VOCATIONAL EDUCATION AND TRAINING IN SECONDARY SCHOOLS: INVESTIGATION INTO A VET MODEL FOR PAPUA NEW GUINEA

DANIEL KAKI LEKE

B.Ed Preserv (PNG), B.Ed Hons (PNG)
M.Ed Studies (Adelaide)

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

School of Education
Faculty of the Professions
The University of Adelaide

© April 2010
TABLE OF CONTENTS

LIST OF TABLES IN MAIN TEXT ........................................................................................................ iv
LIST OF TABLES IN APPENDICES ..................................................................................................... v
LIST OF FIGURES ............................................................................................................................... vi
LIST OF ABBREVIATIONS ................................................................................................................ viii
ABSTRACT ........................................................................................................................................ ix
DECLARATION ................................................................................................................................. xi
ACKNOWLEDGEMENTS ................................................................................................................... xii

CHAPTER ONE ................................................................................................................................ 1

1.1 INTRODUCTION ....................................................................................................................... 1
1.2 BACKGROUND: FACTORS DRIVING THIS STUDY .............................................................. 2
1.3 THE PNG EDUCATION STRUCTURE AND PLACE OF VET ................................................ 9
1.4 STATEMENT OF THE PROBLEM ......................................................................................... 17
1.5 PURPOSE OF THE STUDY ...................................................................................................... 18
1.6 RESEARCH QUESTIONS .......................................................................................................... 19
1.7 SIGNIFICANCE AND CONTRIBUTION OF THIS STUDY ................................................... 20
1.8 ASSUMPTIONS OF THE STUDY ............................................................................................ 22
1.9 DEFINITIONS OF TERMS AND PHRASES .......................................................................... 24
1.10 SUMMARY ............................................................................................................................... 30

CHAPTER TWO .................................................................................................................................. 32

STAKEHOLDER PERCEPTIONS OF SCHOOL VET PROGRAMS ....................................................... 32
2.1 INTRODUCTION ...................................................................................................................... 32
2.2 EVALUATION OF STUDENT OUTCOME IN VET ............................................................... 32
2.3 PRINCIPAL/TEACHER PERCEPTIONS OF VET .................................................................. 39
2.4 BUSINESS/INDUSTRY PARTICIPATION IN VET ............................................................... 44
2.5 POLICY-MAKER AWARENESS ON VET ISSUES ............................................................. 54
2.6 SUMMARY ............................................................................................................................... 64

CHAPTER THREE .............................................................................................................................. 66

CONCEPTUAL LEARNING PERSPECTIVES .................................................................................. 66
3.1 INTRODUCTION ...................................................................................................................... 66
3.2 THE CONSTRUCTIVIST LEARNING PERSPECTIVE ............................................................ 67
3.3 THE SITUATED LEARNING PERSPECTIVE ......................................................................... 81
3.4 SUMMARY ............................................................................................................................... 86

CHAPTER FOUR ............................................................................................................................... 88

KEY LEARNING ELEMENTS AND THREE MODELS OF VET PROVISION ................................... 88
4.1 INTRODUCTION ...................................................................................................................... 88
4.2 KEY ELEMENTS FROM THE LEARNING FRAMEWORKS ................................................... 88
4.3 THREE MODELS OF VET PROVISION IN SECONDARY SCHOOLS ................................ 104
4.4 ATTEMPTS AT VET PROVISION IN PNG SCHOOLS .......................................................... 122
4.5 SUMMARY ............................................................................................................................... 130

CHAPTER FIVE ................................................................................................................................ 132

RESEARCH DESIGN AND PROCEDURES ...................................................................................... 132
5.1 INTRODUCTION ...................................................................................................................... 132
5.2 RESEARCH METHODOLOGY AND METHOD ..................................................................... 132
5.3 SELECTION AND SAMPLING PROCEDURES ................................................................. 135
5.4 RESEARCH INSTRUMENTS ....................................................................................... 141
5.5 QUALITATIVE INTERVIEWS ..................................................................................... 145
5.6 DATA ANALYSIS ......................................................................................................... 146
5.7 ETHICAL CONSIDERATIONS .................................................................................... 148
5.8 LIMITATIONS OF THE STUDY .................................................................................. 150
5.9 SUMMARY ..................................................................................................................... 151

CHAPTER SIX .................................................................................................................. 152
PNG SURVEY RESULTS ................................................................................................. 152
6.1 INTRODUCTION ........................................................................................................... 152
6.2 STUDENTS’ SURVEY RESULTS ................................................................................. 152
6.3 TEACHERS’ SURVEY RESULTS ................................................................................ 159
6.4 BUSINESS/INDUSTRY PERSONNEL SURVEY RESULTS ..................................... 168
6.5 POLICY-MAKER/SCHOOL PRINCIPALS’ SURVEY RESULTS .................................. 175
6.6 SUMMARY .................................................................................................................... 177

CHAPTER SEVEN ........................................................................................................... 179
DISCUSSION OF THE RESULTS........................................................................................ 179
7.1 INTRODUCTION ........................................................................................................... 179
7.2 STUDENTS’ RESULTS ................................................................................................. 180
7.3 TEACHERS’ RESULTS ................................................................................................. 190
7.4 BUSINESS/INDUSTRY PERSONNEL RESULTS ...................................................... 197
7.5 POLICY-MAKER/SCHOOL PRINCIPALS’ RESULTS .............................................. 206
7.6 SUMMARY OF FINDINGS ........................................................................................... 230

CHAPTER EIGHT ........................................................................................................... 236
INTEGRATED ACADEMIC/VET MODEL FOR PNG ...................................................... 236
8.1 INTRODUCTION ........................................................................................................... 236
8.2 RATIONALE FOR THE INTEGRATED ACADEMIC/ VET MODEL ....................... 236
8.3 APPLICATION OF INTEGRATED ACADEMIC/VET MODEL FOR PNG .............. 245
8.4 EXAMPLES OF INTEGRATED ACADEMIC/VET MODELS ................................... 257
8.5 SUMMARY .................................................................................................................... 262

CHAPTER NINE ........................................................................................................... 263
RECOMMENDATIONS AND CONCLUSIONS ................................................................... 263
9.1 THE KEY FINDINGS AND NEED FOR ACTION ...................................................... 263
9.2 INTEGRATED ACADEMIC/VET MODEL IMPLEMENTATION PLAN ..................... 270
9.3 RECOMMENDATIONS FOR FURTHER RESEARCH .............................................. 272
9.4 CONCLUSION ............................................................................................................... 272

APPENDICES .................................................................................................................. 275
APPENDIX A: STUDENTS’ SURVEY RESULTS ................................................................. 275
APPENDIX B: TEACHERS’ SURVEY RESULTS ................................................................. 336
APPENDIX C: BUSINESS/INDUSTRY PERSONNEL SURVEY RESULTS .................... 347
APPENDIX D: INTERVIEW DATA FROM POLICY-MAKERS/SCHOOL PRINCIPALS ...... 360
APPENDIX E: SURVEY LETTERS AND QUESTIONNAIRES ........................................... 381
BIBLIOGRAPHY .................................................................................................................. 404
LIST OF TABLES IN MAIN TEXT

Table 1: The general PNG education structure...............................................................10
Table 2: Terms used in various countries to describe generic skills.................................26
Table 3: Teachers/trainers’ conceptions of competence as reported in 2002.........................27
Table 4: Mapping key competencies into employability skills............................................29
Table 5: Key learning elements for VET...........................................................................89
Table 6: Grade 11 & 12 pre-tertiary subject categories....................................................127
Table 7: Grade 11 & 12 non-tertiary subjects in their learning area categories.................128
Table 8: Number of listings under 30 business groupings and numbers
        chosen for study........................................................................................................139
Table 9: School, gender, grade level and background of student respondents.....................153
Table 10: School and gender background of teacher respondents.....................................160
Table 11: Teachers’ participation level in academic and VET subjects..............................162
LIST OF TABLES IN APPENDICES

APPENDIX A: STUDENTS’ SURVEY RESULTS

Table A1: Grade 12 students who have participated or are currently participating in general academic and VET subjects

Table A2: Grade 11 students who have participated or are currently participating in general academic and VET subjects

Table A3: Grade 10 students who have participated or are currently participating in general academic and VET subjects

Table A4: Grade 9 students who have participated or are currently participating in general academic and VET subjects

Table A5: Grade 12 students’ reasons to participate in VET courses

Table A6: Grade 11 students’ reasons to participate in VET courses

Table A7: Grade 10 students’ reasons to participate in VET courses

Table A8: Grade 9 students’ reasons to participate in VET courses

Table A9: Grade 12 students’ views about VET

Table A10: Grade 11 students’ views about VET

Table A11: Grade 10 students’ views about VET

Table A12: Grade 9 students’ views about VET

Table A13: Importance of employability skills and personal attributes for Grade 12 students

Table A14: Importance of employability skills and personal attributes for Grade 11 students

Table A15: Importance of employability skills and personal attributes for Grade 10 students

Table A16: Importance of employability skills and personal attributes for Grade 9 students

Table A17: Grade 12 students’ evaluation of teacher effectiveness

Table A18: Grade 11 students’ evaluation of teacher effectiveness

Table A19: Grade 10 students’ evaluation of teacher effectiveness

Table A20: Grade 9 students’ evaluation of teacher effectiveness

Table A21: People influencing Grade 12 students’ study and career pathways

Table A22: People influencing Grade 11 students’ study and career pathways

Table A23: People influencing Grade 10 students’ study and career pathways

Table A24: People influencing Grade 9 students’ study and career pathways

Table A25: Grade 12 students’ general academic and VET course preferences

Table A26: Grade 11 students’ general academic and VET course preferences

Table A27: Grade 10 students’ general academic and VET course preferences

Table A28: Grade 9 students’ general academic and VET course preferences
APPENDIX B: TEACHERS’ SURVEY RESULTS………………………………………336
Table B29: Personnel involvement in developing general academic and VET courses…………………………………………………………………………………337
Table B30: Teachers’ observations of VET course development and delivery……….341
Table B31: Teachers’ views about employability skills and personal attributes included in general academic and VET courses…………………………..343
Table B32: Teachers’ views about VET employability skills and attributes…………..346

APPENDIX C: BUSINESS/INDUSTRY PERSONNEL SURVEY RESULTS………347
Table C33: Business/industry views about employability skills and personal attributes………………………………………………………………………………350
Table C34: Business/industry views about employability skills and personal attributes in VET training programs…………………………………………………353
Table C35: Business/industry views about provision of employability skills training for new employees……………………………………………………………..356
Table C36: Business/industry views about VET training and apprenticeship program participation at different education levels……………………………………..358
LIST OF FIGURES

Figure 1: Papua New Guinea.............................................................2

Figure 2: The difference between traditional and constructivist classroom models........78

Figure 3: 3C3R PBL problem design model.........................................99

Figure 4: Ten levels of curricula integration model.................................113

Figure 5: Upper secondary school curriculum framework..........................126

Figure 6: Integrated Academic/VET Model for PNG..............................250
# LIST OF ABBREVIATIONS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACER</td>
<td>Australian Centre for Educational Research</td>
</tr>
<tr>
<td>ADB</td>
<td>Asian Development Bank</td>
</tr>
<tr>
<td>ADTP</td>
<td>Australasian Digital Theses Program</td>
</tr>
<tr>
<td>ALP</td>
<td>Australian Labour Party</td>
</tr>
<tr>
<td>AQF</td>
<td>Australian Qualifications Framework</td>
</tr>
<tr>
<td>AQTF</td>
<td>Australian Quality Training Framework</td>
</tr>
<tr>
<td>ASI</td>
<td>Adelaide Scholarship International</td>
</tr>
<tr>
<td>CBT</td>
<td>Competency-based Training</td>
</tr>
<tr>
<td>CODE</td>
<td>College of Distance Education</td>
</tr>
<tr>
<td>CTL</td>
<td>Contextual teaching and learning</td>
</tr>
<tr>
<td>DEEWR</td>
<td>Department of Education, Employment and Workplace Relations</td>
</tr>
<tr>
<td>DEST</td>
<td>Department of Education, Science and Training</td>
</tr>
<tr>
<td>EBC</td>
<td>Education Broadcasting Corporation</td>
</tr>
<tr>
<td>GPA</td>
<td>Grade Point Average</td>
</tr>
<tr>
<td>HOD</td>
<td>Heads of Department</td>
</tr>
<tr>
<td>HSC</td>
<td>High School Certificate</td>
</tr>
<tr>
<td>ILO</td>
<td>International Labour Organisation</td>
</tr>
<tr>
<td>IMF</td>
<td>International Monetary Fund</td>
</tr>
<tr>
<td>LSAY</td>
<td>Longitudinal Surveys of Australian Youth</td>
</tr>
<tr>
<td>MDG</td>
<td>Millennium Development Goals</td>
</tr>
<tr>
<td>NATTAB</td>
<td>National Trade and Testing Board</td>
</tr>
<tr>
<td>NCS</td>
<td>National Curriculum Statement</td>
</tr>
<tr>
<td>NCVER</td>
<td>National Centre for Vocational Education Research</td>
</tr>
<tr>
<td>NDE</td>
<td>National Department of Education</td>
</tr>
<tr>
<td>NRQ</td>
<td>Nationally Recognised Qualification</td>
</tr>
<tr>
<td>OECD</td>
<td>Organisation for Economic Corporation and Development</td>
</tr>
<tr>
<td>PBL</td>
<td>Problem-Based Learning</td>
</tr>
<tr>
<td>PETT</td>
<td>Pre-Employment Technical Training</td>
</tr>
<tr>
<td>PNG</td>
<td>Papua New Guinea</td>
</tr>
<tr>
<td>PNGQF</td>
<td>PNG Qualifications Framework</td>
</tr>
<tr>
<td>RTO</td>
<td>Registered training organisation</td>
</tr>
<tr>
<td>SM</td>
<td>Subject Masters</td>
</tr>
<tr>
<td>SSCEP</td>
<td>Secondary Schools Community Extension Project</td>
</tr>
<tr>
<td>TAFE</td>
<td>Technical and further education</td>
</tr>
<tr>
<td>TVET</td>
<td>Technical and vocational education and training</td>
</tr>
<tr>
<td>UAI</td>
<td>Universities Admission Index</td>
</tr>
<tr>
<td>UBE</td>
<td>Universal Basic Education</td>
</tr>
<tr>
<td>UNESCO</td>
<td>United Nations Educational Scientific Cultural Organization</td>
</tr>
<tr>
<td>UNDP PNG</td>
<td>United Nations Development Program, Papua New Guinea</td>
</tr>
<tr>
<td>VET</td>
<td>Vocational Education and Training</td>
</tr>
<tr>
<td>VETiS</td>
<td>VET in schools</td>
</tr>
</tbody>
</table>
ABSTRACT

Vocational education and training (VET) was introduced into the secondary school curriculum in many developed countries because of its economic and social benefits. Papua New Guinea (PNG), a developing nation, appeared to overlook VET as an important tool for economic and social development since independence in 1975. Its secondary schools have provided only an academic pathway for the top quarter of its students. Thousands of secondary school students become school leavers at Grade 10 and 12 levels, without having VET knowledge and employability skills/attributes. This student transition problem negatively impacted on PNG society through high level youth unemployment and unrest. The purpose of this study was to investigate and determine the characteristics of a VET program model at the secondary school level which might address the current student transition problem in PNG. The following question was used to direct this research: How can a VET model address and minimise the current student transition problem at the secondary school level in Papua New Guinea? This study applied the positivist (qualitative) and descriptive (quantitative) mixed methodology. The use of mixed/triangulation methods was considered important because one data collection form would supply strengths to offset the possible weaknesses of the others. The data was gathered using applied discourse/text analysis, questionnaires and semi-structured interviews from purposely selected PNG stakeholders: students, teachers, policy-makers/school principals and business/industry personnel. The results illustrated how VET in PNG was given little priority at the policy level. Most stakeholders thought that academic subjects would assure a better future than VET subjects. Although VET subjects and employability skills and attributes were considered to have some importance by most stakeholders, almost always they expressed some reservations. Most students and teachers thought that VET subjects were less valuable than academic subjects. Similarly, most business/industry personnel expressed that postgraduate students and other tertiary graduates possessed better skills for work than the secondary school graduates. This was
because VET programs were restricted to post-secondary schools or TVET colleges. Most stakeholders failed to realise that the academic subjects could be studied only by a minority students. Teachers and school principals were trying their best to manage their schools within their means. Most did not have the required teaching and learning facilities to implement the new VET subjects at secondary level. These reforms were put in jeopardy because of the lack of resources, especially classroom space, training facilities and qualified VET teachers. Although the stakeholders were positive about the importance of VET, there was little evidence of actual participation in VET programs at the secondary school level. The results illustrated a need to embrace both VET and general academic subjects as an integral part of secondary school level in PNG. Therefore, the study concluded that PNG needs to consider and implement an integrated academic/VET program model at the secondary school level. This integrated academic/VET model would enhance many students’ pathways for further education and training, employment and improvement of life in PNG.
DECLARATION

This work contains no material which has been accepted for the award of any other degree or diploma in any university or other tertiary institution to Daniel Kaki Leke and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text. I give consent to this copy of my thesis, when deposited in the University Library, being made available for loan and photocopying, subject to the provisions of the Copyright Act 1968. I also give permission for the digital version of my thesis to be made available on the web, via the University’s digital research repository, the Library catalogue, the Australasian Digital Theses Program (ADTP) and also through web search engines, unless permission has been granted by the University to restrict access for a period of time.

Name: Daniel Kaki Leke

Signature: ________________________________

Date: ________________________________
ACKNOWLEDGEMENTS

I wish to thank the following people and organizations for making my dream come true in reaching another milestone in my life.

My sincere thanks and gratitude goes to my Principal Supervisor, Dr Christine Velde and Co-External Supervisor Emeritus Professor Robert Crotty for their tireless and careful reading and editing of each draft and their expertise in guiding the direction of this thesis.

I also wish to extend my appreciation to Dr Margaret Secombe for her assistance in editing the final thesis draft. Margaret also edited the research instruments during the proposal stage.

Also, my thanks and appreciation goes to the University of Adelaide, through the Adelaide Graduate Centre and International Student Office for awarding me the Adelaide Scholarship International (ASI). My appreciation and gratitude go also to the people who facilitated my application for one of Adelaide University”s prestigious International Postgraduate Research Scholarships.

Thanks to staff of the School of Education for providing the required resources and facilities and for making the School environment an ideal place to study.

I am grateful to all the people in Papua New Guinea who helped me by providing accommodation, office space and the necessary information during my field trip in 2008. Thanks to the National Department of Education Officials, School Principals/Deputy Principals, Teachers, Students and Industry Personnel who responded to the survey questionnaires and interviews.

My dear Mum and Dad, you were always there for me. Kaipu Tara, you tirelessly woke up at three o’clock every morning to prepare my breakfast for six years. You did that to prepare me a four hour daily journey to the only primary school in a remote village in the
central highlands of Papua New Guinea. You once said, „Son, if you go to school, you will see many places and enjoy a good life‟. In the same way, Yango Mama, you had great dreams for me. You supported me financially from primary to high school. Unfortunately, you both did not live to see and enjoy the fruits of your works.

The completion of this thesis would not have been possible if it was not for the support, encouragement and prayers of my wife Jowella P. Leke and the cheerful and smiling faces of my four children – Emmanuel, Melody, Healery and Faithy who have said, „I love you, dad‟, „you are the best dad in the whole entire world‟. These words have been my encouragement and strength to complete this journey.

Thanks to my Eternal God who has given me knowledge and strength on my journey.