: AMOS 16
ii) CFA on Teaching methodologies

The result of CFA on teaching methodologies is shown in Table 4.4.2 below. The model fit indices show that the data fit of the measurement model fit perfectly (chi-square/df= 9.533, P=0.090, GFI =0.991, RMSEA= 0.048). All other fit indices are at the acceptable levels indicating a good fit of the variable ‘teaching methodologies’. The result takes into account the actual factor loadings rather than assuming that each item is equally weighted in the composite load determination. Refer Fig. 4.4.2(a) and Fig. 4.4.2 (b).

<table>
<thead>
<tr>
<th>Exogenous variables</th>
<th>Dimension</th>
<th>Construct n= 9</th>
<th>Standardised Regression weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entrepreneurial Intentions</td>
<td>Teaching Methodologies</td>
<td>S 3.1</td>
<td>0.84</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S 3.2</td>
<td>0.85</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S 3.3</td>
<td>-0.05</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S 3.4</td>
<td>0.56</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S 3.5</td>
<td>0.86</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S 3.6</td>
<td>0.87</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S 3.7</td>
<td>0.91</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S 3.8</td>
<td>0.88</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S 3.9</td>
<td>0.75</td>
</tr>
</tbody>
</table>

Model Fit Indicator:
- CMIN (χ²): 9.533
- DF: 5
- CMIN/DF: 1.907
- P VALUE: 0.090
- GFI: 0.991
- RMSEA: 0.048

Source: AMOS 16

CFA on teaching methodologies was conducted on the nine items. The results showed that the factor loading exceeded or greater than 0.5, except for S 3.3. The data fitted the model well as displayed by the measurement model fit indices depicted in Figure 4.4.2 (b).
Fig. 4.4.2 CFA 1\textsuperscript{st} order – Teaching methodologies

a)

CFA 1st order - Teaching Methodologies

\begin{center}
\begin{tabular}{c}
\hline
Teaching Methodologies \\
\hline
S3.1 e1 \\
.84 \\
S3.2 e2 \\
.85 \\
S3.3 e3 \\
-.05 \\
S3.4 e4 \\
.58 \\
S3.5 e5 \\
.86 \\
S3.6 e6 \\
.87 \\
S3.7 e7 \\
-.81 \\
S3.8 e8 \\
.88 \\
S3.9 e9 \\
.75 \\
\hline
\end{tabular}
\end{center}

Chi-square :178.616 \\
DF :27 \\
Ratio :6.615 \\
P Value :.000 \\
GFI :.909 \\
RMSEA :.119 \\

b)

CFA 1st order - Teaching methodologies

\begin{center}
\begin{tabular}{c}
\hline
Teaching methodologies \\
\hline
S3.2 e2 \\
.82 \\
S3.4 e4 \\
.59 \\
S3.5 e5 \\
.88 \\
S3.6 e6 \\
.89 \\
S3.7 e7 \\
.90 \\
\hline
\end{tabular}
\end{center}

Chi-square :9.533 \\
DF :5 \\
Ratio :1.907 \\
P value :.090 \\
GFI :.991 \\
RMSEA :.048 \\

Source: AMOS 16
iii) CFA on Universities roles

The result of CFA on universities roles is shown in Table 4.4.3 below. The model fit indices show that the data fit of the measurement model fit perfectly (chi-square/df=10.045, P=0.262, GFI =0.992, RMSEA= 0.025). All other fit indices are at the acceptable levels indicating a good fit of the variable ‘universities roles’. The result takes into account the actual factor loadings rather than assuming that each item is equally weighted in the composite load determination. Refer Fig. 4.4.3(a) and Fig. 4.4.3 (b).

<table>
<thead>
<tr>
<th>Exogenous variables</th>
<th>Dimension</th>
<th>Construct n= 9</th>
<th>Standardised Regression weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entrepreneurial Inten</td>
<td>Universities Roles</td>
<td>S 4.1</td>
<td>0.69</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S 4.2</td>
<td>0.77</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S 4.3</td>
<td>0.82</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S 4.4</td>
<td>0.84</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S 4.5</td>
<td>-0.11</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S 4.6</td>
<td>0.81</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S 4.7</td>
<td>0.83</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S 4.8</td>
<td>0.81</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S 4.9</td>
<td>0.76</td>
</tr>
</tbody>
</table>

Model Fit Indicator:

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CMIN ((\chi^2))</td>
<td>10.045</td>
<td></td>
</tr>
<tr>
<td>DF</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>CMIN/DF</td>
<td>1.256</td>
<td></td>
</tr>
<tr>
<td>P VALUE</td>
<td>0.262</td>
<td></td>
</tr>
<tr>
<td>GFI</td>
<td>0.992</td>
<td></td>
</tr>
<tr>
<td>RMSEA</td>
<td>0.025</td>
<td></td>
</tr>
</tbody>
</table>

Source: AMOS 16

CFA on universities roles was conducted on the nine items. The results showed that the factor loading exceeded or greater than 0.5, except for S 4.5. The data fitted the model well as displayed by the measurement model fit indices depicted in Figure 4.4.3 (b).
Fig. 4.4.3 CFA 1st order – Universities roles

CFA 1st order Universities roles

Universities roles

S4.1 e1
.69
S4.2 e2
S4.3 e3
.77
S4.4 e4
.82
S4.5 e5
S4.6 e6
S4.7 e7
S4.8 e8
.79
S4.9 e9
.84
-11
.81
.81
.83
.83
.86
-11
.81
.84
.77
.69

Chi-square :153.645
DF :27
Ratio :5.691
P value :.000
GFI :.911
RMSEA :.109

Source: AMOS 16
iv) CFA on Entrepreneurial intentions

The result of CFA on entrepreneurial intentions is shown in Table 4.4.4 below. The model fit indices show that the data fit of the measurement model fit perfectly (chi-square/df=11.428, P=0.248, GFI =0.990, RMSEA= 0.026). All other fit indices are at the acceptable levels indicating a good fit of the variable of ‘entrepreneurial intentions’. The result takes into account the actual factor loadings rather than assuming that each item is equally weighted in the composite load determination. Refer Fig. 4.4.4 (a) and Fig. 4.4.4 (b).

<table>
<thead>
<tr>
<th>Exogenous variables</th>
<th>Construct n= 9</th>
<th>Standardised Regression weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>S 7.1</td>
<td></td>
<td>0.54</td>
</tr>
<tr>
<td>S 7.2</td>
<td></td>
<td>0.23</td>
</tr>
<tr>
<td>S 7.3</td>
<td></td>
<td>0.75</td>
</tr>
<tr>
<td>S 7.4</td>
<td></td>
<td>0.75</td>
</tr>
<tr>
<td>S 7.5</td>
<td></td>
<td>0.58</td>
</tr>
<tr>
<td>S 7.6</td>
<td></td>
<td>0.71</td>
</tr>
<tr>
<td>S 7.7</td>
<td></td>
<td>0.04</td>
</tr>
<tr>
<td>S 7.8</td>
<td></td>
<td>-0.16</td>
</tr>
<tr>
<td>S 7.9</td>
<td></td>
<td>0.17</td>
</tr>
</tbody>
</table>

Model Fit Indicator:
- CMIN ($\chi^2$): 11.428
- DF: 9
- CMIN/DF: 1.270
- P VALUE: 0.248
- GFI: 0.990
- RMSEA: 0.026

Source: AMOS 16

CFA on entrepreneurial intention was conducted on the nine items. The results showed that the all factor loading exceeded or greater than 0.5, except for item S 7.2, S 7.1, S 7.8 and S 7.9. The data fitted the model well as displayed by the measurement model fit indices depicted in Figure 4.4.4 (b).
CFA 1st order – Entrepreneurial Intention

Source: Amos 16
CFA on Entrepreneurial intention dimensions

From the confirmatory factor analysis of ENTINT dimensions (curricula, teaching methodologies and universities roles) in Tables 4.4.1 to Table 4.4.4, it is observed that most of the factor loadings of all observed variables or items are adequate (ranging >0.50). The factor loading or regression estimates of latent to observed variable should be above 0.50 (Hair et al. 2006). The results indicate that all constructs conform to the construct and convergent validity test (Tabachnick & Fidell 2007;Kamariah & Sentosa 2008;Byrne 2010).

4.6.3 CFA 2nd order Analysis and Goodness-of-fit Results

CFA second order analysis was conducted to determine the ENTINT measurement as latent constructs and to confirm the two dimensions – attitude and stakeholder support systems (refer Fig. 4.3) used in the present study. The measurement model was run on the 12 items of attitude and 12 items of stakeholder support systems. The results of CFA succeeded in configuring the significant dimensions of ENTINT in the present study.

An exogenous construct measurement model was conducted to assess the psychometric properties and unidimensionality of the measures. The adequacy of attitude and stakeholder support systems as measurement models can be evaluated on the criteria of convergent validity of factor loading (>0.5) and overall model fit of the data (Kamariah & Sentosa 2008). The model fit indices show significant loading of the 12 items of attitudeshown in Fig. 4.5.1(a), and the 12 items of stakeholder shown in Fig. 4.5.2 (a).

i) The results of the 2nd order analysis on the attitude dimensions show the overall measures of model fit (X² = 11.119, DF = 11, Ratio =1.011, p = 0.433, GFI =0.992, and RMSEA =0.005) as shown in Table 4.5.

ii) The results of the 2nd order analysis on the stakeholder support systems dimensions show the overall measures of model fit (X² = 27.850, DF = 24, Ratio =1.160, p = 0.266, GFI =0.985, and RMSEA =0.020) as shown in Table 4.6.
Fig. 4.5.1 CFA 2\textsuperscript{nd} order – Attitude (a)

\[ \text{CFA- 2nd order (Attitude)} \]

\[ \text{R01} \]

\[ \text{R02} \]

\[ \text{R03} \]

\[ \text{Attitude} \]

\[ \text{Attitude towards money} \]

\[ \text{Attitude towards change} \]

\[ \text{Attitude towards competitiveness} \]

Source: AMOS 16
Fig. 4.5.2 CFA 2nd order – Stakeholder support systems

a)

b)

Source: AMOS 16
Table 4.5 - Goodness of Model Fit of Attitude (After MI)

<table>
<thead>
<tr>
<th>Model Fit Indicator</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMIN (X2)</td>
<td>11.119</td>
</tr>
<tr>
<td>DF</td>
<td>11</td>
</tr>
<tr>
<td>CMIN/DF</td>
<td>1.011</td>
</tr>
<tr>
<td>PROB</td>
<td>0.433</td>
</tr>
<tr>
<td>GFI</td>
<td>0.992</td>
</tr>
<tr>
<td>RMSEA</td>
<td>0.005</td>
</tr>
</tbody>
</table>

*Source: AMOS 16*

Table 4.6 - Goodness of Model Fit of Stakeholder Support System (After MI)

<table>
<thead>
<tr>
<th>Model Fit Indicator</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMIN (X2)</td>
<td>27.850</td>
</tr>
<tr>
<td>DF</td>
<td>24</td>
</tr>
<tr>
<td>CMIN/DF</td>
<td>1.160</td>
</tr>
<tr>
<td>PROB</td>
<td>0.266</td>
</tr>
<tr>
<td>GFI</td>
<td>0.985</td>
</tr>
<tr>
<td>RMSEA</td>
<td>0.020</td>
</tr>
</tbody>
</table>

*Source: AMOS 16*
4.6.4 Generated Model

A generated model was extracted after the CFA 1\textsuperscript{st} order analysis of the entrepreneurship education variables (curricula, teaching methodologies, universities roles), entrepreneurial intentions and CFA 2\textsuperscript{nd} order analysis of the mediating variables (attitude and stakeholder support systems). Based on the CFA 1\textsuperscript{st} order analysis, the exogenous variables of curricula had 6 items (after eliminating 3 items), teaching methodologies had 5 items (after eliminating 4 items), universities roles had 6 items (after eliminating 3 items) and the endogenous variable of entrepreneurial intentions had 6 items (after eliminating 3 items). Based on the CFA 2\textsuperscript{nd} order analysis, the mediating variables of attitude had 7 items (after eliminating 5 items) and stakeholder support systems analysis had 9 items (after eliminating 3 items). (Refer Fig.4.6).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Dimension</th>
<th>X²</th>
<th>DF</th>
<th>Ratio</th>
<th>P</th>
<th>GFI</th>
<th>RMSEA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entrepreneurial</td>
<td>Curricula</td>
<td>13.145</td>
<td>8</td>
<td>1.643</td>
<td>0.107</td>
<td>0.989</td>
<td>0.040</td>
</tr>
<tr>
<td>Intentions (ENTINT)</td>
<td>Teaching methodologies</td>
<td>9.533</td>
<td>5</td>
<td>1.907</td>
<td>0.09</td>
<td>0.991</td>
<td>0.048</td>
</tr>
<tr>
<td></td>
<td>Universities roles</td>
<td>10.045</td>
<td>8</td>
<td>1.256</td>
<td>0.262</td>
<td>0.992</td>
<td>0.025</td>
</tr>
<tr>
<td></td>
<td>Attitude</td>
<td>11.119</td>
<td>11</td>
<td>1.011</td>
<td>0.433</td>
<td>0.992</td>
<td>0.005</td>
</tr>
<tr>
<td></td>
<td>Stakeholder support systems</td>
<td>27.85</td>
<td>24</td>
<td>1.16</td>
<td>0.266</td>
<td>0.985</td>
<td>0.020</td>
</tr>
</tbody>
</table>

\textit{Source: AMOS 16 (From previous tables)}
Fig. 4.6 Generated Model

Source: AMOS 16
The results of the generated model show the overall fit as follows:

Table 4.8 - Goodness of Model Fit of Generated Model

<table>
<thead>
<tr>
<th>Model Fit Indicator</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMIN (X2)</td>
<td>2050.44</td>
</tr>
<tr>
<td>DF</td>
<td>690</td>
</tr>
<tr>
<td>CMIN/DF</td>
<td>2.972</td>
</tr>
<tr>
<td>PROB</td>
<td>0.000</td>
</tr>
<tr>
<td>GFI</td>
<td>0.773</td>
</tr>
<tr>
<td>RMSEA</td>
<td>0.071</td>
</tr>
</tbody>
</table>

Source: AMOS 16

The results of a good model fit should have as follows: P>0.05, GFI>0.90 and RMSEA <0.08. In the generated model, RMSEA was found to be satisfactory but the P value and GFI was not. P value was 0.000 (P>0.05); GFI showed 0.773, which was less than 0.90.

The generated model was again tested for the goodness of fit indices and a re-specified model was generated (refer Fig. 4.7). The significant of the goodness of fit indexes confirmed the significant loadings of the measurements; the low level of common and unique error; showing the interaction among predictors on the endogenous variable.

4.6.5 Re-specified Model

A structural equation model in the present study is a complete path model which is depicted in a path diagram. It differs from a simple path analysis, as all the variables are latent variables measured by indicators associated with error terms, in addition to the residual error terms associated with the latent independent variables. The SEM diagram in the study has certain standard elements which were described in Section 4.3.1. The single-headed arrows are causal relations and double-headed arrows are correlations between indicators.

Path coefficient values are placed on the arrows from latent to indicators from one latent to another, or from an error term to an indicator, or from a residual term to a latent. The implied covariance matrix was computed from the path coefficients in the model using the
multiplication rule in path analysis; the effect size of a path which is the product of its path coefficients. The multiplication rule for any given model generates the implied matrix from which the actual sample covariance matrix is subtracted yielding the residual matrix (Hair et al.2006). The smaller the value in the residual matrix, the better fitting is the model. Regression may be preferred to SEM when there are substantial departures from the SEM assumptions of multivariate normality of the indicators and/or small sample sizes and when measurement error is less of a concern because the measures have high reliability (Jaccard & Wan 1996).

The re-specified model in Fig. 4.7 below confirmed the final model of the hypothesised model showing the significant of the goodness of fit indexes that confirmed the significant loadings of the measurements, the low level of common and unique error and the interaction among predictors on endogenous variables. The structural model output displayed in Fig. 4.7 showed that the model explained a substantial part of the variance in all the endogenous variables. In addition, the model also showed the standardised path coefficients and its significant levels on causal paths.

In brief, Fig. 4.7 confirmed the constructs of curricula, teaching methodologies, universities roles, attitude, stakeholder support systems and entrepreneurial intentions in the model. Factor analysis and hypotheses were tested in the same analysis. The SEM techniques used provide full information about the extent to which the research model was supported by the data. The goodness of fit statistics of SEM is summarised in Table 4.9 below.

<table>
<thead>
<tr>
<th>Model Fit Indicator</th>
<th>Generated Model</th>
<th>Re-specified Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMIN (χ²)</td>
<td>2050.440</td>
<td>156.679</td>
</tr>
<tr>
<td>DF</td>
<td>690</td>
<td>136</td>
</tr>
<tr>
<td>CMIN/DF</td>
<td>2.972</td>
<td>1.152</td>
</tr>
<tr>
<td>PROB</td>
<td>0.000</td>
<td>0.108</td>
</tr>
<tr>
<td>GFI</td>
<td>0.773</td>
<td>0.961</td>
</tr>
<tr>
<td>RMSEA</td>
<td>0.071</td>
<td>0.020</td>
</tr>
</tbody>
</table>

Source: AMOS 16
Fig. 4.7 Re-specified Model

Source: AMOS 16
4.6.6 Second Re-specified Model

As a rule of thumb in structural equation modelling (SEM), the re-specified model was again revised. The mediating variable of attitude had only one variable, each in the components of money, change and competitiveness. Exploratory factor analysis was conducted to test the variable of attitude with the three components in which the constructs consisted of: earn more money, challenge and work harder. The new variable was renamed as ‘attitude towards goals’ and tested in the second re-specified model.

The mediating variable of stakeholder support system resulted with only one construct in the component of government. The construct in this component, ‘increasing the number of entrepreneurs for economic growth’ was included in the variable of university role, as one of the functions of the government was to promote entrepreneurship education in the Malaysian universities for economic growth. Two of the components in the mediating variable of stakeholder support system were eliminated; financial institutions and government, thus leaving only one component namely: ‘parents’ and all the constructs in the component of ‘parents’ supported the endogenous variable of ‘entrepreneurial intentions’.

Thus, this is a fundamental contribution to the theory. A new component of ‘attitude’ was introduced, i.e. ‘attitude towards goals’ and the component of ‘parents’ in the stakeholder support system was renamed as ‘family roles’. The second re-specified model was constructed with the remaining variables and the new components tested for the goodness-of-fit of the model (refer Fig. 4.8).

The results revealed at: p value = 0.033 (p>0.05), GFI of 0.959, and RMSEA of 0.025. The values of GFI 0.948 (GFI >0.90) and RMSEA 0.025 (RMSEA <0.08) as shown in Table 4.10 was well above standard, but the p value was less than 0.05. The second re-specified model was further tested and a competing model emerged showing a goodness-of-fit of the model.
Fig. 4.8 Second Re-specified Model

Source: AMOS 16
4.6.7 Competing Model

The analysis of structural path of the second re-specified model in the present study embarked on testing the original model of entrepreneurial intentions (Parasuraman et al. 1988). The results indicated the model has a good fit at p value = 0.321 (p>0.05), GFI of 0.966 well above the standard of 0.95 and RMSEA of 0.012 (RMSEA<0.08) (Refer Table 4.10).

The competing structural model exhibited a good fit indicating the robustness in the study. Fig. 4.9 below illustrates the structural path model fitted to the data in the present study.

Table 4.10 Goodness-of-fit Statistics of the Second Re-Specified and Competing Models

<table>
<thead>
<tr>
<th>Model Fit Indicator</th>
<th>2nd Re-specified Model</th>
<th>Competing Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMIN ( (\chi^2) )</td>
<td>154.434</td>
<td>129.741</td>
</tr>
<tr>
<td>DF</td>
<td>124</td>
<td>123</td>
</tr>
<tr>
<td>CMIN/DF</td>
<td>1.245</td>
<td>1.055</td>
</tr>
<tr>
<td>PROB</td>
<td><strong>0.033</strong></td>
<td>0.321</td>
</tr>
<tr>
<td>GFI</td>
<td>0.959</td>
<td>0.966</td>
</tr>
<tr>
<td>RMSEA</td>
<td>0.025</td>
<td>0.012</td>
</tr>
</tbody>
</table>

Source: AMOS 16
Fig. 4.9 Competing Model

Chi-square : 129.741
DF : 123
Ratio : 1.055
P value : .321
GFI : .966
RMSEA : .012

Source: AMOS 16
4.7 Hypotheses Testing Results

4.7.1 Goodness-of-fit Indices

The goodness of fit indices for the 18 final items in the variables of curricula, teaching methodologies, universities roles, and attitude towards goals, family roles and entrepreneurial intentions are shown in Table 4.11. The re-specified model confirmed the acceptance level (Significance > 0.5) as the results of standardised regressions weights. Fig. 4.12 shows the convergent validity of the variables in the final structural model. Based on the CFA results, the present study observed that the factor loadings of all observed variables or items as adequate, ranging from 0.523 to 0.899. The factor loadings or regression estimates of latent to observed variables were above 0.50, indicating that most of the constructs conform to the convergent validity test (Hair et al. 2006). The goodness of fit indices for the five latent constructs of entrepreneurial intentions as exogenous variables confirmed the dimensions of entrepreneurial intentions in the context.

Table 4.11 Summary of the Goodness of the Variables (18 factor loadings)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Items</th>
<th>Standardised Regressions Weights</th>
<th>Square Multiple Correlation (SMC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Curriculum</td>
<td>2.3</td>
<td>0.816</td>
<td>0.666</td>
</tr>
<tr>
<td></td>
<td>2.7</td>
<td>0.843</td>
<td>0.711</td>
</tr>
<tr>
<td>Teaching Methodology</td>
<td>3.2</td>
<td>0.847</td>
<td>0.718</td>
</tr>
<tr>
<td></td>
<td>3.6</td>
<td>0.883</td>
<td>0.780</td>
</tr>
<tr>
<td></td>
<td>3.7</td>
<td>0.889</td>
<td>0.790</td>
</tr>
<tr>
<td>University Role</td>
<td>4.1</td>
<td>0.674</td>
<td>0.455</td>
</tr>
<tr>
<td></td>
<td>4.6</td>
<td>0.770</td>
<td>0.593</td>
</tr>
<tr>
<td></td>
<td>6.4</td>
<td>0.713</td>
<td>0.508</td>
</tr>
<tr>
<td>Attitude towards Goals</td>
<td>5.2</td>
<td>0.768</td>
<td>0.589</td>
</tr>
<tr>
<td></td>
<td>5.7</td>
<td>0.825</td>
<td>0.681</td>
</tr>
<tr>
<td></td>
<td>5.10</td>
<td>0.827</td>
<td>0.684</td>
</tr>
<tr>
<td>Family Roles</td>
<td>6.9</td>
<td>0.791</td>
<td>0.625</td>
</tr>
<tr>
<td></td>
<td>6.10</td>
<td>0.899</td>
<td>0.807</td>
</tr>
<tr>
<td></td>
<td>6.11</td>
<td>0.783</td>
<td>0.613</td>
</tr>
<tr>
<td></td>
<td>6.12</td>
<td>0.856</td>
<td>0.732</td>
</tr>
<tr>
<td>Entrepreneurial Intentions</td>
<td>7.1</td>
<td>0.523</td>
<td>0.273</td>
</tr>
<tr>
<td></td>
<td>7.4</td>
<td>0.766</td>
<td>0.587</td>
</tr>
<tr>
<td></td>
<td>7.6</td>
<td>0.683</td>
<td>0.467</td>
</tr>
</tbody>
</table>

*Source: AMOS 16*
The structural model in Table 4.12 below shows P value more than 0.05, GFI more than 0.90 (acceptable fit criteria) and RMSEA less than 0.08. This shows that the measurement model has a good fit with the data (Baggozzi & Yi 1988).

**Table 4.12 Summary of Goodness-of-fit Index of Variables**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Dimension</th>
<th>Goodness of Fit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>X²</td>
</tr>
<tr>
<td>Entrepreneurial Intention</td>
<td>Curricula</td>
<td>13.145</td>
</tr>
<tr>
<td>(ENTINT)</td>
<td>Teaching methodologies</td>
<td>9.533</td>
</tr>
<tr>
<td></td>
<td>University roles</td>
<td>10.045</td>
</tr>
<tr>
<td></td>
<td>Attitude</td>
<td>11.119</td>
</tr>
<tr>
<td></td>
<td>Stakeholder support systems</td>
<td>27.85</td>
</tr>
</tbody>
</table>

*Source: Amos16 (From previous tables)*

The goodness of the endogenous variable entrepreneurial intentions and the structural model is summarised in the Table 4.13 below.

**Table 4.13 Comparison of the Generated Model to the Competing Model**

<table>
<thead>
<tr>
<th>Model Fit Indicators</th>
<th>Generated Model</th>
<th>Re-specified Model</th>
<th>Second Re-specified Model</th>
<th>Competing Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMIN (χ²)</td>
<td>2050.440</td>
<td>152.695</td>
<td>154.434</td>
<td>129.741</td>
</tr>
<tr>
<td>DF</td>
<td>690</td>
<td>135</td>
<td>124</td>
<td>123</td>
</tr>
<tr>
<td>CMIN/DF</td>
<td>2.972</td>
<td>1.131</td>
<td>1.245</td>
<td>1.055</td>
</tr>
<tr>
<td>PROB</td>
<td>0.000</td>
<td>0.142</td>
<td>0.033</td>
<td>0.321</td>
</tr>
<tr>
<td>GFI</td>
<td>0.773</td>
<td>0.962</td>
<td>0.959</td>
<td>0.966</td>
</tr>
<tr>
<td>RMSEA</td>
<td>0.071</td>
<td>0.018</td>
<td>0.025</td>
<td>0.012</td>
</tr>
</tbody>
</table>

*Source: AMOS 16*
Table 4.13 above shows the measurement of the endogenous variable, generated model, re-specified model, 2nd re-specified model as the journey to the goodness of fit of the structural model. The indices of the model fit are an indicator of the model fit. The structural models testing the endogenous variable, entrepreneurial intentions show the significant of P level (P value>0.05), GFI (GFI>0.90) and fulfil the RMSEA criteria (<0.08). The present study confirmed the significant fit of the analysis of entrepreneurship education, the mediating variables of attitude and stakeholder support systems and entrepreneurial intentions, and the 2nd re-specified model as a result of the final hypothesised model. The comparison between the hypothesised model (Fig. 4.3) and the second re-specified model (Fig. 4.8) confirmed that the final hypothesized model transformed into the competing model (Fig.4.9), with probability (P=0.321), GFI (0.966) and RMSEA (0.012); and therefore, achieved the significant level of the goodness of fit index of the model.

4.7.2 Path Analysis (Direct and Indirect effects)

In the present study, the direct and indirect effect in the relationship between the education variables (curricula, teaching methodologies and universities roles), attitude towards goals, family roles and entrepreneurial intentions were measured by the application of path analysis technique. Path analysis is a subset of SEM (Ferdinand 2000;Hair et al. 2010), the multivariate procedure that allows examination of a set of relationships between one or more independent variables, either continuous or discrete and one or more dependent variables, either continuous or discrete (Tabachnick & Fidell 2007).

Path analysis is unique from other linear equation models and is based upon a linear equation system. It is a statistical technique used to examine causal relationships between two or more variables (Tabachnick & Fidell 2007) and is used mainly in an attempt to understand comparative strengths of direct and indirect relationships among a set of variables. In path analysis mediated pathways (those acting through a mediating variable), i.e. ‘Y,’ in the pathway X →Y →Z can be examined (Hair et al. 2010).

In the present study, the hypotheses and research objectives are to empirically examine the variables of attitude towards goals and family roles as mediators in the relationship of the construct of entrepreneurship education to entrepreneurial intentions. The effects of attitude towards goals and family roles as mediators in the relationship between entrepreneurship education and entrepreneurial intentions were examined in Table 4.15 and 4.16.
It showed the direct, indirect and total effect of attitude towards goals and family roles as mediating variables. The direct impact of the re-specified model is shown in Table 4.14.

Table 4.14Direct Impact of the Re-specified Model: Standardised Regression Weights

<table>
<thead>
<tr>
<th>Endogenous</th>
<th>Exogenous</th>
<th>Std. Reg. Weight</th>
<th>S.E.</th>
<th>C.R.</th>
<th>P</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude towards goals</td>
<td>Curricula</td>
<td>0.178</td>
<td>0.105</td>
<td>1.632</td>
<td>0.103</td>
<td>Non-significant</td>
</tr>
<tr>
<td>Family roles</td>
<td>Curricula</td>
<td>-0.329</td>
<td>0.196</td>
<td>-2.043</td>
<td>0.041</td>
<td>Significant</td>
</tr>
<tr>
<td>Attitude towards goals</td>
<td>Teaching methodologies</td>
<td>0.124</td>
<td>0.099</td>
<td>1.129</td>
<td>0.259</td>
<td>Non-significant</td>
</tr>
<tr>
<td>Family roles</td>
<td>Teaching methodologies</td>
<td>0.127</td>
<td>0.170</td>
<td>0.851</td>
<td>0.395</td>
<td>Non-significant</td>
</tr>
<tr>
<td>Attitude towards goals</td>
<td>Universities roles</td>
<td>0.567</td>
<td>0.133</td>
<td>4.862</td>
<td>0.000</td>
<td>Significant</td>
</tr>
<tr>
<td>Family roles</td>
<td>Universities roles</td>
<td>0.771</td>
<td>0.250</td>
<td>4.451</td>
<td>0.000</td>
<td>Significant</td>
</tr>
<tr>
<td>Entrepreneurial intentions</td>
<td>Attitude towards goal</td>
<td>0.255</td>
<td>0.067</td>
<td>3.297</td>
<td>0.000</td>
<td>Significant</td>
</tr>
<tr>
<td>Entrepreneurial intentions</td>
<td>Family roles</td>
<td>-0.218</td>
<td>0.051</td>
<td>-2.908</td>
<td>0.004</td>
<td>Significant</td>
</tr>
</tbody>
</table>

Note: P Value is significant if less than 0.05 (p<0.05)

Source: AMOS 16
The table 4.14 above shows the factor loadings of the indirect relationship (entrepreneurship education→attitude towards goals and family roles →entrepreneurial intentions) of the path which has a higher degree of effect, than the direct relationship of entrepreneurship education→entrepreneurial intentions. This indicates the mediating effect of attitude towards goals and family roles in the relationships between entrepreneurship education to entrepreneurial intentions (indirect effect>direct effect) and shown in Tables 4.15 and 4.16. Table 4.17 shows the direct effect of the mediating variables (attitude towards goals and family roles) to entrepreneurial intentions.
Table 4.15 Direct and Indirect effect of Attitude towards goals as Mediating variable

<table>
<thead>
<tr>
<th>Exogenous</th>
<th>Mediated</th>
<th>Endogenous</th>
<th>Path</th>
<th>Total Effect Estimate</th>
<th>Path</th>
<th>Hypothesis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Curricula</td>
<td>Curricula</td>
<td>Entrepreneurial</td>
<td>Curricula</td>
<td>0.18</td>
<td>Direct</td>
<td></td>
</tr>
<tr>
<td>Curricula</td>
<td>Curricula</td>
<td>Entrepreneurial</td>
<td>Entrepreneurial</td>
<td>0.26</td>
<td>Indirect</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>AG</td>
<td>EI</td>
<td>Full mediating effect of Attitude towards goals</td>
<td>H 1(i) rejected</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Exogenous</th>
<th>Mediated</th>
<th>Endogenous</th>
<th>Path</th>
<th>Total Effect Estimate</th>
<th>Path</th>
<th>Hypothesis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching Methodologies</td>
<td>Teaching Methodologies</td>
<td>Entrepreneurial</td>
<td>Teaching Methodologies</td>
<td>0.12</td>
<td>Direct</td>
<td></td>
</tr>
<tr>
<td>Teaching Methodologies</td>
<td>Teaching Methodologies</td>
<td>Entrepreneurial</td>
<td>Teaching Methodologies</td>
<td>0.26</td>
<td>Indirect</td>
<td></td>
</tr>
<tr>
<td>TM</td>
<td>AG</td>
<td>EI</td>
<td>Full mediating effect of Attitude towards goals</td>
<td>H 2 (i) rejected</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exogenous</td>
<td>Mediated</td>
<td>Endogenous</td>
<td>Path</td>
<td>Total Effect Estimate</td>
<td>Path</td>
<td>Hypothesis</td>
</tr>
<tr>
<td>-----------------</td>
<td>---------------------------------</td>
<td>-------------------</td>
<td>--------------------------</td>
<td>-----------------------</td>
<td>--------</td>
<td>------------------</td>
</tr>
<tr>
<td>Universities Roles</td>
<td>Entrepreneurial Roles</td>
<td>Entrepreneurial</td>
<td>Universities Roles → Entrepreneurial Roles</td>
<td>0.85</td>
<td>Direct</td>
<td>Effect</td>
</tr>
<tr>
<td>Universities Roles</td>
<td>Attitude towards goals</td>
<td>Entrepreneurial</td>
<td>Universities Roles → Entrepreneurial Roles</td>
<td>0.26</td>
<td>Indirect</td>
<td>Effect</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Intentions</td>
<td>Attitude towards goals → Entrepreneurial Roles</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Intentions</td>
<td>Intentions → TM → AG → EI</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Direct + Indirect</td>
<td>1.11</td>
<td>Effect</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Effect</td>
<td>0.85 + 0.26</td>
<td></td>
<td>Goals</td>
</tr>
</tbody>
</table>

*Source: Fig. 4.9*
### Table 4.16 Direct and Indirect effect of Family roles as Mediating variable

<table>
<thead>
<tr>
<th>Exogenous</th>
<th>Mediated</th>
<th>Endogenous</th>
<th>Path</th>
<th>Total Effect Estimate</th>
<th>Path</th>
<th>Hypothesis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Curricula</td>
<td>Entrepreneurial Intentions</td>
<td>Entrepreneurial Intentions</td>
<td>Curricula ➔</td>
<td>0.57</td>
<td>Direct</td>
<td>Effect</td>
</tr>
<tr>
<td>Curricula</td>
<td>Family Roles</td>
<td>Entrepreneurial Intentions</td>
<td>Curricula ➔ Family Roles ➔</td>
<td>-0.22</td>
<td>Indirect</td>
<td>Effect</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>C ➔ FR ➔ EI</td>
<td>0.35</td>
<td>Full mediating effect of</td>
<td>Attitude</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Direct + Indirect</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.57 + (-0.22)</td>
<td></td>
<td></td>
<td>H 1 (ii) asserted;</td>
</tr>
<tr>
<td>Teaching Methodologies</td>
<td>Entrepreneurial Intentions</td>
<td>Entrepreneurial Intentions</td>
<td>Teaching Methodologies ➔</td>
<td>0.84</td>
<td>Direct</td>
<td>Effect</td>
</tr>
<tr>
<td>Teaching Methodologies</td>
<td>Family Roles</td>
<td>Entrepreneurial Intentions</td>
<td>Teaching Methodologies ➔ Family Roles ➔</td>
<td>-0.22</td>
<td>Indirect</td>
<td>Effect</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TM ➔ FR ➔ EI</td>
<td>0.62</td>
<td>Full mediating effect of</td>
<td>Attitude</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Direct + Indirect</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.84 + (-0.22)</td>
<td></td>
<td></td>
<td>H 2 (ii) rejected</td>
</tr>
<tr>
<td>Exogenous</td>
<td>Mediated</td>
<td>Endogenous</td>
<td>Path</td>
<td>Total Effect</td>
<td>Path</td>
<td>Hypothesis</td>
</tr>
<tr>
<td>-----------</td>
<td>-------------</td>
<td>---------------</td>
<td>---------------------------</td>
<td>--------------</td>
<td>------</td>
<td>------------</td>
</tr>
<tr>
<td>Universities Roles</td>
<td>Entrepreneurial Intentions</td>
<td>Universities Roles</td>
<td>Entrepreneurial Intentions</td>
<td>0.79</td>
<td>Direct</td>
<td></td>
</tr>
<tr>
<td>Universities Roles</td>
<td>Family Roles</td>
<td>Entrepreneurial Intentions</td>
<td>Family Roles</td>
<td>-0.22</td>
<td>Indirect</td>
<td></td>
</tr>
<tr>
<td>Universities Roles</td>
<td>Family Roles</td>
<td>Entrepreneurial Intentions</td>
<td>Entrepreneurial Intentions</td>
<td>0.57</td>
<td>Full mediating effect of Effect</td>
<td>H3 (ii) asserted;</td>
</tr>
</tbody>
</table>

Source: Fig. 4.9
4.7.3 Analysis of the Hypotheses

The standardised regression weight is used to examine the mediating effect of attitude towards goals in Table 4.15 which shows the mediating effect of attitude towards goals on the relationship of the exogenous variables of curricula, teaching methodologies, universities roles and entrepreneurial intentions, as hypothesised in the competing model in Fig. 4.9.

The indirect effect of the exogenous variables to entrepreneurial intentions through attitude towards goals is shown in Table 4.15. The direct effect of curricula on entrepreneurial intentions is non-significant (standard regression weight = 0.18, p = 0.103) confirming hypothesis 1-H1 (i) as rejected. The direct effect of teaching methodologies on entrepreneurial intentions is non-significant (standard regression weight = 0.12, p = 0.259) confirming hypothesis 2- H2 (i) as rejected. The direct effect of universities roles on entrepreneurial intentions is significant (standard regression weight = 0.85, p = 0.000) confirming hypothesis 3-H3 (i) as accepted.

The indirect effect of the exogenous variables to entrepreneurial intentions through family roles is shown in Table 4.16. The direct effect of curricula on entrepreneurial intentions is significant (standard regression weight = 0.57, p = 0.041) confirming hypothesis 1- H1 (ii) as accepted. The direct effect of teaching methodologies on entrepreneurial intentions is non-significant (standard regression weight = 0.84, p = 0.395) confirming hypothesis 2 - H2 (ii) as rejected. The direct effect of universities roles on entrepreneurial intentions is significant (standard regression weight = 0.79, p = 0.000) confirming hypothesis 3 - H3 (ii) as accepted.

The total effects of attitude towards goals on the relationship between education variables (curricula, teaching methodologies and universities roles) and entrepreneurial intentions is higher or significant compared to direct effects.

The direct effect of attitude towards goals on entrepreneurial intentions is significant (standard regression weight = 0.26, p= 0.000) confirming the hypothesis 4 (H4) as accepted. The direct effect of family roles on entrepreneurial intentions is significant (standard regression weight = -0.22, p = 0.004) confirming the hypothesis 5 (H5) as accepted (refer Table 4.17). In this study, hypotheses 1(i), 2 (i) and 2 (ii) are rejected, but hypotheses 1 (ii), 3, 4 and 5 are accepted.
4.7.4 Composite Reliability and Discriminant Validity

The test for the average variance extracted (AVE) on the constructs show that AVE exceeded the square of the structural link between all the seven constructs, providing support for discriminate validity. The completely standardised parameters (factor loadings), composite reliability and AVE of both exogenous and endogenous constructs are shown in Table 4.18 below. Fornell and Larcker’s (1981) composite reliability score was calculated for each latent variable. Composite reliability is a mean of assessing the internal consistency of the items of a latent variable (Chin 1998). In the present study, all the variables reported a composite reliability score of 0.70 and above (refer Table 4.18), which demonstrates adequate reliability.

The AVE measures the amount of variance that is captured by the construct in relation to the amount of variance due to measurement error (Fornell & Larcker 1981). The AVE can be interpreted as a measure of reliability for a construct and it is recommended that the AVE should be greater than 0.50, indicating that the construct capture more variance in the items than measurement error (Chin 1998; Hair et al. 1998).

Table 4.19 shows that the AVE for each construct is above 0.50, except for the variance of entrepreneurial intentions (ENTINT) which has 0.442. All the other constructs account for 50% or more of the variance of its items. The AVE statistics can also be used to assess discriminant validity by calculating the square root of the AVE statistics and comparing them with the correlations among the latent variables (Chin 1998). This provides a test of whether more variance is shared between the latent variable and its set of items, than with other latent variables represented by a different set of items (Chin 1998).

Discriminant validity was established using the procedures outlined by Fornell and Lacker (1981). Table 4.18 shows the correlations between the latent variables and the average variance extracted (AVE) of each construct shown on the diagonal. Fornell and Lacker (1981) prescribe the squared correlation between constructs must be less than the average variance extracted (AVE) of each underlying construct, in order for the constructs to have discriminant validity. The square of a correlation between the constructs supports the average variance extracted by the constructs.
### Table 4.18 – Composite Reliability and Variance Extracted Results

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Composite Reliability (CR) $^b$</th>
<th>Variance Extracted (VE) $^c$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Exogenous Constructs</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Curricula</td>
<td>0.815</td>
<td>0.688</td>
</tr>
<tr>
<td>Teaching methodologies</td>
<td>0.906</td>
<td>0.762</td>
</tr>
<tr>
<td>Universities roles</td>
<td>0.763</td>
<td>0.519</td>
</tr>
<tr>
<td><strong>Endogenous Construct</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Entrepreneurial Intentions</td>
<td>0.699</td>
<td>0.442</td>
</tr>
<tr>
<td><strong>Mediating Construct</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attitude towards goals</td>
<td>0.849</td>
<td>0.651</td>
</tr>
<tr>
<td>Family roles</td>
<td>0.901</td>
<td>0.695</td>
</tr>
</tbody>
</table>

*Source: AMOS 16*

**Note:**

a) Completely standardized parameter. Square multiple correlations for each measure can be obtained by squaring the completely standardized parameter for the item (factor loadings).

b) Construct reliability computed as \((\sum \lambda)^2 / [\sum \lambda)^2 + \sum \text{var(\varepsilon)}\].

c) Average variance extracted, which is the proportion of variance in the construct that is not due to measurement error (Fornell & Larcker, 1981).

#### 4.7.5 Fundamental Contribution of Entrepreneurship education, Attitude towards goals, Family roles and Entrepreneurial intentions

The hypothesis testing was accomplished by examining the standardised parameter estimates, critical ratio and probability level. The two-tailed test of significance was used to determine the significance of each path coefficient. The results showed that the direct relationships and
indirect relationships of the hypotheses. The findings indicate the significance of the latent constructs of the exogenous and mediating variables against the relationship of the endogenous variable. Specifically, all the hypotheses must be supported. The SEM indicates that all the hypothesised paths in the theoretical model are at a significant level of (p<0.05).

The present study shows the hypothesised relationships based on the SEM results. The path estimates for the hypotheses were tested in the model. The 3 hypotheses of entrepreneurship education; curricula, teaching methodologies, universities roles were tested through the mediating variables of attitude towards goals and family roles, through direct and indirect relationships. The other 2 hypotheses of the mediating variables; attitude towards goals and family roles were tested directly against entrepreneurial intentions. The indirect effect analysis was employed to examine whether attitude towards goals and family roles are mediating variables in the relationship between entrepreneurship education and entrepreneurial intentions. The standardised factor loadings allowed the researcher to arrange the order of entry of variables based on causal priority and it is one of the most useful tools for assessing interaction effects (Ghazali 2003; Byrne 2010). This procedure enabled the partitioning of the unique variance explained by the interaction term above and beyond those accounted for by the main effects.

In the present study, a comprehensive two-stage analysis was used. The measurement model was first confirmed using CFA, and then SEM was performed based on the measurement model to estimate the fit of the hypothesised model to the data. The CFA 1st order analysis of entrepreneurial intentions of the measurement model was carried out to confirm that the three dimensions (curricula, teaching methodologies, universities roles) of entrepreneurship education are significant constructs to measure the endogenous variable. The measurement model which specifies and tests the relationship between the observed measures, and their underlying constructs provides a confirmatory assessment of construct validity (Bentler 1978). The direct causal relationship among the latent constructs as posited by the theory (Anderson & Gerbing 1988) was conducted. The confirmatory analysis of each dimension was carried out to confirm the items.

The next procedure was drawing the 2nd order of the five dimensions of entrepreneurial intentions which is the fundamental contribution of the present study. The results of the path analysis indicates a significant positive relationship between entrepreneurship education and entrepreneurial intentions (P=0.000). The indirect relationship between curricula through the
mediating variable, attitude towards goals and entrepreneurial intentions is $P=0.103 (P<0.05)$, shows a negative relationship. The indirect relationship between curricula through the mediating variable, family roles and entrepreneurial intentions is $P= 0.041 (P<0.05)$, shows a positive relationship. The exogenous variable of curricula is therefore, partially asserted with entrepreneurial intentions through the mediating variable family roles. The indirect relationship between teaching methodologies through the mediating variable, attitude towards goals and entrepreneurial intentions is $P=0.259 (P<0.05)$, shows a negative relationship. The indirect relationship between teaching methodologies through the mediating variable, family roles and entrepreneurial intentions is $P=0.395 (P<0.05)$, shows a negative relationship. The exogenous variable of teaching methodologies is rejected with entrepreneurial intentions ($P<0.05$). The indirect relationship between universities roles through the mediating variable attitude towards goals and entrepreneurial intentions is $P=0.000 (P<0.05)$, shows a positive relationship. The indirect relationship between universities roles through the mediating variable, family roles and entrepreneurial intentions is $P=0.000 (P<0.05)$, shows a positive relationship. The exogenous variable of universities roles is therefore asserted with entrepreneurial intentions ($P<0.05$).

The direct effect between attitude towards goals and entrepreneurial intentions is $P= 0.000 (P<0.05)$, shows a positive relationship. The direct effect between family roles and entrepreneurial intentions is $P= 0.004 (P<0.05)$, shows a positive relationship. The mediating variables of attitude towards goals and family roles are therefore asserted with entrepreneurial intentions ($P <0.05$).

The hypotheses that are supported in this study are shown below:

**H1 (i)** Curricula through attitude towards goals has a **negative relationship** with entrepreneurial intentions.

**H1 (ii)** Curricula through family roles has a **positive relationship** with entrepreneurial intentions.

**H2 (i)** Teaching methodologies through attitude towards goals has a **negative relationship** with entrepreneurial intentions.
H2 (ii) Teaching methodologies through family roles has a **negative relationship** with entrepreneurial intentions.

H3 (i) Universities roles through attitude towards goals has a **positive relationship** with entrepreneurial intentions.

H3 (ii) Universities roles through family roles has a **positive relationship** with entrepreneurial intentions.

H4 Attitude towards goals has a **positive relationship** with entrepreneurial intentions.

H5 Family roles have a **positive relationship** with entrepreneurial intentions.

The square multiple correlations (SMC) show the level of contribution (adjusted $R^2$) of each dimension to the mediating variables; attitude towards goals ($\beta=0.694$), family roles ($\beta=0.39$) and entrepreneurial intentions ($\beta=0.059$). The mediating variable contributes 69.4% variance of attitude towards goals indicating that attitude towards goals has medium level of contribution to the structural model. The mediating variable contributes 39% variance of family roles indicating that family roles have a medium level of contribution to the structural model. The endogenous variable of entrepreneurial intentions contribute 5.9% variance indicating that entrepreneurial intentions have a very low level of contribution to the structural model (Cohen & Cohen 1983; Hair et al. 2010).

The interaction effect using the re-specified model was conducted to confirm the significant relationships between attitude towards goals, family roles and entrepreneurial intentions. The significant level of factor loadings interaction between variables, confirm the mediating effect of attitude towards goals and family roles in the relationship between entrepreneurship education and entrepreneurial intentions. It shows the mediating effect of the variables attitude towards goals and family roles in the structural model. Square multiple correlations (SMC) contribute 5.9% of entrepreneurial intentions. The entrepreneurial intentions were explained through the mediating effect of attitude towards goals and family roles. According to Cohen and Cohen (1983), if the influence predicts more than 40%, the study confirms the indication as able and significant to figure the phenomena. In the present study, the result of SMC shows 5.9% of entrepreneurial intentions and is found to be not significant to the study.
4.8 Summary

The chapter discussed the data analysis procedure. It described the preliminary examination of data involving data cleaning, screening, recording and missing responses, and outliers through the multivariate assessment using the Mahalanobis distance and normality tests. Out of the total of 464 cases, only 396 cases were found to be usable for the analysis.

Descriptive statistics were used to analyse the demographic variables that comprised 18 items in the profile of the respondents. The profile of the students comprised of both males and females, within the age group of 21 – 25, including the three races of Malays, Chinese and Indians. The variable for the descriptive statistics were program study, program choice, family history of entrepreneurship, interests in the area of study, growth in the interest of entrepreneurship, motivation to become an entrepreneur and how entrepreneurship programs increase the skills positively, support entrepreneurship and entrepreneurial activities.

Reliability tests were conducted on all the composite variables and all of them were considered to have acceptable to excellent analysis of reliability. Validity tests were conducted namely; face validity (by conducting a pilot study), content validity (through the measurement scale of the dimension and elements of the concepts), content validity (to measure the consistency with the theory) and nomological validity by measuring by $\chi^2$, degrees of freedom and the p-value which should be >0.05 for significance. All of them supported the hypotheses for the study.

Structural equation modelling (SEM) was used to test the hypothesised model for goodness-of-fit indices and the hypotheses designed for the study. SEM is a powerful statistical technique that combines the measurement model or CFA and the structural model into a simultaneous statistical test. SEM is valuable in inferential data analysis and hypothesis testing, where the pattern of inter-relationships among the constructs are specified a priori and grounded in established theory (Byrne 2001).

The data were subjected to a CFA using AMOS 16.0, SEM software. Following the recommendations by Anderson and Gerbing (1988), the model was tested using a two-stage SEM. Firstly, CFA was performed to evaluate constructs validity on convergent and discriminate validity. All CFA on constructs were tested for goodness of fit indices, such as
CMIN/df ratio (<2), p value (>0.05), goodness of fit index (GFI) of >0.90 and root mean square error of approximation (RMSEA) of value less than 0.08 (<0.08).

A hypothesised CFA model was designed for testing through the use of a two stage Structural Equation Modelling technique. A total of 60 items were used to test the model which comprised the six variables of curriculum, teaching methodologies, universities roles, attitude, stakeholders support system and entrepreneurial intentions.

CFA 1st order analysis was conducted on the components of curriculum, teaching methodologies, universities roles and entrepreneurial intentions. The component of curriculum had nine items comprising course, subject, new experience, interests, entrepreneurial skills, learning by doing, better understanding, liking and tolerance of ambiguity. The CFA 1st order analysis eliminated three items resulting in six items. Teaching methodologies had nine items comprising relevant experience, not interesting, gain more knowledge, business plan models, practical sessions, excellent presentation, and stimulates interest and motivation. The CFA 1st order analysis eliminated 4 items resulting in five items. Universities roles had nine items comprising talk, focus, entrepreneurial spirit, policies, adequate facilities, innovative ideas, best place, resources and business ideas. The CFA 1st order analysis eliminated three items resulting in six items. Entrepreneurial intentions also had nine items for testing through the CFA 1st order analysis. After testing, three items were eliminated and this resulted in six items.

CFA 2nd order analysis was conducted on the components of attitudes and stakeholder support systems. The variable of attitude had twelve items to be tested comprising of rich, earn more, successful in life, make a lot of money, boring, enlarge circle of friends, many challenges, higher uncertainty, compete with others, work very hard, perform better, competitive nature. The CFA 2nd order analysis eliminated five items resulting in seven items. Stakeholder support systems had twelve items comprising of many opportunities, help in funding, government support, economic growth, financial support, burdened with loans, interest rates, credit, parents influence, assisting parents, provision of funds and role models. The CFA 2nd order analysis eliminated four items resulting in eight items.

A generated model was extracted after the CFA 1st order and CFA 2nd order analysis and the results did not show a good model fit. The generated model was tested again and a re-
specified model was generated confirming the significant loading of measurements, the low level of common and unique error showing the interaction among the predictors on the endogenous variable.

Although the re-specified model confirmed the final model of the hypothesised model, showing the goodness of fit indices, as a rule of thumb, the re-specified model was again revised. The mediating variable of attitude had only one variable in each of its components, so exploratory factor analysis was conducted and a new variable was renamed as ‘attitude towards goals’. The mediating variable of stakeholder support system had only one construct in its component of government namely ‘economic growth’ and it was included in the variable of university roles. Two components were eliminated leaving one component of ‘parents’ and it was renamed as ‘family roles’.

The competing model emerged as the final model with a goodness of fit of \( P = 0.321 \) (\( P > 0.05 \)), \( GFI = 0.966 \) (GFI>0.90) and \( RMSEA = 0.012 \) (RMSEA<0.08). Two new variables were created through the process and were named ‘attitude towards goals’ and ‘family roles’. This is a fundamental contribution to the theory.

Five hypotheses were developed for the study, namely curricula (H1), teaching methodologies (H2), universities roles (H3), attitude towards goals (H4) and family roles (H5) for the study. It was found that three of the hypotheses H3 (universities roles), H4 (attitude towards goals), H5 (family roles) were positively significant. H1 (curricula) was partially significant and H2 (teaching methodologies) was negatively significant.

The square multiple correlations (SMC), adjusted \( R^2 \) showed the dimensions to the mediating variables, attitude towards goals (\( \beta=0.694 \)), family roles (\( \beta=0.39 \)) and entrepreneurial intentions (\( \beta=0.059 \)). Details of the findings and conclusions are discussed in the next chapter.
CHAPTER FIVE

CONCLUSION AND FINDINGS

5.1 Introduction

The research problem of this thesis is presented in Chapter 1: How effective is entrepreneurship education in developing entrepreneurial intentions among Malaysian university students? Chapter 1 introduced the background of the study, research issues, theoretical framework and hypotheses, justification of the research, definitions of the terms, an overview of the research methodology, organisation of the thesis, limitations of the research and thesis contribution.

Chapter 2 reviewed the literature relating to the parent disciplines of entrepreneurship, entrepreneurship education and entrepreneurial intentions. Next, the immediate discipline established the theoretical framework with the development of a hypothesised model for the thesis which later was tested in Chapter 4. The gaps in the research led to 5 hypotheses to test entrepreneurial intentions in the model as shown in Fig. 2.20.

Chapter 3 described the research paradigms, the research methods and the research design, justifying the methodology adopted in the research. The data collection methods and issues of the questionnaire design were discussed, justifying the appropriate data collection method and questionnaire design. Sampling design was discussed further, and reliability and validity analysis were conducted using the pre-test questionnaires. The chapter discussed the data analysis procedures adopted and ethical considerations.

Chapter 4 discussed the data analysis through the questionnaire survey. It discussed the data analysis procedures of questionnaire response rate, missing responses, outliers and normality. The profile of the respondents (demographic characteristics) was analysed using descriptive statistics. The hypothesised model was later tested using structural equation modelling of AMOS 16, through confirmatory factor analysis and goodness-of-fit indices with the emergence of the generated, re-specified and competing models. The hypotheses were also explained using path analysis and providing a brief summary of the results.

This chapter has 8 sections, starting with the introduction in Section 5.1 and an outline of the final chapter shown in Fig. 5.1. Section 5.2 explains the discussions on data analysis. Section 5.3 discusses the implications of theory and practice.
Section 5.4 discusses the contributions of the study and recommendations for the study are discussed in Section 5.5. The limitations of the study are explained in Section 5.6 and suggestions of further research in Section 5.7, with the summary of the chapter in Section 5.8.

**Fig. 5.1 Outline of Chapter Five**

- 5.1 Introduction
- 5.2 Discussion of Data Analysis
- 5.3 Implications for Theory and Practice
- 5.4 Contributions of the Study
- 5.5 Recommendations for the Study
- 5.6 Limitations of the Study
- 5.7 Suggestions for Further Research
- 5.8 Summary

*Source: Developed for the Research*
5.2 Discussion of Data Analysis

The first objective of the study is to investigate the interaction of attitude towards goals, mediate the relationship between entrepreneurship education and entrepreneurial intentions. Second, the objective is to investigate the interaction of family roles mediate the relationship between entrepreneurship education and entrepreneurial intentions. Thirdly, the objective is to investigate the interaction effect of attitude towards goals and family roles in the relationship between entrepreneurship education and entrepreneurial intentions.

In order to test the direct relationship between entrepreneurship education variables and entrepreneurial intentions, the researcher used the measurement model recommended by previous researchers (e.g. Anderson & Gerbing 1988; Bentler 1978) to test the relationships between the observed measures and their underlying constructs and perform a confirmatory assessment of construct validity. In addition, the present study used a comprehensive two-stage analysis, in which the measurement model was first confirmed using confirmatory factor analysis on each dimension of entrepreneurship education, and then structural equation modelling was performed based on the measurement model to estimate the fit of the hypothesised model to the data. Through the 2nd order analysis on entrepreneurship education, the measurement model was tested through the mediating variables of attitude towards goals and family roles to confirm the five dimensions are significant constructs.

<table>
<thead>
<tr>
<th></th>
<th>Estimates</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude towards goals</td>
<td>0.694</td>
<td>69.4%</td>
</tr>
<tr>
<td>Family roles</td>
<td>0.390</td>
<td>39%</td>
</tr>
<tr>
<td>Entrepreneurial Intentions</td>
<td>0.059</td>
<td>5.9%</td>
</tr>
</tbody>
</table>

*Source: Amos 16*
5.2.1 The Mediating effect of Attitude towards goals in the Relationship between Entrepreneurship education and Entrepreneurial intentions

The first objective is to investigate whether attitude towards goals mediate the relationship between entrepreneurship education and entrepreneurial intentions. The model confirmed the mediating effect of attitude towards goals in the relationship between the constructs of entrepreneurship education and entrepreneurial intentions, as evidenced by the interaction effect of loading factor in the path of the hypothesised model.

Square multiple correlations (SMC) contribute 0.694 % variance of attitude towards goals in the model (refer Table 5.1). In such a situation, according to Cohen & Cohen (1983), attitude towards goals is moderately significant to the model. The indirect effect analysis of the model confirmed the mediating effect of attitude towards goals in the relationship between entrepreneurship education and entrepreneurial intentions. The result of the path analysis indicates the relationship between entrepreneurship education and entrepreneurial intentions. The direct positive relationship between universities roles was supported by the mediating effects of attitude towards goals to entrepreneurial intentions (p<0.05), and the other two components of curricula and teaching methodologies were supported with a negative relationship by the mediating effects of attitude towards goals (P>0.05). The variable of attitude towards goals contributes 64.9% to entrepreneurial intentions.

The findings of the study on universities roles relationship to entrepreneurial intentions are similar to Autio’s model of entrepreneurial intentions, which shows a positive relationship between the university environment and entrepreneurial intentions, where the attitudes of university students act as the mediator between university roles and entrepreneurial intentions (Autio et al. 1997 & Veciana et al. 2005). Similarly in a study by Luthje and Franke (2003), the importance of contextual factors in the university environment played a role in facilitating the occurrence and intensity of entrepreneurial behaviours among students and was found to be positive.

In the Malaysian context, it was stated in the literature that the universities roles through its programs and activities were in line with the government policies, such as the New Economic Policy, National Development Policy, New Vision Policy and the New Economic Model, that emphasise the importance of entrepreneurship towards achieving the objectives of national development (Zainal Abidin & Bakar 2004).
The findings of the study on curricula and teaching methodologies are similar to the ‘theory of Fayolle & Gailly’(2008), which states that ‘a typical university setting is unlikely to include entrepreneurial elements’. The theory explains that entrepreneurial education, unlike education in general involved human beings including their feelings and interests for thinking, new skills development and behaviour. It further argues that, entrepreneurs possess unique values and attributes and they cannot be developed or trained in classroom settings (Fayolle & Gailly 2008). The findings of the study for teaching methodologies do not support the learning process theories of ‘Social Cognition Theory’ of Bandura (Bandura 1986), the ‘Social Learning Theory’ by Wenger (1991) and ‘Shapero’s Model’ (Shapero 1975; Shapero & Sokol 1982).

The variable ‘attitude towards goals’ is similar to the variable of ‘attitude’ in the ‘Theory of Planned Behaviour’by Azjen and Fishbein(1980, 1991). The theory of Planned Behaviour (TPB) (Ajzen 1987, 1991) which is an extension of the ‘Theory of Reasoned Action’ (TRA) (Ajzen & Fishbein 1980) and the ‘Theory of Acceptance Model’ by Davis et al. (1989),suggests that a person’s behaviour is determined by his or her intention to perform the behaviour, and this intention is a function of his or her attitude towards the behaviour and his or her subjective norm.

Autio et al.(1997’s) study examined the influence of attitude in entrepreneurial career choice and confirmed a positive input of individual’s general attitude towards entrepreneurial conviction. Another study by Franke and Luthje (2004) also found a strong positive relationship between attitude towards self-employment and entrepreneurial intentions.

In this study, curricula and teaching methodologies did not support entrepreneurship intentions through the mediating factor of attitude towards goals. Universities roles supported entrepreneurial intentions through the mediating factor of attitude towards goals. Thus H3 (i) is accepted and H1 (i) and H2 (i) are rejected.

5.2.2 The Mediating effect of Family roles in the Relationship between Entrepreneurship education and Entrepreneurial intentions

The second objective of this study is to investigate whether family roles mediate the relationship between entrepreneurship education and entrepreneurial intentions. Square multiple correlations (SMC) contribute 0.39 % variance of family roles in the model (refer Table 5.1). In such a situation according to Cohen & Cohen (1983), family roles contribute
significantly to the model. The result of the path analysis indicates the relationship between entrepreneurship education and entrepreneurial intentions. The direct positive relationships between universities roles and curricula were supported by the mediating effects of family roles to entrepreneurial intentions (p<0.05), and the component of teaching methodologies was supported with a negative relationship by the mediating effects of family roles (P>0.05). The variable of family roles contributes 39% to entrepreneurial intentions.

The findings support the ‘strategic management theory’ by Freeman (1984) for universities roles towards entrepreneurial intentions. The roles of the universities as stakeholders were to create and disseminate knowledge through research and education (Pereira & De Silva 2003). The universities have an important role in the development of entrepreneurial education relevant for local and regional development and to determine how to best meet their needs for entrepreneurial development (Vollmers et al. 2001).

The findings support the ‘Entrepreneurial Career theory’ by Kolvereid (1996) for curricula towards entrepreneurial intentions. The theory highlighted the importance of perceiving entrepreneurship as an attractive career path for a person to engage in entrepreneurial activities and this was attained through the entrepreneurship educational programs. Students with a family history of entrepreneurship were found to be involved more in entrepreneurship activities (Delmar & Davidsson 2000).

The findings of teaching methodologies with a negative effect on entrepreneurial intentions support ‘The Personality Traits Model’. Characteristics such as achievement, tolerance of ambiguity and locus of control are attributed to an entrepreneur. Individuals with these characteristics are inborn and not taught in classroom settings (Babb & Babb 1992). The ‘Theory of Achievement’ by McClelland (1976) also supports the findings, as individuals with strong need for achievement demonstrated higher performance in challenging tasks, and looked for ways to improve their performance and these traits were inborn characteristics.

The findings support the ‘Social Factor Model’ for family roles towards entrepreneurial intentions. The ‘Social Factor Model’ states that personal background and family background are early life experiences and growth environment for entrepreneurship (Robinson et al. 1991, Greene et al. 1996; Alstete 2002). Another theory that supports the findings is the ‘Career Socialisation Theory’ which suggested that children of entrepreneurs were likely seen to have entrepreneurial careers than working for others (Dyer 1992).
The ‘Theory of Planned Behaviour’ by Ajzen and Fishbein (1991) also supports the findings. It has the component of ‘social norms’, which states that the beliefs of relevant groups such as family, close relatives, friends, colleagues and customers were found to have an effect on entrepreneurial intentions (Davidsson 1995).

Similarly in the Malaysian setting, some studies were found to have a significant relationship between family background and entrepreneurial intentions (Crant 1996; Matthews & Moser 1996; Abd. Hadi 2002).

In this research curricula and universities roles support entrepreneurial intentions, through the mediating factor of family roles, while teaching methodologies does not support entrepreneurial intentions through the mediating factor of family roles. Thus, H1 (ii) and H3 (ii) are accepted and H2 (ii) is rejected.

5.2.3 The Interaction Effect of Attitude towards goals and Family roles in the relationship between Entrepreneurship education and Entrepreneurial intentions

The third objective of this study is to empirically explore the interaction effect of the variables of attitude towards goals and family roles in the relationship between entrepreneurial education and entrepreneurial intentions.

Direct and indirect effects were employed to determine the effects of the combination of attitude towards goals and family roles in the model. All loadings confirmed significant levels. The contribution of attitude towards goals and family roles act as mediating variables in the relationship between curricula, teaching methodologies, universities roles and entrepreneurial intentions. The total effect estimation (H4) and (H5) confirmed the mediating effect of attitude towards goals and family roles in the relationship between entrepreneurship education and entrepreneurial intentions. Attitude towards goals has a significant standardised regression weight (P<0.05), which confirmed the full mediating effect in the relationship. Family roles also show the significant influence (P<0.05) in the model.

The indirect effect estimates for both hypotheses is higher than the direct relationship. The total effects of attitude towards goals and family roles variables in the relationship between entrepreneurship education and entrepreneurial intentions were used to evaluate the overall interaction in the model.
The structural model indicated the significance of full mediation effect of attitude towards goals and family roles variables in the relationship between entrepreneurship education to entrepreneurial intentions (SMS = 0.059\%). Square multiple correlations (SMC) contribute 5.9\% through the mediating effect of attitude towards goals and family roles in the relationship between entrepreneurship education and entrepreneurial intentions. The interactions effect among variables in the structural equation model confirmed the significant relationship between entrepreneurship educations constructs, attitude towards goals and family roles as mediating variables and entrepreneurial intentions. The findings show that there is an interaction effect of attitude towards goals and family roles, in the relationship between entrepreneurship education and entrepreneurial intentions. The interaction effect contributes 5.9\% to predict entrepreneurial intentions. Thus, H4 and H5 are accepted (see Table 4.18).

The findings of the present study show that attitude towards goals and family roles serve as a mediator in the relationship between entrepreneurship education and entrepreneurial intentions. The structural equation modelling indicates that the three hypothesised paths in the theoretical model are at the significant level (P<0.05), one hypothesised path in the theoretical model is non-significant (P>0.05), and one hypothesised path in the theoretical model is partially supported (0.05<P<0.05). In other words, three hypothesised relationship were supported (H3, 4 and 5), one hypothesised relationship was not supported (H2) and another hypothesised relationship partially supported (H1) based on the structural equation modelling results and the path estimates for the hypothesised testing in the model.

This means all the three research objectives were met. Thus on the context of the present study, it can be summed up that entrepreneurship education variable of universities roles, attitude towards goals and family roles fully support entrepreneurial intentions; whilst teaching methodologies, does not support entrepreneurial intentions; and curricula partially supports entrepreneurial intentions through family roles, according to the Malaysian settings in the study.

5.3 Implications for Theory and Practice

This section discusses the implications for theory and practice based on the findings of the study. The practical application of the research findings will be discussed in detail in the recommendations section.
5.3.1 The Mediating Effect of Attitude towards goals in the Relationship between Entrepreneurship education and Entrepreneurial intentions

Entrepreneurial intentions are related to attitude towards goals. Individuals who have goal-seeking attitudes; strive to earn more, face challenges and the willingness to work hard are related to entrepreneurial success. The ‘Theory of Planned Behaviour’, ‘Theory of Reasoned Action’ and the ‘Theory of Acceptance’ suggest that a person’s behaviour is determined by the intentions. These theories supported the entrepreneurial intentions of individuals whose goals were to be self-employed. The studies by Autio et al.(1997) and Franke Luthje (2004) also supported the theory, which revealed that attitude was related to self-employment and entrepreneurial intentions.

In addition, the universities were seen to play a strategic role in cultivating and dissemination entrepreneurial knowledge among students and the university environment played an important role in facilitating the occurrence of positive entrepreneurial behaviours (Autio et al. 1997; Franke Luthje 2003).

The findings of the present study showed that attitude towards goals mediate the relationship between entrepreneurship education through the universities roles and entrepreneurial intentions. The negative effects can be reduced if the universities take extra efforts to make the curricula and teaching methodologies more interesting, creative, innovative and equipped with modern technologies.

5.3.2 The Mediating Effect of Family roles in the Relationship between Entrepreneurship education and Entrepreneurial intentions

The findings support the mediating effect of family roles in the relationship between entrepreneurship education and entrepreneurial intentions. Individuals with entrepreneurial family history were seen to be more entrepreneurially inclined. The ‘Career Socialisation Theory’ supports the findings, which explained that children of entrepreneurs were likely seen to have entrepreneurial careers than working for others (Dyer 1992). In addition, the ‘Social Factor Model’ theory suggests that personal background and family background were early life experiences and growth environment for entrepreneurship (Robinson et al. 1991; Greene et al. 1996; Alstete 2002).
The ‘Theory of Planned Behaviour’ by Ajzen and Fishbein (1991) in the component of ‘social norms’ states that the beliefs of relevant groups such as family, close relatives, friends, colleagues and customers were found to have an effect on entrepreneurial intentions (Davidsson 1995).

The findings of the ‘Strategic Management theory’ by Freeman (1984) support the universities roles towards entrepreneurial intentions through the mediating effect of family roles. The theory states that the universities as one of the stakeholders played an important role in the development of entrepreneurship education, not only in dissemination of entrepreneurial knowledge to students (Pereira & De Silva 2003), but for local and regional development to meet the needs for entrepreneurial development (Vollmers et al. 2001).

The ‘Entrepreneurial Career theory’ by Kolvereid (1996), supports curricula towards entrepreneurial intentions through the mediating effect of family roles. The theory highlighted the importance of perceiving entrepreneurship curricula as an attractive path to engage in entrepreneurial activities. Students with a family history of entrepreneurship were found to be involved more in entrepreneurship activities (Delmar & Davidsson 2000).

The findings of the present study showed that family roles mediate the relationship between entrepreneurship education through curricula, the universities roles and entrepreneurial intentions. The negative effects can be reduced if the universities take extra efforts to improve the teaching methodologies by including business plans, increasing entrepreneurial activities with student participation, internship and partnership activities with small and medium industries etc.

**5.3.3 The Interaction of Attitude towards goals and Family roles in the Relationship between Entrepreneurship education and Entrepreneurial intentions**

In addition, the ‘Social Factor Model’, ‘Career Socialisation Theory’ and ‘Entrepreneurial Career Theory’ indicated that students with a family history of entrepreneurship were found to be more involved in entrepreneurial activities (Robinson et al. 1991; Dyer 1992; Kolvereid 1996; Greene et al. 1996; Delmar & Davidsson 2000; Alstete 2002).

The 3 components of entrepreneurship education in this study are: i) Entrepreneurship curricula which includes opportunity recognition, marshalling and commitment of resources for creation and operation of business ventures (Kourilsky 1995; Gibb 2002), ii) Teaching methodologies which include pedagogies and innovative studies to equip students adequately for their future careers (Fiet 2000b; Matlay 2005; Fayolle 2008), iii) Universities roles which include promoting students’ participation in various technology transfer activities, research and outreach activities (Autio et al. 1997; Franke & Luthje 2003; Kuratko 2005; Nurmi & Paasio 2007).

According to the Malaysian settings, research conducted in some public and private universities were found to have a significant positive relationship between entrepreneurship education and entrepreneurial intentions (Jumaat, Ishak & Salehuddin 2001; Nor Aishah & Yufiza 2004; Kamariah, Yaacob & Wan Jamaliah 2004; Yusof et al. 2008).

Some studies and surveys found that majority of students preferred to take up job employment, rather than self-employment and it was also stated that only a small percentage of students turned out to be entrepreneurs after their graduation (MECD statistical report 2004; Norasmah 2006). Studies also showed a significant relationship between family background and entrepreneurial intentions (Crant 1996; Matthews & Moser 1996; Hadi 2002).

The findings in the present study revealed that the Malaysian government’s expectation of providing entrepreneurship education to develop entrepreneurial intentions among the university students is still low (5.9%), with a moderate level of attitude towards goals (64.9%) and a moderate level of family roles (39%) acting as mediating variables. The results of the findings led to the contributions for the study, which are discussed in the next section.
5.4 Contributions of the Study

This section discusses the theoretical, methodological and practical contributions to the study.

5.4.1 Theoretical Contributions

The theoretical perspective of this study has contributed significantly to the study on entrepreneurship education, by providing a clearer theoretical perspective on entrepreneurship education, entrepreneurial intentions, attitude towards goals and family roles, and the relationship between entrepreneurship education and entrepreneurial intentions. Specifically, this study gives a better understanding of the mediating effect of attitude towards goals and family roles in the relationship between entrepreneurship education and entrepreneurial intentions.


5.4.2 Methodical Contributions

The entrepreneurial intention (ENTINT) instrument was developed and used in other countries’ settings. The methodological perspective of this study contributed significantly to the study on entrepreneurship education by assessing and validating entrepreneurship education variables of curricula, teaching methodologies and universities roles, with the mediating effects of attitude and stakeholder support systems in a different setting that is, in the context of university students in Malaysia.

5.4.3 Practical Contributions

The practical perspective findings in this study are important to the educational sectors in Malaysia, particularly the government in improving its policies, strategies and systems in terms of entrepreneurship education.

This study contributes significantly to the public and private universities, particularly concerning the policies and practices in the selection and management of educational curricula, teaching methodologies and pedagogies of entrepreneurship education.
The focus on entrepreneurship education is adapted by most of the public and private universities in Malaysia. The education system involving entrepreneurship education is used effectively by the Malaysian universities as monitors of the strategic roles, in which they play to increase the number of entrepreneurial graduates in the employment market.

The present study will contribute significantly to the operational elements of the educational systems of entrepreneurship education, with regard to the quality of programs, human resources, roles of the universities, aid from the government, government-linked organisations and financial institutions and lastly, the parents and extended family members of the university students. The study could assist both the internal and external stakeholders in understanding the unemployment situation of the country and how entrepreneurship education could be motivated with a world-class education system, as desired by the Malaysian university students to gain entrepreneurial intentions.

5.5 Recommendations

This section suggests recommendations for practical implementation by the Malaysian universities and the government in an effort to improve entrepreneurship education systems in the country.

5.5.1 Entrepreneurship Programs

The programs conducted in the universities on the subject of ‘entrepreneurship’ should be made as a compulsory subject to all university students in the country, as it is timely in providing basic entrepreneurial knowledge and skills. Specific entrepreneurial courses should be included in the programs to develop entrepreneurial knowledge and skills, such as business planning, entrepreneurial finance, creativity and innovation, marketing and field projects. The courses could involve innovative co-curricular programs, outside the classrooms, focus on students ‘live’ entrepreneurial programs, as a comprehensive venture accelerator of student-run entrepreneurial organisations and forums, and entrepreneurial eco-systems as in the educational institutions in the Western countries.

Entrepreneurship curricula should consider the features to start up business ventures and include teaching of the fundamentals needed for those employment skills. The course content of entrepreneurship that is informal and include hands-on learning methods. The teaching of
core structures should include: critical thinking, experiential learning methods, visits to industries and business areas, inviting guest speakers who are successful entrepreneurs. Though these skills are not sufficient enough to make successful entrepreneurs they are able to prepare the university students for involvement in entrepreneurship careers in future.

The Malaysian universities will benefit if they have collaboration with partnership programs, or consulting relationships from world-class institutes, such as Babson College, Massachusetts Institute of Technology, Stanford University, which have a leading brand in entrepreneurship education. Through these partnership programs the universities will gain the support for the development and management of the entrepreneurship programs, the infrastructure of centres set up for entrepreneurship courses and advice on the management and operations of the programs. The groups of students will jointly develop state of art curricula, perform research on entrepreneurial development and initiate collaborative projects with international partners.

5.5.2 Teaching Methods and Pedagogies

Entrepreneurship is a process of identifying an opportunity, understanding and acquiring resource requirements, planning and implementing. The teaching of entrepreneurship courses should not be undertaken in mere classroom settings, but rather as a process which involves start-up businesses, entrepreneurial activities, design-based learning and reflective practices.

Starting businesses as part of coursework by the students in the first year of their courses is a way of encouraging them for the entrepreneurial process, as the focus is on entrepreneurship recognition, resource planning, team development, holistic thinking and value creation. Incorporating real-world practice of business creation into the entrepreneurship courses will assist the students in developing a level of insight and confidence from practicing methods for navigating unknown territories, experience success and failure, gain knowledge and importance of leadership, managing human resources, decision-making and effective communication skills.

Hands-on learning approaches including business plan competitions and experimental games in the entrepreneurial curricula make it more interesting. The purpose of this method of teaching is to compact business creation process, in order to map the creation of organisational culture through the way the student, as an entrepreneur, uses his or her time and money in relation to the business, employees and the community.
Applied disciplines, such as entrepreneurship courses are better served by ‘design-based’ learning and teaching. The ‘design-based’ learning method equips skills in observation, synthesis, critical thinking, searching alternatives, feedback, problem-solving and value creation. Teaching entrepreneurship through a ‘design-based’ approach can help the students to identify and act on unique venture opportunities, using a tool-kit of observations, fieldwork and understanding value creation across multiple stakeholder groups.

Entrepreneurship is a continuous cycle of action learning, testing, experimenting and developing students as reflective entrepreneurs, and the focus should be on reflection-on-practice (doing, learning, thinking as a process) and reflection-in-practice (doing, learning, thinking as a behavior), as part of a pedagogy portfolio; it should not involve teaching entrepreneurship but teaching how to navigate entrepreneurship.

5.5.3 Role of the Malaysian Universities

The Malaysian universities need to re-evaluate the curricula if they are to promote entrepreneurship in an effective way. The traditional-based teaching and pedagogical approaches need to be overhauled. They have to create an entrepreneur friendly environment to instil entrepreneurial behaviour among the students. It is essential to promote an entrepreneurial environment through the introduction of entrepreneurial courses and entrepreneurial activities. Entrepreneurial clubs could be set up to coordinate and organise entrepreneurial activities. The students get exposed to practical experiences of entrepreneurship and to real-business world situations through active participation in entrepreneurial activities.

The universities should cultivate an enterprise culture across campuses to influence the students’ decisions for business creations. It is pertinent to present a positive image of entrepreneurship as a career option to draw the students’ attentions within the university environment. Even though individuals have the relevant knowledge and skills, they must have an interest, motivation and a positive image to venture into the business field.

Though the current programs and activities in Malaysian universities are in line with the government policies there is a need to emphasise and cultivate a strategic direction towards entrepreneurship to achieve the national objectives. Suggestions are for extended internship
programs, entrepreneurial trainings, technology spin-off activities, entrepreneurial clubs, partnership with SMEs and international universities that are entrepreneurially inclined.

5.5.4 Attitude of Students towards Entrepreneurship

Students enrolled for entrepreneurship courses require a different learning approach from the other courses. Entrepreneurship students are considered as proactive, creative and innovative learners, and should possess exceptional personality traits and skills, directed to entrepreneurship. Considering this, the Malaysian universities should design a curriculum that would suit to entrepreneurial learning purpose, and change their conventional teaching methods to more on hands-on learning approach and experiential learning. Entrepreneurship students should have access to unconventional teaching methods such as: internships, entrepreneurial simulations and activities, spin-offs, business plan competitions and focus on more technology-related business activities.

They should be exposed to more on analytical, creative thinking, problem-solving, innovative, decision-making and effective communication skills, in their entrepreneurial programs and activities to motivate them towards entrepreneurship. A ‘student-centred’ learning approach, instead of a ‘teacher-centred’ learning approach is more suited to entrepreneurship students. This approach is based on an individual’s creativity, analytical and working skills, and even with the intent of changing of behaviour towards entrepreneurship. Preparing them for business plans and starting business projects would increase their attitude towards entrepreneurship, where they are actively involved in such projects which could eventually turn out as a small business for them in future. The universities could encourage internship and partnership with small medium industries for the students to actively participate and involve in business projects.

Though the university and policy makers could do their best for the students in the new learning approach for entrepreneurship education it still depends on the attitude and cooperation of the students to be actively involved, participate in and having an interest in becoming future entrepreneurs in the country.

5.5.5 Role of the Malaysian Government

The aim of the Malaysian government is fostering the development of entrepreneurial activities through many of its support programs by the government agencies and
The government’s focus is on restructuring the Malaysian society, mainly the Bumiputras to own 30% of the corporate wealth of the country to achieve rapid growth and industrialisation. The National policies were introduced to achieve this objective.

In addition to this, under the 9th Malaysia Plan the government had planned various activities and programmes in the institutions of higher learning in order to produce 150,000 entrepreneurs among the graduates (MECD statistics 2008). Through the provision of financial aid to help graduates venture into new businesses (SME Bank Annual Report 2006), the focus of the government was on Malay graduates to involve more in entrepreneurship, but to-date the government still has not achieved this objective.

The government should play a more active role in the development of entrepreneurship by providing more assistance to the SMEs through funds; small and medium business loans, implementation of acculturation programs, increase entrepreneurial training and set up more training centres for graduates to enhance their skills and technology. In addition to this, the government should create and encourage more business opportunities to ensure more Bumiputras venture into entrepreneurship. There should be more support and assistance programs; including guidance, promotion of entrepreneurial activities, marketing, financing and provision of business premises.

5.5.6 Small Medium Enterprises
There are many challenges faced by SMEs in Malaysia which are linked to the ability to move up the value chain and to adopt to new ways of managing. Competing with large markets in Asia is tough as they must have quality, cost, reliability and speedy delivery in the global market. The focus should not be only in the domestic market but towards a niche in the world global supply chain.

Most of the global corporations are relying increasingly on internet based business-to-business. The SME owners and managers in Malaysia have limited knowledge of acquisition and shortage of skills for the business environment due to a general lack of knowledge and information. The SME agencies should equip them with more training on internet based businesses.
Many of the SME owners and managers started their industries as apprentices lacking global business exposure, and find business seminars and conferences organised by big business vendors as unnecessary for their businesses. Thus, they tend to have an information gap about new ideas and products that could transform their operations. The relevant SME agencies should work towards changing the mindset of the owners and managers not only from financing perspectives, but to ways of networking internationally.

5.5.7 Role of the Malaysian Financial Institutions
The financial institutions set up in Malaysia for entrepreneurial development are: the SME Bank, Credit Guarantee Corporation, Commercial banks, Venture capital companies, Central Bank, Ministries and agencies. Their main role is the disbursement of loans to approved SMEs and entrepreneurs and providing advisory services.

There have been complaints that too much time is spent on processing the loan applications to disburse the approved loans and have complicated procedures. These issues could be addressed by having a simple loan application without complicated procedures and a one-stop centre that would consolidate the government financing, where all the parties could obtain standardised information on financing schemes.

Another complaint is the slow processing of guarantee covers and charging high guarantee fees by the participating banks of the Credit Guarantee Corporation. Expanding the advisory services is one method of improving this process. The SME Credit Bureau serves as a one-stop centre for information and financing schemes on SMEs.

5.5.8 Parents and Extended family members
Individuals with close family members who own businesses are likely to become future entrepreneurs, compared to those who do not. The advantage of individuals with parents or close family members owning businesses is that, they are able to provide access to relevant information, markets, financial support, and other necessary resources for business information. The involvement of family in entrepreneurship creates a profound opportunity for understanding how entrepreneurship qualities develop. The individuals with entrepreneurial parents and family members have a strong tendency to develop a critical role in developing leadership values, styles and behaviour.
Entrepreneurial parents tend to provide inspiration, encouragement and support for their children at a young age to get involved in entrepreneurial activities. The encouragement given by parents is the first step that directs the students to take up entrepreneurial activities. Second is the continuous involvement in family business that will enhance the students’ awareness and change their perceptions on entrepreneurial capabilities. Thirdly, the entrepreneurial parents would enhance the students’ confidence in business through close guidance and monitoring them. Fourthly is when the students perceive their parents or family members as entrepreneurial leadership role models with whom they want to engage with in understanding and doing the business.

Parents act as role models not only in their leadership style, but also in recognising entrepreneurial opportunities and being adventurous in trying out new business ideas. The impact of family business goals will increase students’ intentions to start-up businesses and enhance their self-efficacy in leading entrepreneurial activities. The parents who are not entrepreneurs should also encourage their children to be involved in entrepreneurial activities.

5.5.9 Other Recommendations

There are other recommendations which the government and policy holders should take into consideration in the current situation.

i) Information Technology related businesses

The global situation is linked to information technology where businesses could be set up in homes and virtual offices. Considering this, the university students should be more IT savvy and have adequate knowledge of how businesses could be set up through the web-sites and internet. The Malaysian universities should encourage the students to look into all possibilities of business operations. These business operations could be set up easily without many formalities, easy access and providing them with the necessary knowledge and trainings.

ii) Training

Training in entrepreneurial activities is important for the undergraduates. The training programs should be more practical-orientated and should run for a few months. The courses should emphasise the pre-start and start-up stages of business creation, as they are the most
challenging stages for embarking on a business venture. The ability to recognize and seize business opportunities and have experienced staff to conduct the training for the undergraduates is important. This would prepare the students with the adequate knowledge and skills for entrepreneurial careers.

iii) Establishing links with business organisations
The universities should have strong links with industries or multinational companies, where they could send the students for internship programs or gain practical experiences in entrepreneurship. The internship programmes should be made compulsory for the university students, as it is crucial for them to learn and apply the practical knowledge during their working time. These collaborations will be beneficial to the students in acquiring the entrepreneurial knowledge and skills for preparing in the business ventures.

iv) Business and Advisory Centres
Many of the university students have the knowledge and skills, but lack experience in the procedures of setting up businesses and how to run them. The universities could set up business and advisory centres in their campuses and have experienced staff help the students who have the interest to start their own businesses. They could act as mentors and provide information on funding, start-up processes, product development, business plans, business premises and advice on legal procedures.

5.6 Recommendations based on the findings of the literature review
The literature review developed the variable of entrepreneurship education with the components of entrepreneurship curricula, teaching methodologies and universities roles. Based on the findings the following recommendations are offered.

i) The entrepreneurship programs introduced in the curricula are recommended to be in collaboration and partnership with foreign universities.

ii) Teaching methodologies should include a reflective on practice to motivate students in entrepreneurship studies.

iii) Universities should cultivate an enterprise culture across the campuses and increase internship programs and entrepreneurial training.
iv) A new learning approach in entrepreneurship education is required to increase the students’ attitudes in entrepreneurial activities.

v) Additional measures should be taken to support entrepreneurial activities and enterprise culture in the country, through the strengthening of stakeholder support systems. These include government support, financial institutions, small medium industries and parents, and extended family members.

5.7 Limitations of the Study
The findings in the present study display some shortcomings. These limitations need to be recognised when interpreting the findings of this study, while at the same time recognises the opportunities which it presents for further research. The limitations are discussed below.

The present study was conducted in the four entrepreneurship focused universities in Malaysia. There are other public and private universities that are also focused in entrepreneurship studies, but not included in the study. Thus, the study is limited to only the four entrepreneurship-focused universities in Malaysia. The study examined the relationships between entrepreneurship education and entrepreneurial intentions and the mediating effects of attitude and stakeholder support systems in the relationships. The study is limited to the relationship between these variables only.

The methodology employed was the survey method using a set of questionnaires. Through this method the research attempts to predict entrepreneurial intentions of students in the Malaysian universities, by questioning what they will do, or what assumptions they would make about their likely behaviour, based on how they have answered the questionnaires. Thus, the limitation of the interpretation of the results is limited to the survey research method only.

The study utilises the stratified sampling techniques to determine the sampling size. Due to the sampling technique employed, the finding is limited to the sampling technique. The sample population included were not only the Malaysian university students. The sample of the population might have underrepresented, as among them were foreign students pursuing
the entrepreneurship courses, but it was a small percentage of the total population. The finding is limited to the sample population.

Samples of the study are students pursuing business and information technology programs in the four Malaysian universities. The study does not take into account of all the views of the students pursuing other courses in the Malaysian universities at large. The results of the findings are limited to the views of business and information technology students pursuing entrepreneurship courses in the four Malaysian universities only.

The study used 7-point Likert-type scale for respondents to indicate their degree of agreement with the statements on entrepreneurship education, attitudes, stakeholder support systems and entrepreneurial intentions. Thus, the content of the study is limited to the understanding that all respondents understand the statements in the questionnaires used for the study. In the present study, the instrument measured perceptions. It has been assumed that the respondents were telling the truth about their perceptions on entrepreneurship education provided by the Malaysian universities.

The present study used a cross-sectional study, and not a longitudinal study to view entrepreneurial intentions among students. The finding of the research is limited to a cross-sectional study. Factors like students’ intentions are likely to change over time and could be influenced by other factors not covered in the research study. The constructs were measured with multi-items scales and may result in loss in scale validity and reliability.

5.8 Suggestions of Further Research

Considering the limitations of the present study, there are promising avenues for future research. It is proposed that further research should consider the following areas or aspects. The present study was conducted to investigate the mediating effect of attitude and stakeholder support systems in the relationship between entrepreneurship education and entrepreneurial intentions in four entrepreneurship-focused universities in Malaysia.
Future research may be conducted in other universities by modifying some of the dimensions found in the present study. Such studies could enrich knowledge on variables in the evaluation of entrepreneurial intentions within the entrepreneurship education settings.

The present study employed the survey method that used a set of questionnaires as measurement scale. Future studies could consider the use of other tools, such as interviews and focus groups, to collect the required data for measuring entrepreneurship education and entrepreneurial intentions.

In the present study, the instrument measured perceptions. The study employed was the survey method using a set of questionnaires. Through this method, the research attempts to predict entrepreneurial intentions, by asking what they will do and make assumptions about their behaviour based on how they have answered the questionnaire. The present study emphasises on what the respondents say and they will do, or what the researcher assumes they will do.

Future research should emphasise on what the respondents do by using the direct interaction research method or interview methods. The primary benefit of this method is that it allows the researcher to employ the direct interaction, whereby the researcher may have direct contact with the respondents and the contact personnel during the interactions. Through this method there will be a two-way communication, where any unclear questions or doubts could be answered.

The present study is limited to only business and information technology students. Future research could be conducted with non-business students, in the fields of engineering, hospitality, legal, architecture, accounting and medical fields. The study is also limited to only four Malaysian universities. There is a likely tendency that further research needed to be conducted to test the students in other entrepreneurship-focused Malaysian universities.

The current research focuses on cross-sectional study and does not examine the entrepreneurial intentions on a time-line basis. The time frame between the students’ graduation and their involvement in entrepreneurial activities is not taken into account. Further research could be conducted to examine the entrepreneurial intentions on a longitudinal study to evaluate the number of university students who have turned entrepreneurs in the country. This assertion needs to be validated by further research that
includes independent replications. The mediator model could be expanded and validated beyond the attitude and stakeholder support systems.

Further research exploring the relationship between entrepreneurship education and entrepreneurial intentions is necessary and appropriate.

5.9 Summary
The conclusion and findings of this study has discussed the three research objectives developed for the study in the context of the Malaysian universities. The first objective is to investigate the interaction of attitude towards goals, as a mediator between the relationship of entrepreneurship education and entrepreneurial intentions. The second objective is to investigate the interaction of family roles, as a mediator between the relationship of entrepreneurship education and entrepreneurial intentions. The third objective is to investigate the interaction effect of attitude towards goals and family roles in the relationship between entrepreneurship education and entrepreneurial intentions.

The findings present that 64.9% contribute to attitude towards goals; 39% contribute to family roles; and 5.9% contribute to entrepreneurial intentions. Both attitude towards goals and family roles have acquired a moderate level but entrepreneurial intentions have a low level in the present study.

The findings contribute to some of the theories related to both the mediating variables attitude towards goals, family roles and entrepreneurial intentions. The implications of the theory with regard to theoretical, methodological and practical contributions were discussed. Recommendations were proposed as to how curricula and the teaching methodologies could be revamped to boost the entrepreneurial intentions of the students. The roles of policy makers such as the universities, the government, SMEs, financial institutions, parents and extended family members’ contributions towards entrepreneurial intentions have been discussed. Limitations of the present study were presented and suggestions for further research have been proposed, concluding that exploring the relationship between entrepreneurship education and entrepreneurial intentions is necessary and appropriate. The new model is for further study is shown in Fig. 5.2.
Fig. 5.2 Proposed New Model for Further Study

- Curricula
- Teaching methodologies
- Universities roles
- Independent variables
- Attitude towards goals
- Family roles
- Mediating variables
- Entrepreneurial Intentions
- Dependent variable

H1

H2

H3

H4 (i): Earn more money
H4 (ii): Challenge
H4 (iii): Work harder

H5 (i)
H5 (ii)
H5 (iii)

H4

H6

Source: Developed for the study
6.0 References


Aldrich, H E & Martinez, M A 2001, 'Many are called, but few are chosen: An evolutionary perspective for the study of entrepreneurship', Entrepreneurship Theory and Practice, vol. 25, no. 4, pp. 41-56.


Autio, E, Keeley, R H, Klofsten, M 1997, 'Entrepreneurial intent among students: testing an intent model in Asia, Scandinavia, and USA',' Frontiers of Entrepreneurship Research', Babson College, Wellesley, MA.


Bagby, D R & Stefz, P 1993, 'Can entrepreneurship be taught?'Baylor University, Waco, TX.


Béchard, JP & Gregoire, D 2005 b,'Understanding teaching models in entrepreneurship for higher education', in Kyro, P, Carrier, C (Eds), The Dynamics of Learning Entrepreneurship in a Cross-cultural University context, Faculty of Education, University of Tam.


Birch, D L 1987,'Job creation in America: How our smallest companies put the most people to work', New York: Free Press.


Burgelman, R A 1983,'Corporate entrepreneurship and strategic management: Insights from a process'.


Burns, R B 1997,'Introduction to research methods', (3rd ed.) Australia: Longman.


Cameron, R & Miller, P 2007,'Mixed methods research: Phoenix of the paradigm wars in proceedings' in the 21st ANZAM conference Australian & New Zealand Academy of Management, Sydney Dec’07.


Cavana, R Y, Delahaye, B L & Sekaran, U 2001, 'Apply business research: Qualitative and Quantitative', John Wiley and Sons Australia, Milton, Queensland.


Cheng, M Y & Chan, C2004, 'Entrepreneurship education in Malaysia'.


Davidsson, P 1995,'Culture, structure and regional levels of entrepreneurship'. *Entrepreneurship and Regional Development*, vol. 7, pp. 41-62.


De Pillis & Reardon 2007, 'The influence of personality traits and persuasive messages on entrepreneurial intention: A cross-cultural comparison', *Career Development International*, vol. 12, issue 4, pp.382.


Deshpande, R 1983, 'Paradigms lost: on theory and method research in marketing', vol. 51, no. 2.


Fallow, S & Steven, C 2000, 'Building employability skills into the higher education curriculum: a university-wide initiative', *Education + Training*, vol. 42, no. 2, pp.75-82.


Fishbein, M & Ajzen, I 1975,'Belief attitude, Intention and Behaviour: An introduction to Theory and Research', Addison-Wesley, Reading, MA.


Flick, U 1998, 'An Introduction to Qualitative Research'.Sage, Thousand Oaks, C.A.


Fornell & Larcker 1981, 'Evaluating structural equation models with unobservable variables and measurement error', *Journal of Marketing Research*, vol. 48, pp. 39–50.


Hassard, John 1991, 'Multiple paradigms and organisational analysis: A case study', *Organisational studies*, vol. 12, no. 2, pp. 275-299.


Healy, M & Perry, C 2000, 'Comprehensive criteria to judge validity and reliability of qualitative research within the realism paradigm', *Qualitative Market Research: An International Journal*, vol. 3, no. 3, pp. 118-126.


Henderson, Roger & Robertson, Martyn 1999, 'Who Wants to be an Entrepreneur? Young Adult Attitudes to Entrepreneurship as a Career', *Education and Training*, vol. 41, no. 5, pp 236-245.


Hunt, SD 1991, 'Modern marketing theory', South-Western Publishing Co. USA.


Kish, L 1987, 'Statistical design for research,' published by John Wiley and Sons Inc.


Kyro, P 2003b, 'Entrepreneurship pedagogy-the current state and some future expectations', paper presented at the 3rd European Summer University, Paris, 26 June-3 July.


Leedy, PD & Ormrod, JE 2005, 'Practical research: Planning and design', Pearson Prentice Hall, Australia.


Levie, J 1999b, 'Entrepreneurship education in higher education in England: A survey, the Department for Employment and Education', UK.


Malaysia 2001b, 'Eight Malaysia Plan', Percetakan Nasional Berhad, Kuala Lumpur, Malaysia.


Malaysia 2006b, 'Ninth Malaysia Plan 2006-2010', The Economic Planning Unit, Prime Minister's Department, Kuala Lumpur.


McMurray Don 2009,'Qualitative Research Methods', EDU 03262, pp. 10 - 14; 'Quantitative Research Methods', EDU 03261, p. 5.


Mill, John Stuart (1848), Principles of Political Economy with some of their applications to social philosophy.


Mohamad, M 2002, 'Knowledge-Based Economy Master Plan'.


Mohamed Ali, MA 2001, 'The Young Malaysian Entrepreneurial Dream and the Not So Far Future'.


Mohd Yusop Abd Hadi 2002, 'Keperluan pengayaan ilmu dalam menjayakan perniagaan di kalangan usahawan kecil Bumiputera ke arah melahirkan usahawan industri kecil sederhana yang berjaya', Kolej Universiti Teknologi Tun Hussein Onn.


Neuman, W L 2006, 'Social Research Methods, Qualitative and Quantitative Approaches' 6th edition, published by Pearson Education Inc. USA.


Nor Aishah, B& Yufiza, M Y 2004, 'Motivating factors that influence Class F contractors to become entrepreneurs'. Proceedings of the 3rd International Conference on SMEs in a Global Economy, MARA Technology University, Malaysia, and University of Wollongong, Australia,Holiday Villa Subang, Malaysia, 6-7 July.

Nor, M, Ezlika, G & Ong, C C 2004, 'Demographics and personal characteristics of urban Malaysian entrepreneurs: An ethnic comparison’. Proceedings of the 3rd International Conference on SMEs in a Global Economy’, MARA Technology University, Malaysia, and University of Wollongong, Australia,Holiday Villa Subang, Malaysia, 6-7 July.


Norasmah Othman, Hajjah Halimah Harun, Zaidatol Akmaliah Lope Pihie and Noraisah Buang2006,'Entrepreneurial attitude index for teenagers in Malaysia'. Final report project IRPANo. 07-02-02-0036 EA279.


Ooi, Y K 2008, 'Inclination towards entrepreneurship among Malaysian university students in Northern Peninsula Malaysia'.


Otman Aniezi I, Bakar, H & Kean OY 2009, 'Impact of Entrepreneurship Education on the Inclination toward Entrepreneurship: A Comparison Study among Libyan Students in Malaysia and Libya'.


Perry C and Coote L 1994, 'Processes of a Case Study Research Methodology Tool for Management Development, Australia and New Zealand Association for Management Annual Conference, Victoria, University of Wellington, New Zealand.'


Reitan, B 1996,'Where do we learn that entrepreneurship is feasible, desirable and/or profitable?' Paper presented to the ICSB World Conference.


Roach, K 1999, 'Entrepreneurial Education Planning for Success Syllabus', North Georgia Technical Institute, Clarkesville, GA.


Romero, I& Asucion, M 2001, 'Entrepreneurial attitudes of university students of the Autonomous Community of the Basque Country', Dr., Universidad de Deusto (Spain)', 405 pages; AAT 3027158.


Shapero, A 1972,'The process of technical company formation in a local area', In A C Cooper & J L.


Staff 2006a, 'Keusahawanan jadi kurikulum sekolah, IPT', Berita Harian, January 5.

Staff 2006b, '1.1 million new jobs', The Star, March 31.

Staff 2006c, 'KUTPM didik jadi usahawan', Berita Harian, April 7.

Staff 2007b, 'Modul keusahawanan wajib di semua universiti', 'Entrepreneurship module that is compulsory in every university', Utusan Malaysia, March 27.


Vollmers, SM, Ratiff, JM & Hoge, B 2001, 'A Framework for Developing Entrepreneurship Curriculum through Stakeholder Involvement', Morehead State University, Morehead, KY.


Whiteley, T 1995, 'Enterprise in higher education - an overview from the department for education and employment', *Education + Training*, vol. 37, no. 9, pp. 4-8.


[www.entrepreneurMalaysia.com](http://www.entrepreneurMalaysia.com).

[www.entrepreneurship in university curriculum.com](http://www.entrepreneurship in university curriculum.com).


[www.MIMOS.my](http://www.MIMOS.my).


www.pmo.gov.my.
www.the edgedaily.com.


Yusof, M, Dr. Sandhu, MS & Kishore Jain, K 2008, 'Entrepreneurial inclination of University Tun Abdul Razak students', a case study of students at UNITAR, UNITARE-Journal, vol.4, no.1.

Zainal Abidin, F & Bakar, H 2004, 'Entrepreneurship education: The case of Universiti Utara Malaysia'.


Appendices

Appendix 1

SAMPLE LETTER TO CONDUCT RESEARCH IN THE RESPECTED UNIVERSITIES

Ms. Parimala Rengiah  
B-1-4, Sri Putramas Condo,  
Jalan Putramas 1,  
Off Jalan Kuching,  
51200 Kuala Lumpur.

The Chief Executive Officer,  
Address of University.

Date:

Re: Application to conduct research in the university

Dear Sir,

I am a Doctorate of Business Administrations student from City University College International, Petaling Jaya. I am conducting a research on the following topic:

‘Effectiveness of Entrepreneurship Education in developing Entrepreneurial Intentions among Malaysian University students.

My topic involves students from three entrepreneurial focused universities from the disciplines of Business, Information technology and Engineering. One of the universities selected is your university.

In view of this, I am seeking your assistance and approval to conduct the research with the students in the university.

Thank you.

Yours sincerely,

Parimala Rengiah
Appendix 2.

QUESTIONNAIRE CODE

(For researcher’s use only)

THE EFFECTIVENESS OF ENTREPRENEURSHIP EDUCATION AMONG MALAYSIAN UNIVERSITY STUDENTS IN DEVELOPING ENTREPRENEURIAL INTENTIONS

INSTRUCTIONS TO RESPONDENTS: (Arahan-arahan kepada pelajar-pelajar)

This questionnaire consists of 7 sections and you are requested to answer all the questions in all the sections. Your response in answering this questionnaire will be treated strictly confidential and will be used only for the purpose of this study. The information provided will not be forwarded or employed by any other individual or organisation.

As a respondent you may perceive the question differently, there is no right or wrong answers. What is important is you have to answer all the questions as honestly as you can by reading all the questions as carefully as you can.

Kertas Soal Jawab ini mengandungi 7 bahagian dan anda perlu menjawab SEMUA soalan dalam setiap bahagian. Segala maklumat yang diberi adalah sulit dan hanya akan digunakan untuk tujuan kertaskerja ini sahaja dan tidak akan diberikan kepada mana-mana pihak atau organisasi.

Tiada jawapan yang betul atau salah. Apa yang anda harus ingat sebagai pemberi maklumat ialah memberi jawapan yang anda fikir paling tepat dan jujur mengikut situasi anda.

Section 1: Personal Characteristics (Maklumat diri)

Please answer this section by ticking the box. (Sila jawab dengan tanda (√) pada petak yang sesuai).

1. Gender (Jantina) Male (Lelaki) Female (Perempuan)
2. What is your age group? 21-25 years 26-30 years > 30 years

3. Ethnicity/Race (Bangsa) Malay (Melayu) Chinese (China) Indian (India)
4. Place of origin (Tempat asal) Rural (Luar Bandar) Urban (Bandar)

Please specify if others: ____________________ Please specify: _______________
5. Order of birth

(Tahap pendidikan)

Eldest (Sulong)  ST  TPM)
Youngest (Bongsu)  Matriculation (Matrikulasi)
Only child (Anak tunggal)  Diploma (Diploma)
None above (Tiada di atas)

Please specify if others: ______________

(Lain-lain)

6. Educational qualifications

(Turutan kelahiran)

(Tahap pendidikan)

Eldest (Sulong)  ST  TPM)
Youngest (Bongsu)  Matriculation (Matrikulasi)
Only child (Anak tunggal)  Diploma (Diploma)
None above (Tiada di atas)

Please specify if others: ______________

(Lain-lain)

7. Current program of study:

(Pengajian program anda pada masa ini)

Business/Management (Perniagaan/pengurusan)  Scholarship (Biasiswa)
Computer/IT (Komputer/Teknologi maklumat)  Study (Pinjaman)

Please specify if others: ______________

(Lain-lain)

8. Education Funding:

(Pembiayaan pendidikan):

Business/Management (Perniagaan/pengurusan)  Scholarship (Biasiswa)
Computer/IT (Komputer/Teknologi maklumat)  Study (Pinjaman)

Please specify if others: ______________

(Lain-lain)

9. Working experience (Pengalaman berkerja)

(Ya)  Public sector (Awam)
(No)  Private sector (Swasta)

Parents/relatives (Keluarga)
Friends/others (Rakan/Lain)

If yes, please proceed to Question No. 10, if no, proceed to Question No. 11.

(Jika ‘ya’ sila jawab Soalan No. 10, jika ‘tidak’ sila jawab Soalan No. 11).
11. Father’s working status:                  12. Mother’s working status:
(Pekerjaan ayah sekarang)(Pekerjaan emak sekarang)

Business (Berniaga)
Full-time (Kerjasepenuhmasa)
Part-time (Kerjaseparuhmasa)
Not working (Tidakbekerja) Not working (Tidakbekerja)
Deceased (Meninggaldunia)

13. Choice of study program
14. Family history of entrepreneurship
(Pemilihan program)(Sejarah keusahawanan keluarga)

Parent’s choice (Pilihan ibubapa)
Own choice (Pilihan sendiri)
Others (Lain-lain)

Parents (Ibubapa)
Siblings (Adik beradik)
Relatives (Saudara)
None (Tiada)

Please specify if others_______________________

(Lain-lain)

15. My interest in the area of study is for: (Saya minat dalam bidang kursus ini ialah):
Job employment (Kerjamakangaji)
Self-employment/ Business (Bekerjasendiri/ berniaga)
To form a company with friends (Memujudkansyarakatbersamaraikan)
To help parents in business (Membantui bapacalamperniagaan)
16. My interest in entrepreneurship grew because of:

(Minat saya dalam keusahawanan meningkat kerana):

Hands on learning (Pengajaran dengan buat tangan)
Internship programs (Program internship)
Entrepreneurship activities (Aktiviti keusahawanan)
Entrepreneurship clubs (Kelab keusahawanan)

17. I am motivated to become an entrepreneur because:

(Saya bermotivasi menjadi seorang usahawan kerana):

I like the program (Saya suka program ini)
I enjoy the entrepreneurial activities (Saya suka aktiviti keusahawanan)
I have started a business with my friends. (Saya telah mulakan perniagaan dengan rakan)
I like to be self-employed (Saya suka bekerja sendiri)

18. The Entrepreneurship program in the university has increased my skills in:

(Program keusahawanan di universiti ini telah meningkat kemahiran saya dalam bidang):

Communication (Komunikasi)
Problem-solving (Menangani masalah)
Job-related (Berkaitan pekerjaan)
Self-development (Pembangunan diri sendiri)
### SECTION 2: ENTREPRENEURSHIP CURRICULA IN THE UNIVERSITIES

SD – Strongly Disagree     D – Disagree     TD – Tend to Disagree     N – Neither Agree or Disagree     TA – Tend to Agree     A – Agree     SA – Strongly Agree

Mark the most appropriate response

<table>
<thead>
<tr>
<th>STATEMENTS</th>
<th>SD 1</th>
<th>D 2</th>
<th>TD 3</th>
<th>N 4</th>
<th>TA 5</th>
<th>A 6</th>
<th>SA 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The entrepreneurship course is developed to meet the criteria of the curriculum. (Kursus keusahawanan ini disusun sejajar dengan criteria kurikulum).</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. The subject of entrepreneurship interests me very much because of interactive learning. (Saya berminat dengan subjek keusahawanan sebab cara pembelajaran yang berinteraktif)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. I gain a new experience through pursuing the entrepreneurship course. (Saya mendapat pengalaman baru melalui kursus keusahawanan ini).</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. My liking to study entrepreneurship is more compared to other subjects. (Saya lebih berminat belajar tentang keusahawanan dari subjek lain).</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. I can develop entrepreneurship skills through the program. (Saya boleh mengasah kemahiran keusahawanan melalui program ini).</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. I enjoy learning by doing in the entrepreneurship course. (Saya berminat cara belajar sambil bekerja yang diutamakan dalam kursus ini).</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. I have a better understanding about business as a result of taking up the entrepreneurship course. (Pengetahuan saya dalam bidang perniagaan meningkat kerana mengambil kursus keusahawanan ini).</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
8. I like to study entrepreneurship because it teaches real-world situations.
(Saya berminat belajar kursus keusahawanan ini kerana ia berkaitan dengan situasi dunia sebenar).

9. The entrepreneurship program taught me to deal with tolerance of ambiguity in the real world.
(Program keusahawanan ini mengajar saya bersikap toleran dalam pelbagai situasi harian).

SECTION 3: TEACHING METHODOLOGIES IN THE UNIVERSITIES

SD – Strongly Disagree D – Disagree TD – Tend to Disagree N – Neither Agree or Disagree TA – Tend to Agree A – Agree SA – Strongly Agree

Mark the most appropriate response

<table>
<thead>
<tr>
<th>STATEMENTS</th>
<th>SD 1</th>
<th>D 2</th>
<th>TD 3</th>
<th>N 4</th>
<th>TA 5</th>
<th>A 6</th>
<th>SA 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The instructor did a good job in making the entrepreneurship course relevant to the real world. Tenaga pengajar berjaya mengaitkan kursus keusahawanan ini dengan situasi dunia sebenar.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. The instructors are experienced in teaching the courses in entrepreneurship. Tenaga pengajar berpengalaman untuk penyampaikan kursus keusahawanan.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. The methodologies introduced by instructors for the entrepreneurship courses are not very interesting. Cara penyampaikan kursus keusahawanan tidak menarik.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. The instructors take the students for visits to industries to gain more knowledge on the subject. Pelajar dibawa melawat industri yang berkaitan oleh pengajar untuk mendapat pengetahuan yang lebih berkaitan.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5. The lecturer teaches a comprehensive business plan model for the subject.  
*Pensyarah mengajar perancangan perniagaan yang komprehensif.*

6. Practical sessions help a lot in understanding the entrepreneurship subject.  
*Latihan amali banyak membantu dalam memahami subjek keusahawanan ini.*

7. The lecturers have an excellent way of presenting the entrepreneurship courses.  
*Dalam kursus ini penyampaian pensyarah sangat berkesan.*

8. The instructors stimulate the interest in entrepreneurship course through the teaching methodologies.  
*Pensyarah pandai menarik minat pelajar melalui cara pengajaran dan pembelajaran dalam kursus keusahawanan.*

9. The stories of great entrepreneurs as video clippings are shown in the classroom to motivate the students for business ventures.  
*Cerita-cerita mengenai usahawan yang berjaya di tunjukkan dalam bentuk video dalam kelas.*

### SECTION 4: UNIVERSITY’S ROLE IN PROMOTING ENTREPRENEURSHIP

<table>
<thead>
<tr>
<th>STATEMENTS</th>
<th>SD</th>
<th>D</th>
<th>TD</th>
<th>N</th>
<th>TA</th>
<th>A</th>
<th>SA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Everyone talks about entrepreneurship in my University.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Subjek keusahawanan kerap menjadi topik perbualan diuniversiti saya.</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. My university is focused towards entrepreneurship.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Fokus universiti saya ialah dalam bidang keusahawanan.

3. Entrepreneurship courses should be made compulsory in order to stimulate entrepreneurial spirit in the university.
Kursus-kursus keusahawanan patut di wajibkan untuk meningkatkan semangat keusahawanan diuniversiti.

4. The policies in my university promote entrepreneurship education.
Polisi-polisi di unversiti saya menggalakkan pendidikan keusahawanan.

5. The University does not have adequate facilities to promote the entrepreneurship activities for students.
Universiti saya tidak mempunyai kemudahan yang cukup untuk memajukan aktiviti-aktiviti keusahawanan dikalangan pelajar-pelajar.

6. The university environment inspires me to develop innovative ideas for new business.
Keadaan sekeliling di universiti memberi inspirasi kepada saya untuk membangunkan idea-idea perniagaan yang lebih berinovatif.

7. I think the university is the best place for students to be trained in entrepreneurship.
Saya rasa univesiti adalah tempat yang terbaik untuk mempelajari tentang keusahawanan.

8. The university provides resources to assist students in entrepreneurship.
Universiti menyediakan sumber untuk membantu pelajar-pelajar dalam bidang keusahawanan.

9. At my university, I get to meet a lot of people with good ideas for new businesses.
Di universiti, saya berpeluang bertemu dengan pelbagai orang yang mempunyai idea yang bagus dalam perniagaan.
**SECTION 5: ATTITUDE FACTORS**

SD – Strongly Disagree    D – Disagree    TD – Tend to Disagree    N – Neither Agree or Disagree    TA – Tend to Agree    A – Agree    SA – Strongly Agree

Mark the most appropriate response

<table>
<thead>
<tr>
<th>ITEMS</th>
<th>SD 1</th>
<th>D 2</th>
<th>TD 3</th>
<th>N 4</th>
<th>TA 5</th>
<th>A 6</th>
<th>SA 7</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Attitude towards money</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. I like to be an entrepreneur because I can become very rich.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Saya berminat menjadi seorang usahawan sebab saya boleh menjadi kaya.</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. I earn more when I am self-employed than being paid by an employer.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Pendapatan saya lebih bila bekerja sendiri daripada bekerja makan gaji.</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. If I have a high income, that is a sign that I will be successful in life.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Pendapatan yang tinggi menandakan saya berjaya dalam kehidupan.</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. It is important for me to make a lot of money in my career.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Mencari pendapatan yang tinggi penting buat kerjaya saya.</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Attitude towards change</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. I find working in a stable and routinised environment boring.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Keadaan kerja yang stabil dan mengikut jadual membosankan saya.</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. I like to be an entrepreneur as this will enlarge my circle of friends.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Saya suka menjadi seorang usahawan sebab dapat meluaskan kenalan atau network saya.</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. As an entrepreneur, I have to face many challenges unlike working as an employee.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Sebagai seorang usahawan, saya pasti menghadapi pelbagai cabaran berbanding dengan bekerja makan gaji.</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
8. I need constant change to remain motivated, even if this would mean higher uncertainty.  
	Saya kerap memerlukan perubahan dalam pekerjaan untuk meningkatkan motivasi, walaupun tidak pasti.

**Attitude towards competitiveness**

9. The university programs have developed me well to compete with other businessmen.  
	Program universiti telah cukup memajukan saya untuk bersaing dengan lain-lain usahawan.

10. I have to work hard in situations where my performance is compared against that of others.  
	Saya perlu bekerja lebih baik bila mutu kerja saya dibandingkan dengan orang lain.

11. It annoys me if people perform better than me.  
	Saya rasa marah sekiranya kerja orang lain lebih baik daripada saya.

12. I like to be an entrepreneur because of its competitive nature.  
	Saya suka menjadi seorang usahawan kerana bidang ini mempunyai daya saing.

**SECTION 6: STAKEHOLDER SUPPORT SYSTEM FACTORS**

SD – Strongly Disagree    D – Disagree    TD – Tend to Disagree    N – Neither Agree or Disagree  
TA – Tend to Agree    A – Agree    SA – Strongly Agree

Mark the most appropriate response

<table>
<thead>
<tr>
<th>ITEMS</th>
<th>SD 1</th>
<th>D 2</th>
<th>TD 3</th>
<th>N 4</th>
<th>TA 5</th>
<th>A 6</th>
<th>SA 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Government</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| 1. The government provides many opportunities for entrepreneurship.  
	Kerajaan memberi banyak peluang dalam bidang keusahawanan.  |   |     |     |     |      |     |      |
2. The government helps to get funds for entrepreneurship activities. 
*Kerajaan membantu mendapatkan sumber kewangan untuk aktiviti-aktiviti perniagaan.*

3. I like the way the government supports entrepreneurship activities in the country. 
*Saya suka cara kerajaan menyokong aktiviti-aktiviti keusahawanan dinegara ini.*

4. The government’s aim is to increase the number of entrepreneurs in the country for economic growth. 
*Matlamat kerajaan ialah mengingkatkan bilangan usahawan dinegara ini untuk perkembangan ekonomi.*

### Financial Institutions

5. There are many financial institutions providing financial support for business. 
*Ada banyak institusi kewangan yang memberi bantuan kewangan untuk perniagaan.*

6. As an entrepreneur, I do not want to be burdened with loans from financial institutions. 
*Sebagai seorang usahawan, saya tidak mahu dibebankan dengan pinjaman dari institusi kewangan.*

7. The financial institutions give out loans for business with reasonable interest rates. 
*Faedah pinjaman institusi-institusi kewangan adalah perpatutan.*

8. The financial institutions do not readily give credit to start-up companies. 
*Institusi kewangan tidak mudah memberikan pinjaman kepada syarikat-syarikat yang baru hendak mulakan perniagaan.*

### Parental Influence

9. My parents influence me in pursuing a career in entrepreneurship. 
*Ibubapa saya mempengaruhi saya mengejar kerjaya dalam bidang keusahawanan.*
10. Assisting my parents in business has increased my desire to be an entrepreneur. 
*Membantu ibubapa saya dalam bidang perniagaan meningkatkan keinginan saya menjadi seorang usahawan.*

11. My parents are willing to provide me with funds for entrepreneurship activities. 
*Ibubapa saya sanggup membiayai aktiviti-aktiviti keusahawanan saya.*

12. My parents are role models for me in cultivating entrepreneurship. 
*Ibubapa saya ialah contoh terbaik untuk kejayaan saya dalam keusahawanan.*

SECTION 7: ENTREPRENEURIAL INTENTION AND FUTURE PLANNING

<table>
<thead>
<tr>
<th>ITEMS</th>
<th>SD</th>
<th>D</th>
<th>TD</th>
<th>N</th>
<th>TA</th>
<th>A</th>
<th>SA</th>
</tr>
</thead>
</table>
| 1. Would you prefer to be employed for an income? 
*Adakah anda suka bekerja makan gaji?* |    |   |    |   |    |   |    |
| 2. Is it likely that you would start a business upon completion of your studies? 
*Adakah kemungkinan anda akan memulakan perniagaan selepas tamat pelajaran?* |    |   |    |   |    |   |    |
| 3. I never thought of entrepreneurship as a career choice. 
*Saya tidak pernah terfikir bidang keusahawanan sebagai pilihan kerjaya.* |    |   |    |   |    |   |    |
| 4. If I pursue a career involving self-employment, the chances of failure rate will be high. |    |   |    |   |    |   |    |
Sekiranya saya bekerja sendiri terdapat kemungkinan besar saya gagal dalam perniagaan.

5. I do not have money to start a business. 
Saya tidak mempunyai wang untuk memulakan perniagaan.

6. I am not happy to take risk as an entrepreneur. 
Saya tidak sanggup mengambil risiko menjadi seorang usahawan.

7. Being an entrepreneur is an excellent way of becoming rich. 
Menjadi seorang usahawan adalah cara yang sangat baik untuk menjadi kaya.

8. Entrepreneurs are born and not made. 
Usahawan dilahirkan dan tidak boleh dibentuk.

9. I admire those that succeed in running their own businesses. 
Saya kagum dengan mereka yang berjaya dalam menjalankan perniagaan sendiri.

(Total of 78 questions)

- THANK YOU FOR YOUR PARTICIPATION - 

(Terima Kasih atas kerjasama anda)
### Appendix 3 – Descriptive Statistics Analysis

#### Gender

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Male</td>
<td>226</td>
<td>48.7</td>
<td>48.7</td>
<td>48.7</td>
</tr>
<tr>
<td>Female</td>
<td>238</td>
<td>51.3</td>
<td>51.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>464</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

#### Age

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid 21-25 years</td>
<td>417</td>
<td>89.9</td>
<td>89.9</td>
<td>89.9</td>
</tr>
<tr>
<td>26-30 years</td>
<td>38</td>
<td>8.2</td>
<td>8.2</td>
<td>98.1</td>
</tr>
<tr>
<td>&gt;30 years</td>
<td>9</td>
<td>1.9</td>
<td>1.9</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>464</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

#### Ethnicity

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Malay</td>
<td>276</td>
<td>59.5</td>
<td>59.5</td>
<td>59.5</td>
</tr>
<tr>
<td>Chinese</td>
<td>112</td>
<td>24.1</td>
<td>24.1</td>
<td>83.6</td>
</tr>
<tr>
<td>Indians</td>
<td>47</td>
<td>10.1</td>
<td>10.1</td>
<td>93.8</td>
</tr>
<tr>
<td>Others</td>
<td>29</td>
<td>6.3</td>
<td>6.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>464</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

#### Original place

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Rural</td>
<td>167</td>
<td>36.0</td>
<td>36.0</td>
<td>36.0</td>
</tr>
<tr>
<td>Urban</td>
<td>297</td>
<td>64.0</td>
<td>64.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>464</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

#### Birth order

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Eldest</td>
<td>154</td>
<td>33.2</td>
<td>33.2</td>
<td>33.2</td>
</tr>
<tr>
<td>Youngest</td>
<td>133</td>
<td>28.7</td>
<td>28.7</td>
<td>61.9</td>
</tr>
<tr>
<td>Only child</td>
<td>30</td>
<td>6.5</td>
<td>6.5</td>
<td>68.3</td>
</tr>
<tr>
<td>None of the above</td>
<td>147</td>
<td>31.7</td>
<td>31.7</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>464</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>
### Educa qualifi

<table>
<thead>
<tr>
<th>Education Level</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid STPM</td>
<td>190</td>
<td>40.9</td>
<td>40.9</td>
<td>40.9</td>
</tr>
<tr>
<td>Matriculation</td>
<td>65</td>
<td>14.0</td>
<td>14.0</td>
<td>55.0</td>
</tr>
<tr>
<td>Diploma</td>
<td>183</td>
<td>39.4</td>
<td>39.4</td>
<td>94.4</td>
</tr>
<tr>
<td>Others</td>
<td>26</td>
<td>5.6</td>
<td>5.6</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>464</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

### Student program

<table>
<thead>
<tr>
<th>Program</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Business</td>
<td>249</td>
<td>53.7</td>
<td>53.7</td>
<td>53.7</td>
</tr>
<tr>
<td>Computer/IT</td>
<td>215</td>
<td>46.3</td>
<td>46.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>464</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

### Educa funding

<table>
<thead>
<tr>
<th>Funding Source</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Scholarship</td>
<td>50</td>
<td>10.8</td>
<td>10.8</td>
<td>10.8</td>
</tr>
<tr>
<td>Study loan</td>
<td>325</td>
<td>70.0</td>
<td>70.0</td>
<td>80.8</td>
</tr>
<tr>
<td>Sponsorship</td>
<td>6</td>
<td>1.3</td>
<td>1.3</td>
<td>82.1</td>
</tr>
<tr>
<td>Self-financing</td>
<td>83</td>
<td>17.9</td>
<td>17.9</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>464</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

### Work experience

<table>
<thead>
<tr>
<th>Experience</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Yes</td>
<td>145</td>
<td>31.3</td>
<td>31.3</td>
<td>31.3</td>
</tr>
<tr>
<td>No</td>
<td>158</td>
<td>34.1</td>
<td>34.1</td>
<td>65.3</td>
</tr>
<tr>
<td>Worked &lt;6 months</td>
<td>123</td>
<td>26.5</td>
<td>26.5</td>
<td>91.8</td>
</tr>
<tr>
<td>Worked &gt; 6 months</td>
<td>38</td>
<td>8.2</td>
<td>8.2</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>464</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>
### Work sector

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public sector</td>
<td>45</td>
<td>9.7</td>
<td>14.4</td>
<td>14.4</td>
</tr>
<tr>
<td>Private sector</td>
<td>217</td>
<td>46.8</td>
<td>69.6</td>
<td>84.0</td>
</tr>
<tr>
<td>Parents/relatives</td>
<td>28</td>
<td>6.0</td>
<td>9.0</td>
<td>92.9</td>
</tr>
<tr>
<td>Friend/others</td>
<td>22</td>
<td>4.7</td>
<td>7.1</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>312</td>
<td>67.2</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Missing System</td>
<td>152</td>
<td>32.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>464</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Father's status

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Business</td>
<td>116</td>
<td>25.0</td>
<td>25.0</td>
<td>25.0</td>
</tr>
<tr>
<td>Full-time</td>
<td>220</td>
<td>47.4</td>
<td>47.4</td>
<td>72.4</td>
</tr>
<tr>
<td>Part-time</td>
<td>17</td>
<td>3.7</td>
<td>3.7</td>
<td>76.1</td>
</tr>
<tr>
<td>Not working</td>
<td>67</td>
<td>14.4</td>
<td>14.4</td>
<td>90.5</td>
</tr>
<tr>
<td>Deceased</td>
<td>44</td>
<td>9.5</td>
<td>9.5</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>464</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

### Mother's status

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Business</td>
<td>49</td>
<td>10.6</td>
<td>10.6</td>
<td>10.6</td>
</tr>
<tr>
<td>Full-time</td>
<td>133</td>
<td>28.7</td>
<td>28.7</td>
<td>39.2</td>
</tr>
<tr>
<td>Part-time</td>
<td>28</td>
<td>6.0</td>
<td>6.0</td>
<td>45.3</td>
</tr>
<tr>
<td>Not working</td>
<td>244</td>
<td>52.6</td>
<td>52.6</td>
<td>97.8</td>
</tr>
<tr>
<td>Deceased</td>
<td>10</td>
<td>2.2</td>
<td>2.2</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>464</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>
### Program choice

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parent's choice</td>
<td>34</td>
<td>7.3</td>
<td>7.3</td>
<td>7.3</td>
</tr>
<tr>
<td>Own choice</td>
<td>415</td>
<td>89.4</td>
<td>89.4</td>
<td>96.8</td>
</tr>
<tr>
<td>Others</td>
<td>15</td>
<td>3.2</td>
<td>3.2</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>464</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

### Family History

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parents</td>
<td>131</td>
<td>28.2</td>
<td>28.2</td>
<td>28.2</td>
</tr>
<tr>
<td>Siblings</td>
<td>36</td>
<td>7.8</td>
<td>7.8</td>
<td>36.0</td>
</tr>
<tr>
<td>Relatives</td>
<td>129</td>
<td>27.8</td>
<td>27.8</td>
<td>63.8</td>
</tr>
<tr>
<td>None</td>
<td>168</td>
<td>36.2</td>
<td>36.2</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>464</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

### Student Interest

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job-employment</td>
<td>151</td>
<td>32.5</td>
<td>32.5</td>
<td>32.5</td>
</tr>
<tr>
<td>Self-employment</td>
<td>227</td>
<td>48.9</td>
<td>48.9</td>
<td>81.5</td>
</tr>
<tr>
<td>To form a company with friends</td>
<td>62</td>
<td>13.4</td>
<td>13.4</td>
<td>94.8</td>
</tr>
<tr>
<td>To help parents in business</td>
<td>24</td>
<td>5.2</td>
<td>5.2</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>464</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>
### Increase interest

<table>
<thead>
<tr>
<th>Valid</th>
<th>Hands on learning approach</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Internship programs</td>
<td>110</td>
<td>23.7</td>
<td>23.7</td>
<td>44.4</td>
</tr>
<tr>
<td></td>
<td>Entrepreneurship activities</td>
<td>234</td>
<td>50.4</td>
<td>50.4</td>
<td>94.8</td>
</tr>
<tr>
<td></td>
<td>Entrepreneurship clubs</td>
<td>24</td>
<td>5.2</td>
<td>5.2</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>464</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

### Motivated

<table>
<thead>
<tr>
<th>Valid</th>
<th>I like the program</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I enjoy the</td>
<td>109</td>
<td>23.5</td>
<td>23.5</td>
<td>23.5</td>
</tr>
<tr>
<td></td>
<td>entrepreneurial activities</td>
<td>144</td>
<td>31.0</td>
<td>31.0</td>
<td>54.5</td>
</tr>
<tr>
<td></td>
<td>I have started a business with my friends</td>
<td>39</td>
<td>8.4</td>
<td>8.4</td>
<td>62.9</td>
</tr>
<tr>
<td></td>
<td>I like to be self-employed</td>
<td>172</td>
<td>37.1</td>
<td>37.1</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>464</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

### Increase in skill

<table>
<thead>
<tr>
<th>Valid</th>
<th>Communication</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Problem-solving</td>
<td>87</td>
<td>18.8</td>
<td>18.8</td>
<td>58.8</td>
</tr>
<tr>
<td></td>
<td>Job-related</td>
<td>46</td>
<td>9.9</td>
<td>9.9</td>
<td>68.8</td>
</tr>
<tr>
<td></td>
<td>Self-development</td>
<td>145</td>
<td>31.3</td>
<td>31.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>464</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>
Appendix 4 – Reliability Analysis Results

Scale: ALL VARIABLES

### Reliability Statistics

<table>
<thead>
<tr>
<th>Cronbach’s Alpha</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>.926</td>
<td>9</td>
</tr>
</tbody>
</table>

### Item-Total Statistics

<table>
<thead>
<tr>
<th>Item</th>
<th>Scale Mean if Item Deleted</th>
<th>Scale Variance if Item Deleted</th>
<th>Corrected Item-Total Correlation</th>
<th>Cronbach's Alpha if Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>S2.1</td>
<td>40.6616</td>
<td>78.674</td>
<td>.679</td>
<td>.922</td>
</tr>
<tr>
<td>S2.2</td>
<td>40.6250</td>
<td>78.136</td>
<td>.775</td>
<td>.915</td>
</tr>
<tr>
<td>S2.3</td>
<td>40.4224</td>
<td>76.823</td>
<td>.802</td>
<td>.914</td>
</tr>
<tr>
<td>S2.4</td>
<td>40.9353</td>
<td>80.078</td>
<td>.592</td>
<td>.928</td>
</tr>
<tr>
<td>S2.5</td>
<td>40.4440</td>
<td>77.409</td>
<td>.811</td>
<td>.913</td>
</tr>
<tr>
<td>S2.6</td>
<td>40.4806</td>
<td>78.807</td>
<td>.733</td>
<td>.918</td>
</tr>
<tr>
<td>S2.7</td>
<td>40.3901</td>
<td>79.560</td>
<td>.738</td>
<td>.918</td>
</tr>
<tr>
<td>S2.8</td>
<td>40.4828</td>
<td>77.507</td>
<td>.748</td>
<td>.917</td>
</tr>
<tr>
<td>S2.9</td>
<td>40.4892</td>
<td>78.376</td>
<td>.736</td>
<td>.918</td>
</tr>
</tbody>
</table>

### Reliability Statistics

<table>
<thead>
<tr>
<th>Cronbach’s Alpha</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>.886</td>
<td>9</td>
</tr>
</tbody>
</table>

### Item-Total Statistics

<table>
<thead>
<tr>
<th>Item</th>
<th>Scale Mean if Item Deleted</th>
<th>Scale Variance if Item Deleted</th>
<th>Corrected Item-Total Correlation</th>
<th>Cronbach's Alpha if Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>S3.1</td>
<td>38.6358</td>
<td>69.601</td>
<td>.774</td>
<td>.863</td>
</tr>
<tr>
<td>S3.2</td>
<td>38.4698</td>
<td>69.969</td>
<td>.806</td>
<td>.861</td>
</tr>
<tr>
<td>S3.3</td>
<td>39.6056</td>
<td>88.486</td>
<td>-.044</td>
<td>.932</td>
</tr>
<tr>
<td>S3.4</td>
<td>38.9591</td>
<td>73.443</td>
<td>.505</td>
<td>.886</td>
</tr>
<tr>
<td>S3.5</td>
<td>38.7155</td>
<td>69.621</td>
<td>.788</td>
<td>.862</td>
</tr>
<tr>
<td>S3.6</td>
<td>38.5280</td>
<td>69.308</td>
<td>.794</td>
<td>.861</td>
</tr>
<tr>
<td>S3.7</td>
<td>38.6358</td>
<td>67.813</td>
<td>.852</td>
<td>.856</td>
</tr>
<tr>
<td>S3.8</td>
<td>38.6078</td>
<td>69.159</td>
<td>.826</td>
<td>.859</td>
</tr>
<tr>
<td>S3.9</td>
<td>38.7737</td>
<td>70.538</td>
<td>.689</td>
<td>.869</td>
</tr>
<tr>
<td>Cronbach's Alpha</td>
<td>N of Items</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------</td>
<td>------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>.843</td>
<td>9</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Item-Total Statistics

<table>
<thead>
<tr>
<th></th>
<th>Scale Mean if Item Deleted</th>
<th>Scale Variance if Item Deleted</th>
<th>Corrected Item-Total Correlation</th>
<th>Cronbach's Alpha if Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>S4.1</td>
<td>38.9849</td>
<td>60.179</td>
<td>.576</td>
<td>.825</td>
</tr>
<tr>
<td>S4.2</td>
<td>38.6595</td>
<td>58.843</td>
<td>.640</td>
<td>.818</td>
</tr>
<tr>
<td>S4.3</td>
<td>38.5366</td>
<td>59.830</td>
<td>.654</td>
<td>.817</td>
</tr>
<tr>
<td>S4.4</td>
<td>38.4892</td>
<td>60.276</td>
<td>.715</td>
<td>.813</td>
</tr>
<tr>
<td>S4.5</td>
<td>39.8125</td>
<td>74.179</td>
<td>-.039</td>
<td>.895</td>
</tr>
<tr>
<td>S4.6</td>
<td>38.6940</td>
<td>60.152</td>
<td>.691</td>
<td>.814</td>
</tr>
<tr>
<td>S4.7</td>
<td>38.4784</td>
<td>59.503</td>
<td>.671</td>
<td>.815</td>
</tr>
<tr>
<td>S4.8</td>
<td>38.6616</td>
<td>58.285</td>
<td>.696</td>
<td>.812</td>
</tr>
<tr>
<td>S4.9</td>
<td>38.5625</td>
<td>59.288</td>
<td>.633</td>
<td>.819</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cronbach's Alpha</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>.912</td>
<td>12</td>
</tr>
</tbody>
</table>

### Item-Total Statistics

<table>
<thead>
<tr>
<th></th>
<th>Scale Mean if Item Deleted</th>
<th>Scale Variance if Item Deleted</th>
<th>Corrected Item-Total Correlation</th>
<th>Cronbach's Alpha if Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>S5.1</td>
<td>56.9375</td>
<td>124.573</td>
<td>.704</td>
<td>.903</td>
</tr>
<tr>
<td>S5.2</td>
<td>56.6401</td>
<td>126.581</td>
<td>.735</td>
<td>.901</td>
</tr>
<tr>
<td>S5.3</td>
<td>56.9397</td>
<td>126.718</td>
<td>.659</td>
<td>.905</td>
</tr>
<tr>
<td>S5.4</td>
<td>56.7091</td>
<td>126.397</td>
<td>.720</td>
<td>.902</td>
</tr>
<tr>
<td>S5.5</td>
<td>57.1789</td>
<td>131.862</td>
<td>.485</td>
<td>.913</td>
</tr>
<tr>
<td>S5.6</td>
<td>56.6638</td>
<td>126.712</td>
<td>.763</td>
<td>.900</td>
</tr>
<tr>
<td>S5.7</td>
<td>56.4677</td>
<td>128.664</td>
<td>.693</td>
<td>.903</td>
</tr>
<tr>
<td>S5.8</td>
<td>56.8125</td>
<td>127.012</td>
<td>.729</td>
<td>.902</td>
</tr>
<tr>
<td>S5.9</td>
<td>57.2198</td>
<td>130.271</td>
<td>.607</td>
<td>.907</td>
</tr>
<tr>
<td>S5.10</td>
<td>56.6185</td>
<td>130.185</td>
<td>.707</td>
<td>.903</td>
</tr>
<tr>
<td>S5.11</td>
<td>57.4397</td>
<td>133.672</td>
<td>.394</td>
<td>.919</td>
</tr>
<tr>
<td>S5.12</td>
<td>56.7759</td>
<td>127.924</td>
<td>.695</td>
<td>.903</td>
</tr>
</tbody>
</table>
### Reliability Statistics

<table>
<thead>
<tr>
<th>Cronbach's Alpha</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>.897</td>
<td>12</td>
</tr>
</tbody>
</table>

#### Item-Total Statistics

<table>
<thead>
<tr>
<th>Item</th>
<th>Scale Mean if Item Deleted</th>
<th>Scale Variance if Item Deleted</th>
<th>Corrected Item-Total Correlation</th>
<th>Cronbach's Alpha if Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>S6.1</td>
<td>54.1487</td>
<td>123.621</td>
<td>.685</td>
<td>.885</td>
</tr>
<tr>
<td>S6.2</td>
<td>54.2263</td>
<td>124.694</td>
<td>.684</td>
<td>.885</td>
</tr>
<tr>
<td>S6.3</td>
<td>54.2435</td>
<td>123.822</td>
<td>.721</td>
<td>.883</td>
</tr>
<tr>
<td>S6.4</td>
<td>54.0647</td>
<td>123.780</td>
<td>.704</td>
<td>.884</td>
</tr>
<tr>
<td>S6.5</td>
<td>54.0884</td>
<td>124.746</td>
<td>.706</td>
<td>.884</td>
</tr>
<tr>
<td>S6.6</td>
<td>54.1401</td>
<td>127.088</td>
<td>.555</td>
<td>.891</td>
</tr>
<tr>
<td>S6.7</td>
<td>54.4849</td>
<td>128.950</td>
<td>.480</td>
<td>.895</td>
</tr>
<tr>
<td>S6.8</td>
<td>54.4612</td>
<td>130.586</td>
<td>.420</td>
<td>.898</td>
</tr>
<tr>
<td>S6.9</td>
<td>54.5388</td>
<td>123.303</td>
<td>.619</td>
<td>.888</td>
</tr>
<tr>
<td>S6.10</td>
<td>54.5172</td>
<td>121.550</td>
<td>.654</td>
<td>.886</td>
</tr>
<tr>
<td>S6.11</td>
<td>54.7047</td>
<td>125.137</td>
<td>.565</td>
<td>.891</td>
</tr>
<tr>
<td>S6.12</td>
<td>54.4159</td>
<td>122.943</td>
<td>.598</td>
<td>.889</td>
</tr>
</tbody>
</table>

### Reliability Statistics

<table>
<thead>
<tr>
<th>Cronbach's Alpha</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>.702</td>
<td>9</td>
</tr>
</tbody>
</table>

#### Item-Total Statistics

<table>
<thead>
<tr>
<th>Item</th>
<th>Scale Mean if Item Deleted</th>
<th>Scale Variance if Item Deleted</th>
<th>Corrected Item-Total Correlation</th>
<th>Cronbach's Alpha if Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>S7.1</td>
<td>36.9095</td>
<td>49.914</td>
<td>.452</td>
<td>.661</td>
</tr>
<tr>
<td>S7.2</td>
<td>36.0129</td>
<td>54.125</td>
<td>.417</td>
<td>.672</td>
</tr>
<tr>
<td>S7.3</td>
<td>36.8147</td>
<td>48.043</td>
<td>.521</td>
<td>.645</td>
</tr>
<tr>
<td>S7.4</td>
<td>36.7478</td>
<td>49.170</td>
<td>.526</td>
<td>.646</td>
</tr>
<tr>
<td>S7.5</td>
<td>37.2974</td>
<td>50.974</td>
<td>.415</td>
<td>.669</td>
</tr>
<tr>
<td>S7.6</td>
<td>36.6659</td>
<td>48.651</td>
<td>.542</td>
<td>.642</td>
</tr>
<tr>
<td>S7.7</td>
<td>35.7845</td>
<td>57.189</td>
<td>.262</td>
<td>.696</td>
</tr>
<tr>
<td>S7.8</td>
<td>36.8621</td>
<td>60.128</td>
<td>.020</td>
<td>.752</td>
</tr>
<tr>
<td>S7.9</td>
<td>35.3017</td>
<td>56.086</td>
<td>.307</td>
<td>.689</td>
</tr>
</tbody>
</table>