
**FEMALE STUDENTS' ATTRIBUTIONS
FOR ACADEMIC ACHIEVEMENT IN
SECONDARY SCHOOLS IN PAPUA
NEW GUINEA**

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ABSTRACT

This study into female students' attributions for academic achievement in secondary schools in Papua New Guinea (PNG) examined the factors that inhibited school leavers from gaining access to and/or completing secondary education and their academic achievement. It also examined the factors which facilitated the academic achievement of Grade 12 female students. Hence, academic achievement in the context of this study is defined as access to and completion of secondary school grades and results in tests and examinations.

The research methodology and design employed in this study was chosen in response to the unique and complex geographical and sociocultural context in which it was conducted. It employed a triangulation mixed methods design embedded within the theoretical underpinnings of the transformative and pragmatic research paradigms. Hence, quantitative data was collected through two sets of survey questionnaires and qualitative data were collected through interviews and focus group meetings. Data for this study was collected from three main groups comprising two groups of female school leavers and one group of Grade 12 students at each of the two research sites.

The quantitative data were analysed using the Statistical Package for Social Sciences (SPSS) Version 14 to conduct descriptive analyses, Analysis of Variances (ANOVA) and T-Tests. Descriptive analyses provided demographic information of the participants. Analysis of Variances (ANOVA) was conducted to examine the differences between the three groups. T-Tests were conducted to examine the differences between the participants at the two research sites. The findings are presented in Chapter 4. The qualitative data from the interviews and focus groups were transcribed and analysed using NVivo Version 8. The results are presented in Chapters 5. The findings are elaborated on in a triangulated discussion presented in Chapter 6.

The findings of this study indicate that inherent (psychological and emotional) factors inhibit and/or facilitate academic achievement of female students in secondary schools at the two research sites. Academic achievement of female students at the two sites were also impeded and/or facilitated by external factors. The

key impediments and/or incitements for academic achievement were categorized along the lines of the locus of control: internal and external. Internal impediments comprised three major factors: psychological and emotional distress, the nature of motivational goal orientations and the learning strategies. The external impediments comprised three key factors: factors relating to the national education policy frameworks, school factors and non-school factors. The internal incitements for academic achievement comprised three key factors: the power of resilience, the nature of motivational goal orientations, and learning strategies. The external incitements for academic achievement consisted of two key factors: school and non-school factors.

Fifteen conclusions were drawn from the study's findings and these could be categorised under two broad headings. The findings of the study concluded with two major conclusions being drawn and fifteen more specific conclusions within the two broad conclusions. As a result of these conclusions, nine recommendations were provided to address the research problem with limitations and opportunities for future research being identified.

CERTIFICATION OF DISSERTATION

The work submitted in this dissertation is original, except as acknowledged in the text. The material herein has not been submitted, either in whole or in part, for any other award at this or any other university except where acknowledged.

Signature of Candidate

Date

Signature of Principal Supervisor

Date

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I am the third woman from Bougainville and a first from Central Bougainville to complete Doctoral studies and to have achieved this is, in a matrilineal context, a milestone for myself, my family, my people of Kongara 1 and my nation. However, this would not have been possible without the support of the following:

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DEDICATION

Life values are learned. My love for education, a desire to excel in school and see my people liberated through education were values instilled in me by my late father and mentor, Samuel Tanumpui Dovona. He was a pioneer in his local area, a bridge between his people and the missionaries, an interpreter, a leader, an educator and a pastor. He led his people to the outside world through a strategic tool, formal education. He sacrificed his time, energy, knowledge and skills, and even his maternal land for the sake of the needs of a wider community. In his passing he left behind a legacy for his children, grand children and great grand children to pursue. My respect and memories of this outstanding leader has resulted in following in his footsteps in ensuring that our people have a decent education and once again create history for our people. I dedicate my work to this great leader, mentor and my father.

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TABLE OF CONTENTS

ABSTRACT.....	ii
CERTIFICATION OF DISSERTATION.....	iv
ACKNOWLEDGMENTS	v
DEDICATION	viii
TABLE OF CONTENTS.....	ix
LIST OF TABLES	xx
LIST OF ACRONYMS	xxi
CHAPTER ONE: FEMALES AND EDUCATION IN PAPUA NEW	
GUINEA.....	1
1.0 Overview of the Chapter.....	1
1.1 Background to the Study.....	1
1.2 The Geographical Context of the Study.....	4
1.3 The Provision of Education and the Education System in PNG.....	6
1.3.1 The Provision of Education.....	6
1.3.2 The Education System.....	7
1.4 Participation by Female Students in Education in PNG	9
1.5 Barriers to Female Education.....	13
1.5.1 Access	14
1.5.2 Curriculum	14
1.5.3 Teachers	14
1.5.4 Culture.....	15
1.5.5 School Fees	15
1.5.6 Termination and Withdrawal from School	16
1.5.7 Societal Attitudes Towards Females in PNG.....	16
1.6 Academic Achievement of Female Students in PNG	17
1.6.1 Academic Achievement of Females in Secondary Schools in PNG.....	17

1.7 Problem Statement	19
1.8 The Aim of this Study	19
1.9 Key Research Questions	21
1.10 Significance of the Study	21
1.12 Overview of Thesis	22
1.13 Summary	25
CHAPTER 2: LITERATURE REVIEW	26
2.0 Overview of the Chapter	26
2.1 Introduction	27
2.2 The Attribution Theory of Motivation	27
2.2.1 Locus of Control	31
2.2.2 Stability	31
2.2.3 The Use of Attribution Theory of Motivation in Cross-Cultural Contexts	32
2.3 Achievement Motivational Goals	32
2.3.1 Mastery Goals	33
2.3.2 Performance Goals	34
2.3.3 Social Goals	35
2.3.4 Environment and Achievement Goals	36
2.4 Self-Regulatory Learning Strategies	38
2.4.1 Self-Regulation	38
2.4.1.1 Importance of Self-Regulation	41
2.4.1.2 Self-Regulation in Cross-Cultural Contexts	41
2.4.2 Self-efficacy	42
2.5 Social Constructivist Gender Theory	44
2.5.1 Gender and Participation	46
2.5.2 Gender, Achievement Motivational Goals and Achievement	47
2.6 Theoretical Framework for this Study	49

2.7 Summary	51
CHAPTER THREE: RESEARCH DESIGN AND METHODOLOGY	53
3.0 Overview of the Chapter	53
3.1 Introduction	53
3.2 Data Collection Procedures	56
3.2.1 The Surveys.....	57
3.2.1.1 Part A of the Surveys	59
3.2.1.2 Part B of the Surveys.....	61
3.2.3 Interviews and Focus Group Schedules	67
3.2.3.1 Interview and Focus Group Protocols.....	68
3.3 The Reliability and Validity of the Instruments	72
3.3.1 Reliability.....	72
3.3.2 Validity.....	73
3.3.2.1 Cultural Validity	73
3.3.2.2 Triangulation Validity.....	74
3.4 Participants and Sampling Procedures	75
3.4.1 The Participants.....	75
3.4.1.1 The Sample Size of the Survey Questionnaire.....	75
3.4.1.2 Interview and Focus Group Sample	76
3.4.2 The Sampling Techniques and Procedures	77
3.4.2.1 Stratified Purposeful Sampling	77
3.4.2.2 Convenience Sampling.....	79
3.4.2.3 Systematic Sampling for Group C	80
3.5 The Research Sites	81
3.5.1 Research Site 1	81
3.5.2 Research Site 2	82
3.6 Data Analysis	83

3.6.1 Quantitative Analysis	83
3.6.2 Qualitative Analysis	85
3.7 The Research Design.....	85
3.7.1 Mixed Methods Research.....	85
3.7.1.1 Triangulation Mixed Methods Design	86
3.8 Philosophical Assumptions Influencing the Research Design.....	87
3.8.1 Pragmatic Position	88
3.8.2 Transformative-Emancipatory Position	88
3.8.2.1 Cultural Competence.....	89
3.8.2.2 Cultural Sensitivity	92
3.9 The Researcher in Text	93
3.10 Ethical Considerations	94
CHAPTER FOUR: RESULTS OF THE SURVEYS	96
4.0 Overview of the Chapter	96
4.1 Introduction	97
4.2 Descriptive Analysis of the Demographic Information	97
4.2.1 School Achievement of Groups A, B and C	98
4.2.1.1 Ratings of Achievement in Subjects by Group A- Grade 8 School Leavers (SLs).....	99
4.2.1.2 Academic Achievement Ratings for Group B- Grade 9-10 School Leavers	100
4.2.1.3 Subject Grades of Group C- Grade 12 Students	101
4.2.2 Gender of Subject Teachers	103
4.2.2.1 Gender of Subject Teachers for Group A- Grade 8 School Leavers.....	104
4.2.2.2 Gender of Subject Teachers for Group B- Grades 9-10 School Leavers.....	105
4.2.2.3 Gender of Teachers for Students in Group C- Grade 12	

Students	106
4.2.3 Student Support Services in School	107
4.2.4 Place of Residence for Participants in Groups A, B, and C	108
4.2.5 Occupational Status of Parents and/or Guardians	109
4.2.5.1 Occupational Status of Fathers and/or Male Guardians	109
4.2.5.2 Occupational Status of Mothers/Female Guardians	111
4.2.6 Educational Levels of Parents or Guardians	111
4.2.6.1 Educational Levels of Fathers and/or Male Guardians	112
4.2.6.2 Educational Levels of Mothers and/or Female Guardians	113
4.2.7 Source of School Fees	115
4.2.8 Sibling Position as a Child from a Mother	116
4.3 The Principal Component Factor Analysis on the Surveys of Groups A, B and C	118
4.3.1 The Factor Analysis on Part B of the Survey	119
4.3.2 Factor Analysis on Part C of the Surveys	125
4.3.2.1 Group A-Grade 8 School Leavers	125
4.4.1 Differences Between the Groups- Part B of the Surveys	132
4.4.1.1 Personal Goals	137
4.4.1.2 Perceived Classroom Goals	137
4.4.1.3 Perceived Parental and/or Guardian Goals	138
4.4.1.4 Self-Efficacy	138
4.4.2 Differences Between the Groups - Part C of the Surveys	139
4.4.2.1 Parental and/or Guardian Support	145
4.4.2.2 Gender Inclusivity	145
4.4.2.3 Curriculum Resources: Teachers	146
4.4.2.4 School Size	146

4.4.2.5 The School Emotional Environment.....	147
4.4.2.6 Religious Faith and Spirituality	148
4.5 Comparison Between the Two Research Sites.....	148
4.5.1 Independent Samples T-Test on Part B of the Surveys	149
4.5.1.1 Personal Performance Goals	152
4.5.1.2 Perceived Parents and/or Guardian Goals.....	152
4.5.1.3 Self- Regulation	152
4.5.1.4 Self-Efficacy Beliefs	153
4.5.2 Independent Samples T-Test on Part C of the Surveys	153
4.5.2.1 Gender Inclusivity.....	156
4.5.2.2 Availability of Teachers.....	156
4.5.2.3 Availability of Resources-Range of Curriculum Subjects.....	156
4.5.2.4 School Size.....	157
4.5.2.5 The School Emotional Environment.....	157
4.6 Summary	158
CHAPTER FIVE: RESULTS OF THE INTERVIEWS AND FOCUS	
GROUPS	161
5.0 Overview of the Chapter	161
5.1 Introduction.....	161
5.2 The Interviews and Focus Groups with School Leaver Groups	164
5.2.1 Key Findings of Interviews with Group A.....	164
5.2.1.1 Academic Under-Performance Performance	165
5.2.1.2 Difficulty with Payment of School Fees	165
5.2.1.3 Safety Issues.....	165
5.2.2 Key Findings of Interviews with Participants in Group B.....	167
5.2.2.1 Personal Factors	167
5.2.2.2 Difficulties with Payment of School Fees.....	168

5.2.2.3 Problematic Family Situations	168
5.2.2.4 Teacher-related Issues	169
5.2.2.5 Lack of Basic School and Community Infrastructure.....	170
5.2.2.6 Safety Issues.....	171
5.2.3 Findings from Group A and B Focus Groups	171
5.2.3.1 The Psychological and Emotional Distress.....	172
5.2.3.2 Lack of Commitment to Study and Poor Time Management	175
5.2.3.3 Difficulties in Payment of School Fees.....	175
5.2.3.4 Peer Group Pressure	176
5.2.3.5 Teacher-Related Issues.....	176
5.2.3.6 Family-Related Issues.	179
5.2.3.7 Safety Issues.....	180
5.3 The Interviews and Focus Groups with Grade 12 Students.....	181
5.3.1 Key Findings from Interviews with Grade 12 Students.....	182
5.3.1.1 Personal Aspirations	182
5.3.1.2 Belief in Self	183
5.3.1.3 Resilience and Determination to Succeed.....	184
5.3.1.4 Commitment to Study and Personal Aspiration.....	185
5.3.1.5 Time Management.	185
5.3.1.6 Personal Religious Faith and Spirituality.....	185
5.3.1.7 Influence of Role Models.....	186
5.3.1.8 Family Relationships and Support.	187
5.3.1.9 The School Psychological and Emotional Environment.....	187
5.3.2 Key Findings from Group C- Focus Groups.....	189
5.3.2.1 Personal Goals and Aspirations	189
5.3.2.2 Commitment to Study	192

5.3.2.3 Resilience and Determination to Study in Problematic Family Situations	193
5.3.2.4 Personal Religious Faith and Spirituality.....	194
5.3.2.5 The Use of Regulatory Strategies-Teamwork.....	195
5.3.2.6 Parental and/or Guardian Support.....	195
5.3.2.7 School and Teacher Support	196
5.3.2.8 Role Models	196
5.4 Summary	198
CHAPTER SIX: DISCUSSION	200
6.0 Overview of the Chapter	200
6.1 Introduction.....	200
6.2 Impediments to Academic Achievement of School Leavers- Internal.....	203
6.2.1 Academic Under-Performance.....	203
6.2.1.1 The Nature of Students’ Motivational Goal Orientations	205
6.2.1.2 Self-Regulatory Learning Strategies	215
6.2.1.3 Psychologically and Emotionally Distressing Issues.....	221
6.3 Impediments to Academic Achievement of School Leavers- External.....	222
6.3.1 Policy Framework	222
6.3.2 School Factors.....	223
6.3.2.1 Parental and/or Guardian Difficulty with Payment of School Fees.....	223
6.3.2.2 Teacher-Related Issues.....	225
6.3.2.3 Availability of Curriculum Resources and Materials	226
6.3.2.4 Gender Inclusivity	228
6.3.2.5 School and Class Size	231

6.3.3 Non-School Factors.....	236
6.3.3.1 Safety Issues.....	236
6.3.3.2 Family Dynamics	237
6.3.3.3 Family Type	238
6.3.3.4 Socio-Economic Status (SES) of Families and Academic Achievement.....	244
6.3.3.5 School and Community Infrastructure.....	246
6.3.3.6 Personal Factors	247
6.4 Incitements for Academic Achievement of Grade 12 Students	249
6.4.1 Incitements for Academic Achievement of Grade 12 Students- Internal	251
6.4.1.1 The Nature of Motivational Goal Orientations	251
6.4.1.2 Self-Regulatory Learning Strategies	258
6.4.1.3 Self-Efficacy	262
6.4.1.4 The Power of Resilience	264
6.4.2 Incitements for Academic Achievement-External.....	268
6.4.2.1 School Factors.....	268
6.4.2.2 Non-School Factors.....	271
6.4.2.3 Religious Faith and Spirituality	276
6.4.2.4 Role Models	278
6.5 Summary of the Major Findings of this Study.....	280
CHAPTER SEVEN: CONCLUSIONS, RECOMMENDATIONS, LIMITATIONS AND FURTHER STUDY	285
7.0 Overview of the Chapter	285
7.1 Introduction.....	285
7.2 Conclusions from the Study.....	286
7.3 Recommendations from the Study.....	293

7.3.1 Recommendations for Short-Term Solutions.....	293
7.3.2.1 Recommendation 1: Establishment of a Teacher Development Centre Pilot Project at the University of Goroka.....	293
7.3.1.2 Recommendation 2: Establishment of Papua New Guinea Girls in Mathematics and Sciences (PNGGIMS).....	295
7.3.1.4 Recommendation 4: Broaden the Scope of Checks on Teacher Performance in Schools	297
7.3.1.5 Recommendation 5: A Need to Teach Professionalism and Ethics by Teacher Education Institutions	297
7.3.1.6 Recommendation 6: Promote Gender Inclusivity in Practice and Access to School Curriculum Resources and Materials	298
7.3.2 Recommendations for Long-Term Solutions.....	298
7.3.2.2 Recommendation 2: A Development of Student Leadership.....	301
7.3.2.3 Recommendation 3: Implementation of Education for All (EFA) to Include Secondary Schools	301
7.3.2.4 Recommendation 4: Develop ICT Policy to Promote Learning in Schools	302
7.3.2.5 Recommendation 5: Development of Basic Community Infrastructure	303
7.5 Personal Reflections.....	305
REFERENCES.....	307
APPENDIX B: GROUP A & B SURVEY- TOK PISIN VERSION	345
APPENDIX C: GROUP C SURVEY	365
APPENDIX D: INTERVIEW AND FOCUS GROUP PROTOCOL- TOK PISIN	383

LIST OF FIGURES

Figure 1.1 Map of Papua New Guinea.....	5
Figure 1.2 The Structure of the Current Education System.....	8
Figure 1.3 The Old Structure of the National Education System of PNG.....	9
Figure 1.4: Enrolment Rates of the 1999 Grade 9 Cohort	11
Figure 2.1: Dichotomous Achievement Motivational Goals	35
Figure 2.3: Zimmerman’s Cyclical Model of Self-Regulation	40
Figure 2.4: Theoretical Framework For This Study	50
Figure 3.1: Triangulation Mixed Methods Research Design.....	87
Figure 4.1 Academic Achievement Ratings for Group A.....	99
Figure 4.2: Academic Achievement Ratings in Subjects for Group B	100
Figure 4.3: Grades Attained by Group C in Semester Two Subjects of Grade 11 ..	102
Figure 4.4: Grades Attained in Semester One of Grade 12.....	103
Figure 4.5: Gender of Subject Teachers for Group A.....	104
Figure 4.6: Gender of Subject Teachers for Group B	105
Figure 4.7: Gender of Subject Teachers for Group C	107
Figure 4.8: Student Support Service in Schools.....	108
Figure 4.10: Occupational Status of Group A, B and C Mothers and/or Female Guardians	111
Figure 4.11: Highest Educational Levels of Fathers and/or Male Guardians	112
Figure 4.12: Highest Level of Education of Mothers and/or Female Guardians	114
Figure 4.13: Sources of School Fees.....	115
Figure 4.14: Sibling Position as Child from the Mother.....	117
Figure 5.1: Key Impediments From Grade 8, 9 and 10 School Leavers’ Interviews and Focus Groups.....	181
Figure 5.2: Major Incitements for Academic Achievement of Grade 12	198
Figure 6.1: Impediments to Academic Achievement of Grades 8, 9 & 10.....	202
Figure 6.2: Incitements to Academic Achievement.....	250
Figure 6.3: Summary of Key Impediments and Incitements for Achievement of Female Students in Secondary Schools in PNG	280

LIST OF TABLES

Table 2.1: Attributions for Success and/or Failure or Under-Achievement	30
Table 3.1. Summary of the Mixed Methods Research Approach and Data Analysis	56
Table 3.2. Samples of Items from Part A of the Grades 8, 9 &10 Survey.....	60
Table 3.3: Samples of Items from Part A of the Grade 12 Survey	61
Table 3.4: Samples of Items Measuring Beliefs, Perceptions, and Attitudes of Participants.....	62
Table 3.5. Samples of Items from Part C of the Survey	65
Table 3.6: Group A and B Interview and Focus Group Protocol- English Version ..	69
Table 3.7: Group C Interview Protocol.....	70
Table 3.8: Participants in the Surveys.....	76
Table 3.9: Participants in Interview and Focus Groups	77
Table 4.2 Factor Analysis for Group B on Part B of the Survey- Four-Factor Solution	122
Table 4.7: Results of ANOVA of Attributions and Post-hoc Test for the Variables in Part B of the Survey	133
Table 4.8: Results of ANOVA of Attributions and Post-hoc Test Between Groups A, B and C for the Variables in Part C of the Survey	140
Table 4.9: Independent Samples T-test for Part B of the Surveys for Sites 1 and 2	150
Table 4.10: Independent Samples T-test for Part C of the Surveys for Sites 1 and 2	154
Table 5.1: Interview and Focus Group Interview Protocol for Groups A and B.....	162
Table 5.2: Interview and Focus Group Protocol for Groups C.....	163

LIST OF ACRONYMS

ADB	Asian Development Bank
AGE PNG	Accelerating Girls Education in Papua New Guinea
ANOVA	Analysis of Variance
AusAUD	Australian Agency for International Development
CBD	Central Business District
CODE	College of Distance Education
CRC	Convention on the Rights of the Child
EFA	Education For All
HSCE	Higher School Certificate Examination
IEA	International Education Agency
IHD	Integral Human Development
ILO	International Labour Organisation
MBCDFA	Milne Bay Church Development Fund Association
NEB	National Education Board
PALS	Patterns of Adaptive Learning Survey
PEB	Provincial Education Board
PNG	Papua New Guinea
PNGDOE	Papua New Guinea Department of Education
SCE	School Certificate Examination
SD	Standard Deviation
SES	Socio-Economic Status
SPSS	Statistical Package for the Social Sciences
SRC	Student Representative Council
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNICEF	United Nations International Childrens Emergency Fund
UNDP	United Nations Development Programme
UOG	University of Goroka
USQ	University of Southern Queensland
YWCA	Young Christian Womens Association

CHAPTER ONE: FEMALES AND EDUCATION IN PAPUA NEW GUINEA

1.0 Overview of the Chapter

Chapter 1 clarifies the context in which this study is conducted. **Section 1.1** presents the background to the study; **Section 1.2** describes the geographical context of the study; **Section 1.3** explains the provision of education and the education system in PNG; **Section 1.4** provides data on the level of participation of female students in education; **Section 1.5** outlines the barriers to education from existing studies; **Section 1.6** presents the information about the academic achievement of female students in secondary schools; and **Section 1.7** presents the problem statement; **Section 1.8** highlights the aim of this study; **Section 1.9** presents the research questions; **Section 1.10** discusses the significance of this study; **Section 1.11** details the delimitations of the study; **Section 1.12** gives an overview of the thesis; and **Section 1.13** presents the chapter summary.

1.1 Background to the Study

The female population in Papua New Guinea (PNG) is faced with a number of important but complex and challenging issues that hinder females' pursuit for advancement in a contemporary society. Many of these challenges are embedded in the nature of socio-cultural values and practices, some of which are deeply embedded in the culture and have often become obstacles to the advancement and meaningful participation of females in the country's development.

According to a report by the United Nations Educational, Scientific and Cultural Organisation (UNESCO) (2005), the 2000-2004 indicators, which include literacy rates,

show that the status of the PNG female population is the lowest in the East Asia Pacific Region. The national literacy rate for adult Papua New Guineans from the age of 15 years was estimated at 57.3% which was the lowest compared to the regional literacy rate of 91.4%. PNG females had a 50.9% literacy rate compared to 63.4% for males in a country with a population of six million people. The regional literacy rate for adult females was 87.7%. Iffland (2005) reported in the Asian Development Bank (ADB) Review that PNG's highlands provinces were amongst the lowest in the country in terms of literacy rates, with provinces such as Enga accounting for more than 70% illiteracy rate amongst females (see Figure 1.1 for location on map). Although intervention efforts by successive governments in conjunction with development partners to lift the literacy rate have been in place, for some, their progress has been slow.

About 82% of Papua New Guineans live in rural areas and females make up approximately 48% of the population. Generally females play a traditionally subordinate role to men in public and community decision-making, however they have been the backbone in maintaining the social and economic system in PNG. According to the International Labour Organisation (ILO), in 2000, 69.1% of females aged 15-64 years old group were actively involved in some form of work (International Labour Organisation, 2005). Most of them would have worked in the informal sector in subsistence food production and sale in the urban markets. Although the mining and petroleum sector is the strongest and a leader in PNG economic activity, many females cannot be employed in the industry as they do not have the skills and knowledge required by the companies.

A number of impediments to female access to and participation in management roles, economic activities, politics, and in education have been highlighted by researchers. Sukthankar (1999), for example, noted that only 11.6% of the senior management positions, and only 29.5% of the professional and technical jobs in PNG were held by women. Sukthankar attributed this to the severe shortage of qualified female applicants with mathematical competency which was necessary for advancement in these fields as

well as cultural factors that contribute to this shortage. Culturally a woman's place is in the home where her primary roles include domestic duties and child rearing. Sukthankar added that in the PNG context mathematics and science were considered as male subjects and mathematics was taught as an abstract subject without practical applications. Culturally accepted male dominance, traditional roles of women and other factors such as school fees have been identified as obstacles to educational opportunities of young girls (Dugue, 2004; Korare, 2002; Tuaru, 2004; Webster, 2004a, 2004c, 2004e).

International and national funding partners such as AusAID, the United Nations International Children's Education Fund (UNICEF), and the United Nations Development Programme (UNDP), have assisted through projects aimed at increasing opportunities to lift the general status of women in PNG. However, change has been slow to achieve. One of the target areas of funding partners has been education. Education of young girls who, in turn, will participate in nation building as equal partners with males by educating their families and communities is considered vital. As Bushweller (2004) asserted, "Investing in girls' education globally increases economic growth and political participation, improves women's health, leads to smaller and more sustainable families, and helps prevent diseases" (p.18). Funding support for girls' education is considered by many as an investment worth making and an investment that is sure to yield multiple returns.

Girls' education is vital for any nation's development as in educating a girl, a family is educated and in educating a family a nation is educated. Similarly, Oprah Winfery (2007) passionately said, "Educate a girl, you change the face of her nation". Hence, education is a catalyst for reaping multiple benefits, not just advancement of women but also national development in all facets. Support from the funding partners has attempted to improve girls' access to and participation in education in PNG. Whilst there has been rapid growth at the primary sector of education, at the secondary level the growth has been much slower.

Female students' access to and participation in secondary education appears to be set on the basis of two key factors: (1) availability of places in school and, (2) the academic performance.

1.2 The Geographical Context of the Study

Located north of Australia and east of Indonesia (see Figure 1.1 for map), PNG was formerly colonised by Germany, Britain and Australia respectively, until 1975 when she gained her independence. According to the 2000 national census, Papua New Guinea had a population of 5.17 million (National Statistical Office of Papua New Guinea, 2000) which has now grown to an estimated population of six million people ("Papua New Guinea: The world factbook", 2009). PNG females constituted 48% of the population compared to 52% of males. The majority of the population consisting of some 86% live in rural areas compared to 14% who live in the urban centres of the country. Most of the urban population are in the formal employment sector (National Statistical Office of Papua New Guinea, 2000)

PNG is probably one of the world's most culturally and ethnically diverse nations boasting over 800 distinct languages representing the ethnic minority groupings recorded so far. The rugged terrains run along the centre of the main island of New Guinea, the swamps, rivers, vast areas of dense forests, and 600 islands spread across 9,980 square kilometres characterising the geographical nature of the country ("Papua New Guinea: The world factbook", 2009). The country is divided into four geographical regions constituting eighteen provinces, the National Capital District and the Autonomous Region of Bougainville. Port Moresby is the capital city.

Figure 1.1 Map of Papua New Guinea



Extracted from <http://www.mamci.com.au/Maps.html>

Papua New Guinean cultures on the mainland of New Guinea are predominantly organised along patrilineal kinship systems, whereas in a few coastal areas of New Guinea and most island cultures are organised along matrilineal kinships (McElhanon & Whiteman, 1984, as cited in Flaherty, 1998). Cultures in Milne Bay, Bougainville, East New Britain and parts of West New Britain and New Ireland are generally matrilineal. In

matrilineal cultures, lineage is traced through a common female ancestress through successive generations of women. Women in matrilineal cultures also receive rights of descent as well as rights to land whilst in some areas, rights to land is passed through maternal uncles. In patrilineal cultures, lineage is traced through a common male ancestor and land is held in common. People belonging to the same patrilineal community often live and till the land together (McElhanon & Whiteman, 1984, as cited in Flaherty, 1998).

1.3 The Provision of Education and the Education System in PNG

1.3.1 The Provision of Education

There is a close partnership and co-operation between a number of stakeholders in the provision, management and development of the PNG National Education System. The National Education System was established in 1970 with a view to unifying the schools that were then operated under the colonial government and the churches. Additionally the churches who were the major providers of education during the pre- and post-war era were finding the task of delivering education an impossible financial burden, hence the establishment of the national education system (Flaherty, 1998).

The national education system was established as joint partnership between the government schools and the church agencies comprising the Anglican, Evangelical Alliance, Lutheran, Roman Catholic and the United Church of PNG. During the course of this PhD project, the Seventh Day Adventist Church also joined the schools in the National Education System. Although administratively the church agency schools in the national education system have come under the respective churches, under the partnership arrangements, all their teachers are employed by the PNG Teaching Services Commission and all schools receive school fee subsidies from the government.

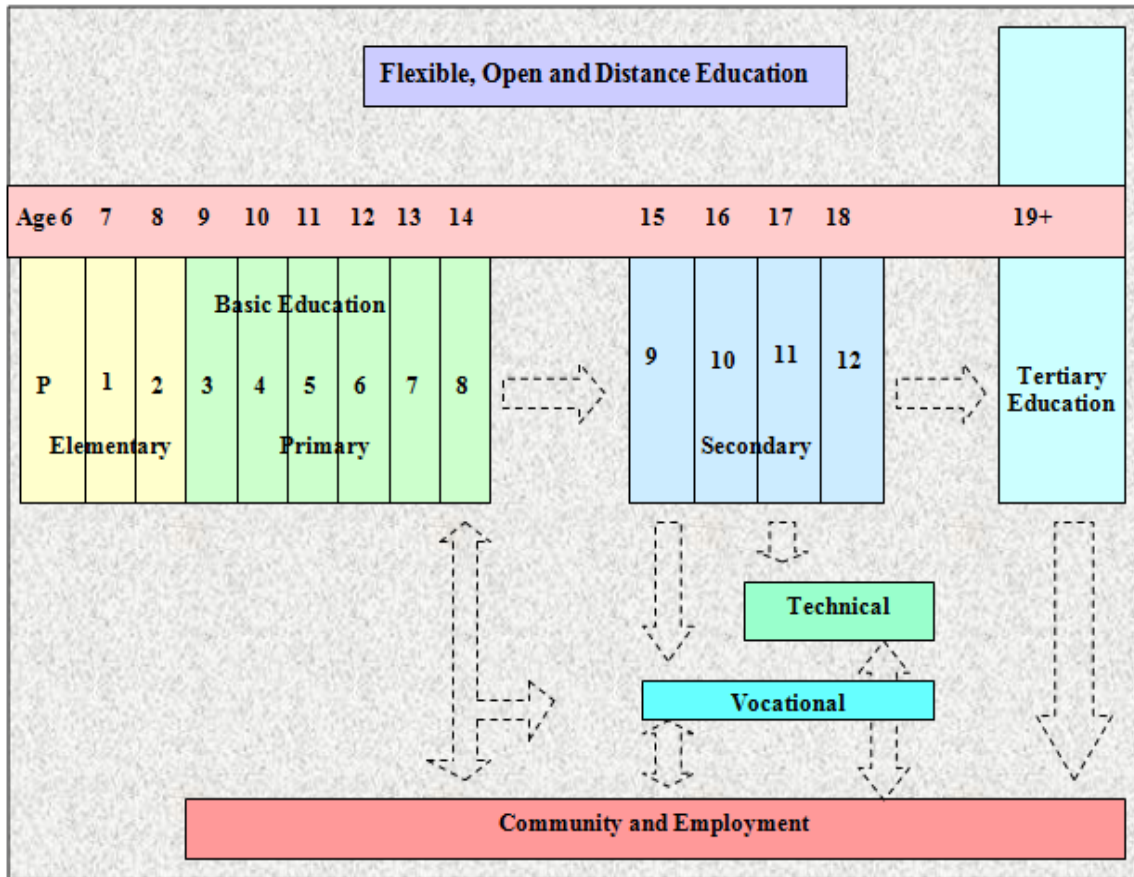
Education in PNG has also been provided by those outside of the national education system. These are called the permitted schools. Despite operating independently of the National Education System they are required to submit their enrolment data to the National Department of Education. PNG citizens in these schools have also been required to sit for the national examinations. Permitted schools comprise some church administered schools outside of the mainline churches, independent schools and schools under the International Education Agency (IEA).

To date, in PNG, schooling is neither compulsory nor free. Although the government provides school fee subsidy, parents pay school fees and other educational costs for their children.

1.3.2 The Education System

The education system in PNG has undergone a structural reformation process over ten years under the National Education Plan 1995-2005. The purpose of the reform was “to increase access to and participation at all levels of education and to support the Education For All (EFA) goals of Universal Primary Education”. This was an international commitment launched in 1990 which PNG ratified the EFA (Papua New Guinea Department of Education, 2004a, p.3). It also aimed at the reformation of the curriculum to make it more relevant to its citizens by introducing vernacular education in the first three years and a focus on life skills as well as opening up a range of educational opportunities beyond Grade 8 level of education. Details of the reformed education structure is shown in Figure 1.2 and the old education structures is shown in Figure 1.3.

Figure 1.2 The Structure of the Current Education System

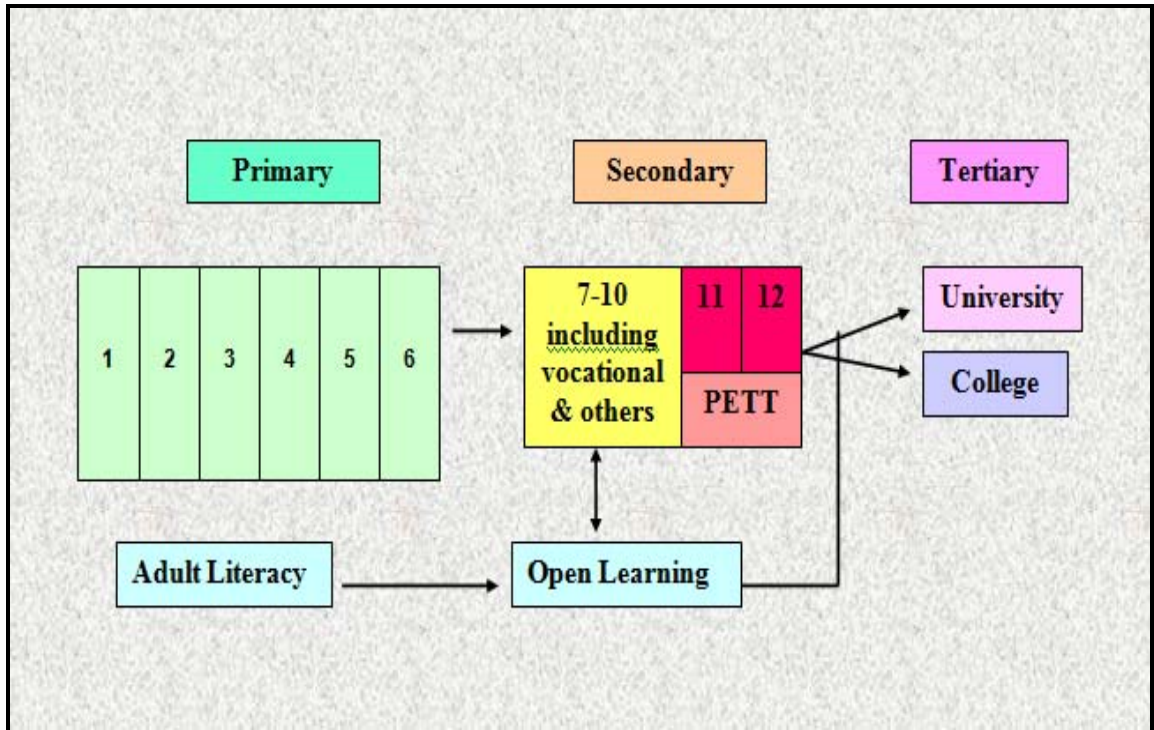


Adapted from Education Department Annual Report (2004, p.5)

The reformed system comprises the first three years of elementary education with primary education commencing from Grade 3 and onto Grade 8. Secondary education commences at Grade 9 and continues to Grade 12 and then onto tertiary education. Alternative paths were created to enable school leavers at various exit points to access alternative pathways of schooling. This was unlike the old system in which the exit points were Grades 6, 10 and 12. Under the old system, there were only four national

high schools for the country offering Grade 11 and 12 and limited opportunities were provided for many children who were forced out of Grade 6. Refer Figure 1.3 for details.

Figure 1.3 The Old Structure of the National Education System of PNG



Adapted from Education Department Annual Report (2004, p.5)

1. 4 Participation by Female Students in Education in PNG

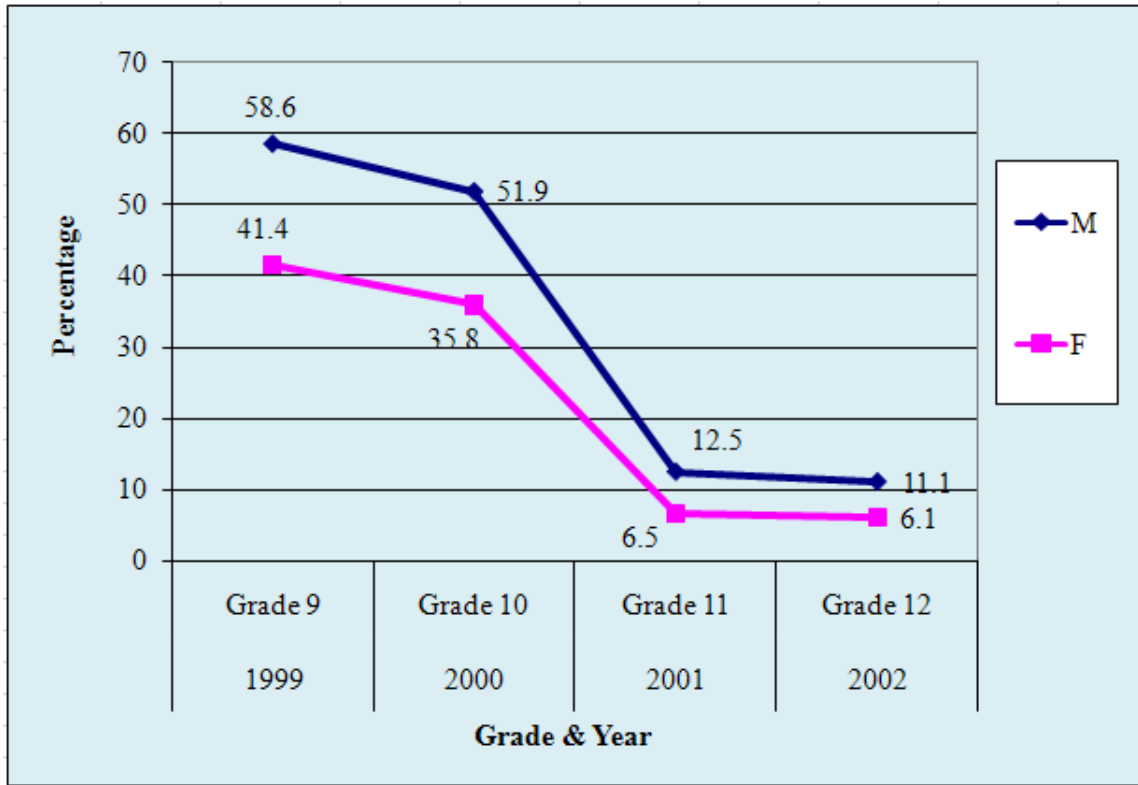
The PNG Education Statistics, published by National Department of Education (1999a, 2005a) as well as the 2004 Annual Report (2004a), reported a general growth in elementary and primary school enrolment over the period. The growth was consistent

with the objectives of the educational reformation process which created greater opportunities for children to access school.

At the secondary level, there have been small but steady increases in enrolment rates over the years since the research reports in the 1980s by Crossley (1988) and Tawaiyole (1988) were reported. In the 1990s and 2000s the enrolment rates for female students in Grade 9 has been maintained at approximately 41% compared to 59% for male students as indicated in the Department of Education, Education Statistics (1999a, 2000a, 2001a, 2002a, 2003, 2004b). However, an analysis of the enrolment reports conducted on four secondary school cohorts between Grades 9-12 over a period from 1999 to 2005 has provided two major pieces of information, (1) a consistent and almost a fixed disparity rate of approximately 17% between male and female enrolment at Grade 9; (2) a consistent downward trend in enrolment of both male and female students with sharp declines in enrolment during transition from Grade 10 to 11 over the years. Male students are as disadvantaged by the system as are female students; however the under-representation of female students is more obvious. Figure 2.4 shows the enrolment trends for the 1999 Grade 9 cohort. Similar trends have been maintained over the next six years to 2005.

Figure 1.4: Enrolment Rates of the 1999 Grade 9 Cohort

N=23,501



Source: Extracted from Papua New Guinea Education Department Education Statistics (1999a, 2000a, 2001a, 2002a)

Figure 1.4 demonstrates that a gap between the 1999 male and female students enrolment in Grade 9 was 17.2% with female students under-represented in enrolment at 41.4% compared to 58.6% for male students. By Grade 11, enrolment favoured male students by 6%. By Grade 12 the figure was 5%.

The overall framework for the education system in PNG as presented in Figure 1.2 allows for alternative educational pathways for students who drop out of secondary school. However not all school leavers take advantage of these opportunities.

The declining trends in enrolment observed over the six years questions the tremendous attempts by the PNG Department of Education (PNG DoE) to promote gender equality and increase female access to education. Whilst there has been growth in participation by girls in the primary sector and steady increases in the secondary sector, for each cohort of secondary students there has been tight control on the Grade 11 places available to students. This has consistently resulted in very high rates of students pushed out of secondary school at the end of Grade 10 over the years, hence creating a bottle neck at the top end of secondary schooling. This limits development of future PNG leaders and human resources in general. It also questions the strong commitment that the Department has made to support initiatives and projects such as the project on “Accelerating Girls Education in Papua New Guinea” (2004). This project focused on developing PNG’s ‘Plan of Action’ to accelerate girls’ education in the country, especially in target areas where enrolment rates for females were identified as low. It also questions what the role of the gender desk created within the Education Department is when gender inequality in the enrolment of students in the initial grade of secondary education has not been addressed.

The drop in enrolment during transition between Grade 10 and 11 is very significant. Coincidentally, the drop is forced on secondary students by the selection process that is in place after the Grade 10 national examinations. Students are selected to continue schooling in Grade 11 based on their successful performance in the Grade 10 examinations. Figure 1.4 indicates that if the rate of decline has been sharp, the entry criteria have been set too high for the majority of students and as a result, many students are pushed out of the system. Considering this from another perspective, it is a denial of educational opportunities of PNG’s own future leaders. Education is imperative for

PNG's development and particularly for its young female population who have the potential to make a huge difference in their nation.

1.5 Barriers to Female Education

The National Goals and Directive Principles in the preamble to the PNG national constitution (Independent State of Papua New Guinea, n.d) articulate a significant policy framework for equal participation by all citizens in development. Section 2 asserts “*We declare our second goal to be for all citizens to have an equal opportunity to participate in, and benefit from, the development of our country*”. As it is, translating such a policy framework into achievable and sustainable actions, particularly in the secondary sector of education, has been a challenge itself even more than thirty years since the constitution was written. With the difficulty in translating the constitutional rights into sustainable actions, improving the status of females in various areas including socio-economic, political, education and literacy has been unfolding at a snail's pace.

Access to and participation in education is a right for every child up to 18 years of age as stipulated in the United Nations' Convention on the Rights of the Child (CRC) (1990) Article 28. The CRC was ratified by PNG but there continues to be children who cannot access schools. There continues to be a disparity in access and participation between male and female students, with female students being under-represented particularly at the secondary school level. Earlier studies by researchers and education authorities in PNG (Crossley, 1988; Gannicot & Avalos, 1994; Roakeina, 1988; Tawaiyole & Weeks, 1988; UNICEF, 2003) highlighted a number of barriers to female education in terms of access to, as well as participation in education. A more recent joint project by the PNG Department of Education and UNICEF (2004), focusing on “Accelerating Girls Education in Papua New Guinea. Plan of Action 2003-2007”, identified the same issues as persisting. These were access to schooling, curriculum, teachers, culture, school fees, termination and withdrawal from school, and societal attitudes towards females in PNG.

1.5.1 Access

Access to schools, which is often controlled through the selection process, has favoured male students over female students (Papua New Guinea Department of Education, 1999a, 2000a, 2001a, 2002a, 2003, 2004b, 2005a). Limited access by female students to secondary schools has been attributed to limited space provided for girls in secondary schools. However, the reformation of education created opportunity to open more secondary schools and with an increase in the number of secondary schools throughout the country, there should be more opportunity for girls to have an equal opportunity to attend school.

1.5.2 Curriculum

Resistance to formal western education was identified as an impediment to enrolment and participation of girls. Some students were found to lose motivation to study certain subjects particularly when relevant curriculum materials were not provided and teachers were constantly absent or did not present the lessons well (Roakeina, 1988; UNICEF, 2003).

1.5.3 Teachers

Lack of teachers in schools, teacher efficacy, professional commitment and innovative practices were identified as negatively impacting retention and academic achievement. Teachers were also reported to have had sexual relations with female students and often escaped or transferred without compensating victims and the community. Consequently the community lost respect for, and trust in teachers (Roakeina, 1988; UNICEF, 2003).

1.5.4 Culture

Cultural values and practices were identified as impediments to continuing school enrolment of female students. When girls were older, some of them left school to get married whilst other girls could not access schools or continue their education as they were required at home to undertake domestic chores. Some parents withheld their daughters at home for fear that their daughters might go to school and once educated, marry men from distant tribes and not return home. At the same time, without role models, it became difficult for village people to understand that women today can perform the same types of jobs as men and that education enables women to do so (Flaherty, 1998; Tawaiyole & Weeks, 1988; UNICEF, 2003).

1.5.5 School Fees

In an earlier research by Flaherty (1998) and in a recent report by the UNICEF (2003) it was highlighted that many families in rural areas as well the low income earners in the urban centres found school fees a major barrier to school enrolment and participation by females. Many female students left school when their parents could not afford to pay their school fees (Flaherty, 1998; PNG Department of Education, 2003).

In a study by Human Rights Watch (2006) on human rights issues in PNG, school fees and school related costs were found to be high compared with the average annual income. It also reported that in 2004-2005, caps on school fees ranged from 100 kina (US\$31.65) through Grade 2 to 1,200 kina (US\$379.75) for Grades 11 and 12 day students. The per capita gross national income for the country in 2003 was US\$510 per annum. Boarding fees paid by parents were higher than the fees paid by the day students. Considerable burden is placed on low income families despite government subsidies being provided to assist with the cost of educating their children. Many parents are part of the 85% of the population who live in villages and who live a subsistence existence.

1.5.6 Termination and Withdrawal from School

According to Tawaiyole (1997); and Guy, Paraide & Kippel, (2001, as cited in UNICEF, 2003) some students dropped out of school owing to discipline problems in schools, continued absenteeism, teenage pregnancies, drug and alcohol abuse and anti-social behaviour resulting in their termination of education. As education is not compulsory, individual school boards have the authority to terminate students from school based on the nature of the disciplinary case and the number of cautionary warnings a student under discipline is given. Additionally, students with unexplained absences from school for 30 consecutive days are often terminated from attending school. Girls who get pregnant whilst in school often withdraw from school and very limited opportunities exist for them to continue their schooling.

1.5.7 Societal Attitudes Towards Females in PNG

The lack of female role models in rural areas of PNG has been identified as providing little motivation among younger females and creating unnecessary fear among parents of losing their daughters through education (Webster, 2004d). Without female role models in rural areas of PNG, people find it difficult to understand that women today can perform the same types of jobs as men and that education enables women to do so.

In recent years, issues relating to the safety of female students in school, between home and school or at home has become an area of concern by both parents and educational authorities, owing to the increase in violence against and exploitation of females in the community (Robins, 2005; Webster, 2004c). Robins (2005) highlighted that there are children who are in situations of exploitation and their hope of finding refuge and a sense of hope in life lies in education. Unfortunately female students are becoming susceptible and falling prey to the evils of exploitation by people who have no respect for the young female population.

1.6 Academic Achievement of Female Students in PNG

Under the PNG national education system the academic achievement of each student is monitored regularly through assessment work comprising tests, assignments and projects set by teachers in school which form the internal assessment component. There are also the national examinations set under the supervision of the Measurement Services Unit (MSU) of the Department of Education which form the external assessment component. These are administered to students nation-wide at the end of Grade 8, 10, 12. Following each of these examinations there is a selection process determining which students continue onto the progressive levels of schooling. Theoretically, students who don't meet the selection criteria should take alternate educational paths such as vocational education or College of Distance Education, however many choose not to or are not able to follow these paths. Often parents and or guardians can't afford alternate pathways of schooling.

1.6.1 Academic Achievement of Females in Secondary Schools in PNG

The issue of gender differences in achievement in academic subjects at the secondary school level around the world has received attention from a number of researchers and mixed reports have been received from these. For example, studies by Chamdimba (2003) and Kiluva-Ndunda (2001) in Kenya, a developing country like PNG, reported that fewer girls performed well in mathematics and science except in "all girls" schools where girls were more likely to perform better in these subjects. In Hongkong, Wong, Lam & Ho (2002) also reported that girls performed better in subjects in single sex schools. In contrast, in New South Wales, Australia, it was found that an average girl was out-performing the average boy in more subjects (Collins, Kenway, & McLeod,

2000). However, an international study that examined the gender differences in mathematics and science in 22 different countries found that in the final grade of secondary schools, male students performed far better than female students (Mullis, Martin, Fierros, Goldberg, & Stemler, 2000).

The academic achievement of female students at the primary school level in PNG is on par with male students (UNICEF, 2003). At the secondary school level, there are two national examinations; the School Certificate Examinations (SCE) at the conclusion of Grade 10 and the Higher School Certificate Examinations (HSCE) at the end of Grade 12. The SCE results for the period 1999 to 2006 indicate that female students in Grade 10 consistently attained higher mean scores only in English compared to male students. In some PNG provinces such as NCD¹, Madang and Morobe, female students' performance in English alone has been consistently higher than male students over a number of years. The examination reports indicate that Grade 10 female students in NCD have also performed at about or as well as male students across all subjects. However, in most other provinces, girls' mean scores in social science, mathematics and science has been consistently lower than male students (Papua New Guinea Department of Education, 1999b, 2000b, 2001b, 2002b, 2004c, 2005b).

The HSCE results for Grade 12 students indicate that nationally, female students have consistently performed significantly better than male students in Language and Literature over the period 1999 to 2004. In other subjects such as Maths B, Chemistry female students have performed better than male students. By 2004, female students attained higher mean scores compared to male students across all subjects except Chemistry and History. One explanation for better performance by Grade 12 female students across a number of subjects at the national level could be their under-

¹ National Capital District

representation. The smaller the female population, the higher the national mean score for female students and that female students in few schools spread across few towns are performing better than male students, hence lifting the national mean scores for female students.

From the 2004 PNG HSCE report for female students, male students in PNG could follow similar path as the NSW students if female students continue to perform better in most subjects and their enrolment in Grade 11 increases. This indicates that despite inequality in their initial selection to secondary schooling, generally female students can and have the potential to perform as well, if not, better than male students.

1.7 Problem Statement

The literature survey focusing on research into female education in PNG reported in this Chapter has not identified a study that has specifically focused on the academic achievement of female students. Yet, the school system emphasises successful academic achievement for progression to higher levels of education, that is from primary to lower secondary, lower secondary to upper secondary, and upper secondary to tertiary. Even with so much emphasis on academic achievement for progression through the education system, there continues to be an under-representation of female students at progressive levels. Hence, there is need for a holistic approach in examining what impedes and/or facilitates female students' academic achievement at the secondary school level of education.

1.8 The Aim of this Study

The analysis of the trends in enrolment of female students in secondary schools has shown the under-representation of female students in secondary schools in PNG. Combined with under-representation by female students, differences between male and female students' academic performance have been found to exist. Academic

achievement in the Grade 10 examinations indicates that in the lower secondary grades female students performed better than male students only in English. Their mean scores in the other three subjects, Mathematics, Science and Social Science, have been consistently lower than male students. An analysis of the Grade 12 results for female students indicates that in some subjects, female students were generally performing as well as or better than male students. Thus, this study aims to examine the Grade 8, 9 and 10 school leavers' attributions for their non-access to secondary schooling, non-completion of secondary school grades and their academic under-performance. It also aims to explore the Grade 12 female students' attributions for academic achievement in terms of the factors that had facilitated their academic achievement in the National Education System. Hence, personal 'stories' capturing student attributions were collected from three groups comprising two groups of school leavers and Grade 12 female students at two research sites. These groups comprised

- a. School leavers who were not selected to undertake secondary education;
- b. School leavers who had dropped out of secondary school; and
- c. Grade 12 students.

The two research sites represented two culturally and geographically distinct locations. Academic achievement in the context of this study is defined from the perspective of access to and completion of secondary grades.

1.9 Key Research Questions

The study addressed the following two key research questions:

1. What factors inhibit female students from gaining access to and/or completing secondary schooling?
2. To what factors do female students currently undergoing secondary education attribute their academic achievement?

1.10 Significance of the Study

Investing in girls' education is a catalyst for progress in a developing nation (Bushweller, 2004). Education contributes immensely to personal and community prosperity of a country. However, what use is education if a child is not given an opportunity to complete a full cycle of schooling? Neither is schooling of any use if a school child who is required to fulfil certain academic benchmarks does not reach the benchmarks and harbours the feeling of academic defeat and the perception that only the clever or lucky few can contribute meaningfully to national development. This study is significant as it attempts to

- a. Generate new information for stakeholders.** The information about major issues impeding and/or facilitating academic achievement of female students is vital for policy development and planning purposes by schools, and provincial and national education planners. With this information, key stakeholders in education can make appropriate plans to ensure support systems and programs in the schools are available for students, especially female students. These are also vital for the pursuit of excellence in secondary schools.
- b. Generate information for practitioners in schools.** This study promises to generate vital and in-depth information about major issues that impede and/or

facilitate academic achievement of female students. Such information is vital for educational practitioners for evaluating and developing new practices or strengthening existing practices. The information is also significant for practitioners to identify areas for professional growth and development in order to assist female students.

- c. Contribute towards knowledge creation.** This study contributes to the existing literature in the field of girls' education in PNG by adding yet another dimension which is the academic achievement of female students. This knowledge will be significant in influencing and promoting change where appropriate and for improving current experiences, not just of female students but of male students as well. It will also provide future researchers an opportunity to build on from this study.
- d. Contribution to methodological knowledge.** The study has used a research design, mixed methods, that is fast developing and which may not have been used extensively in other PNG studies as yet.

1.11 Delimitations of the Study

This study engaged participants from schools that were part of the National Education System at only two sites in PNG. It focused on school leavers from Grade 8, 9 and 10 to collect data about their attributions for not completing or accessing progressive secondary school grades and Grade 12 female students who provided information containing attributions for their success.

1.12 Overview of Thesis

To achieve the aim of the study, Chapter 1 focuses on females and education in PNG. In this chapter, education is featured as a vehicle for empowering females to make a

meaningful contribution in all facets of development in PNG. First, it briefly describes a number of challenges that were identified by previous studies as hindrances to access and participation by females in education. Second, the chapter also points out that one major obstacle faced by female students in accessing and participating in secondary schooling occurs at the commencement of secondary education where gender disparity between male and female students in selection to undertake secondary schooling is evident. Although there is evidence of drop out between Grade 9 and 10 and between 11 and 12, a sharp decline in enrolments of both male and female students occurs during transition from Grade 10 to 11. However, the gaps in disparity between male and female enrolment close after transition and continue through Grade 12. Third, an examination of academic results for Grade 10 and 12 indicate that although female students perform better than male students only in English in the Grade 10 examinations, those who continue onto Grade 12 are performing better than male students across a number of subjects.

Chapter 2 outlines the theoretical framework underpinning this study which is centred around the attribution theory in learning and understanding the development of academic achievement motivation and self-regulatory learning strategies of students in secondary schools.

Chapter 3 describes in detail the research design and methodology employed in this study. It describes the data collection instruments and procedures, procedures employed to ensure validity and reliability of data instruments, sampling techniques used, data analysis procedures, the underlying theoretical framework guiding the research design, the researcher's position in text and ethical considerations.

Chapter 4 provides the details of the results of the quantitative analysis conducted using the survey questionnaire. The results of the analyses of the survey are presented in four sections. The first section of this chapter presents the results of the descriptive analysis of the demographic data of the three groups. The second section presents the results of

the factor analysis of the three groups and highlights the key factors that were attributed to as influencing academic achievement. In the third section, the results of the ANOVA on the survey scale for academic achievement is presented. This indicates the differences in the mean scores of attributions for academic achievement between the three groups that participated in this study. The fourth section provides the results of T-Tests indicating the differences in the mean scores of participants' attributions for academic achievement at the two research sites. In each of the second, third and fourth sections of the chapter, the key findings are presented along two of the locus of control themes: internal and external impediments and internal and external incitements for academic achievement.

Chapter 5 presents the key findings from the interviews and focus groups. The findings are presented in two main sections. The first section provides the results of the interviews and the second section presents the results of the focus group. In each of these sections, the findings are presented along the two loci of control on attributions for academic achievement: internal and external impediments and internal and external incitements for academic achievement.

Chapter 6 focuses on the triangulated discussion of key findings from the quantitative and qualitative analyses. Consistent with the presentation of the findings in Chapters 5 and 6, the triangulated discussion is presented in four sections, two of which are categorised as impediments to and incitements for academic achievement. The impediments are presented along the two loci of control themes: internal and external attributions for academic achievement.

Chapter 7 underlines two general conclusions which are supported by fifteen conclusions specifically linked to the key findings about impediments to and incitements for academic achievement. Recommendations arising from the findings of the study are presented in two sub-sections as short-term and long-term solutions. Limitations of the

study and opportunities for further research are discussed in the final section of the chapter.

1.13 Summary

Education is a way forward for improving the general status of females in PNG. Although females in PNG have a constitutional right to equality and participation in the development of their country, achieving gender equity in all facets of development has been very challenging. Girls' have encountered barriers in accessing and participating meaningfully in education and issues that continue to impede female students' access to and completion of full cycles of primary and secondary education continue to exist. Whilst at the primary level there is almost gender equality in enrolment, the secondary level of education has been marked with declining enrolment trend over the years with under-representation of girls becoming more evident at progressive secondary levels of education.

Along with their under-representation in secondary schools, an examination of academic achievement in the Grade 10 national examinations has indicated that female students perform less well than males on all subjects, with the exception of English. Hence, it was imperative to examine the factors that have impeded the academic achievement of females. An examination of the academic achievement of female students who continue onto Grade 12 has indicated that they have been performing better than male students across a number of subjects. In this study, the researcher sought to examine what has contributed to this success.

CHAPTER 2: LITERATURE REVIEW

2.0 Overview of the Chapter

This chapter provides a description of the key theoretical concepts that underpin this study and which provide the basis for the development of an appropriate methodological and design framework for the investigation. It is informed by the background presented in Chapter 1 which highlighted issues impeding and/or facilitating female students' access to and participation in secondary education in PNG and their academic achievement. The theoretical concepts under examination are specifically related to motivational and feminist/gender perspectives and their link to the academic achievement of students in secondary schools.

Chapter 2 is presented in six sections. **Section 2.1** presents the introduction to the underlying theoretical assumptions supporting this study. **Section 2.2** sets the scene by examining the attribution theory of motivation which guides the study on female students' attributions for academic achievement. **Section 2.3** examines achievement motivational goal theory which is important for learning and achievement. **Section 2.4** discusses the role of self-regulatory strategies for learning and enhancing academic achievement amongst female students. **Section 2.5** examines the relevance of gender theory in this study as it focuses on the academic achievement of an under-represented gender in secondary schools. **Section 2.6** provides the overall theoretical framework for the study.

2.1 Introduction

Studies into learning, its outcomes and factors influencing it, have been numerous and feature multidimensional perspectives encompassing the social, psychological, affective, gender and environmental domains. One powerful variable that is known to influence the academic achievement of students is motivation (Ames, 1992; Ames & Archer, 1988; Arias, 2004; Elliot & Dweck, 1988). Over the years, there has been a proliferation of concepts and theories relating to the psychological construct of motivation, hence creating difficulty in developing a standard definition acceptable to all (Arias, 2004). Diversification in motivational theories and construct related to motivation is well documented. These include motivational theories such as the attribution theory (Heider, 1958; Weiner, 1974, 1979, 1984) and the achievement goal theory (Ames & Ames, 1954, 1984; Ames & Archer, 1988; Ames, 1992; Anderman, Noar, Zimmerman, & Donohew, 2004). Motivational constructs include self-regulation (Schunk, 1994, 1996; Zimmerman, 2002); and self-efficacy (Bandura, 1977, 1986, 1994; Schunk, 1996). These form the underlying theoretical framework for this study.

Chapter 1 has discussed an issue confronting an under-represented population, female students in secondary education, and the importance of female students' academic achievement in improving access to and participation at the secondary level of education. Hence, an examination and inclusion of feminist/gender perspectives in the theoretical framework of this study is also essential.

2.2 The Attribution Theory of Motivation

The guiding principle of the work by Fritz Heider (1958) on motivation resulted in the development of the attribution theory of motivation. However others (Kelley & Michela, 1980; Weiner, 1974, 1979, 1984; Wolf & Savickas, 1985) have also contributed to its development. The attribution theory of motivation conceptualises that individuals

attempt to construct meaning of an event based on their motives to identify the cause of the events they encounter. It is an attempt by an individual to make sense of her world and attach meaning to a behaviour that is witnessed or encountered within an environment. Therefore, by constructing meaning about behaviours or events within the environment, an individual is believed to gain cognitive and emotional control over her environment. In making attributions, individuals analyse events and make inferences concerning others' and personal dispositions and how the environment may cause the behaviour.

When Weiner developed his attribution theory of motivation, his focus was on student academic behaviour. He argued that students who attribute success to internal, controllable causes, such as effort, are more likely to experience increased sense of self-esteem, satisfaction, confidence and pride. Hence, with a motivational boost, students are able to employ self-regulatory strategies such as persistence and confidence after failure and/or when pursuing difficult academic tasks. By contrast, students who attribute failure to internal, uncontrollable stable factors, such as low ability are more likely to feel ashamed and humiliated and would be less likely to show persistence on future tasks (Weiner, 1979).

When students attribute success to external factors, such as the difficulty of tasks they are likely to miss out on self-motivating experiences such as a sense of pride, increased confidence, and self-esteem. For example, if a student thinks he/she did well on the assignment because it was too easy, there is really no reason for celebration and a sense of pride and his/her behaviour may not change in the future.

Attribution theory conceptualises that individuals make attributional searches with a desire to understand why they have either succeeded or failed at specific tasks by applying detailed cognitive and emotional reactions. However, central to the attributional process is how the task is accomplished and how the learner makes

attributions dependent on the reaction to the performance on the given tasks (Anderman et al., 2004).

In academic settings four types of attributions are believed to be responsible for academic success and failure (McInerney & McInerney, 2006). These are as follows:

- a. Ability.** A student's performance in a particular subject or academic activity may be attributed to his/her ability. For example, a student scoring poorly in mathematics tests might attribute his/her performance to low ability; or a student who expresses herself eloquently in a school debate might believe she has a high level of intelligence or confidence.
- b. Effort.** The amount of energy or time expended into completing the task or achieving academic goals. For instance, a student who gets the highest mark in a school essay competition might attribute her success to the amount of research done to collect relevant information which helped formed the final product.
- c. Task Difficulty.** The parameter of the given task and whether it is easy or difficult. In an academic context, an above average performance by an average child is more likely attributed to the task given being too easy. By contrast, if a "bright" child who may have worked hard on a task does not perform well in the task, it may be attributed to the task being too difficult.
- d. Luck.** Variables beyond an individual's control that may influence his/her behaviour. For example, if a student who has been in the hospital and has not prepared for the examination performs well, it may be reasoned that luck went his way.

Each of these causes are further categorised along the internal and external locus of control dimensions and along stability dimensions - stable and unstable (refer Table 2.1). Typical internal attributions are dispositional and comprise personality, ability,

motivation, attitudes and values whilst external attributions are situational and consist of chance/luck, or the influence of others (Scholl, 2002).

Table 2.1: Attributions for Success and/or Failure or Under-Achievement

Attributions	Stability	
	Stable	Unstable
Locus of Control		
Internal	Ability	Effort
Success	“I’m smart”	“I worked hard for it”
Failure or Underachievement	“I’m dumb”	“I didn’t really try”
External	Task Difficulty	Luck
Success	“It was too easy”	“It was sheer luck”
Failure or Underachievement	“It was too hard”	“I had bad luck”

Adapted from Slavin (2003)

As shown in Table 2.1, high achievers are considered to pursue, rather than avoid, tasks that they are confident will result in their success because of their belief that success is an outcome of high ability and effort. Failure is considered a cause of bad luck or issues beyond their control. By contrast, low achievers who avoid success-related tasks or events, have a tendency to doubt their ability and perceive success as relating to luck or the influence of factors beyond their control (Ames & Ames, 1984; Weiner, 1974).

2.2.1 Locus of Control

Incorporated into attribution theory of motivation is locus of control, a label given by Rotter (1956, as cited in Weiner, 1979) as locus of causality. Locus of Control refers to an individual's perception about the underlying key causes of events in his/her life. The main causes of events in one's life may be perceived as either external or internal. These beliefs, in turn, guide the kinds of attitudes and behaviours people adopt. A person with an internal locus of control believes that success or failure is the outcome of an individual's internal attributes such as ability, effort and motivation. By contrast a person with an external locus of control attributes success or failure to powerful influences of the environment such as difficulty of task or luck, other people or environmental factors (McInerney & McInerney, 2006). Lack of control could result in a sense of hopelessness and continued expectation of failure. However, when failure is attributed to internal, stable and controllable causes such as lack of effort, it can be perceived as an experience that can be changed and are within an individual's ability to control.

2.2.2 Stability

Stability is perceived constancy over time. Fixed or stable causes include ability and context/task difficulty, while effort and luck are considered variable or unstable. Thus, a shift in attribution of the outcomes to fixed causes results in expectancy change. This infers an increased expectancy following success and a decrease in expectancy after a failure instead of attributing outcomes to a more variable cause such as luck and effort (McInerney & McInerney, 2006; Weiner, 1974, 1979, 1984). In an achievement-related event, an individual's explanation for success and failure or underachievement depends largely on his or her assessment of ability, the amount of effort expended, the level of difficulty and luck (Weiner, 1979; Wolf & Savickas, 1985). Hence, a student whose perception (locus of control) of his/her high achievement is a result of ability attributes to a stable cause compared to a student who attributes his/her success to luck which is unstable.

2.2.3 The Use of Attribution Theory of Motivation in Cross-Cultural Contexts

Although the attribution theory of motivation was developed in a western context, the underlying theoretical principles are significant, relevant, and are also applicable to cross-cultural contexts. A number of studies based on attribution theory have been conducted in cross-cultural contexts to investigate various social issues. For example, in Korea, Hui (2003), conducted a study using the theoretical principles of the attribution theory and found that problems in school adjustments were the result of the nature of schools, students, peer and community. In Sri Lanka, Niles (2001), also conducted a study using the theoretical principles of the attribution theory. The results of this study showed that students attributed their academic success and or failure to effort or lack of it. Attribution theory is pursued in this study as it is considered to provide a culturally relevant and sound theoretical underpinning for examining attributions for academic achievement in the secondary school contexts in PNG.

2.3 Achievement Motivational Goals

Students vary in the degree of their need to achieve in the educational tasks they engage in school. Some students have a strong desire to succeed which in turn, motivates them to be successful in spite of the nature of the task and the level of difficulty. Other students have the motivation to succeed but are very cautious about the value of any task before attempting to undertake it. If the task is considered to be of little or no value, they may choose not to engage in it, although they may be capable of completing it. Another group of students, capable or not, perform tasks for the sake of it. To them, achievement does not really matter provided the task is accomplished. There is still another group who choose not to perform certain tasks for fear of failure (Zenzen, 2002).

Within the field of educational psychology, social-cognitive views of motivation have emphasised how students, particularly early adolescents, attempt to create meaning from their experiences in achievement settings. Achievement goal theorists conceptualised that students define success in learning according to their perceptions of their interactions with principals, teachers and others that work within the school environment. These perceptions are thought to shape their beliefs, affect and behaviour (Ames, 1992; Eccles & Midgley, 1991; Maehr & Midgley, 1991; Meece, Anderman, & Anderman, 2006).

The beliefs and affect held by learners in turn, motivates them to learn in order to achieve their goals. These goals represent the different reasons that students pursue in different achievement situations and are considered to direct their behaviour, cognition and affect in their engagement in academic tasks (McInerney & McInerney, 1998, 2006). Traditionally, the focus of research has centred around a dichotomous motivational goal approach comprising the mastery versus performance goals. Over time these have come under varying labels such as learning versus performance by Elliot & Dweck (1988); mastery versus ability (Ames, 1992; Ames & Archer, 1988); and task-focused versus ability-focused (Maehr & Anderman, 1993; Maehr & Midgley, 1991). In this study the terms “mastery goals” versus “performance goals” and “social goals” are used in describing the motivational goal orientations of students (Barker, McInerney, & Dowson, 2003).

2.3.1 Mastery Goals

Students in pursuit of mastery goals are more interested in the mastery of a given task, the acquisition of new skills, willingness to take risks, willingness to take on challenging tasks and understanding of learning materials. Students with mastery-oriented goals evaluate success in terms of personal improvement and students gain satisfaction from the intrinsic facets such as challenge and interest (McInerney & McInerney, 1998, 2006).

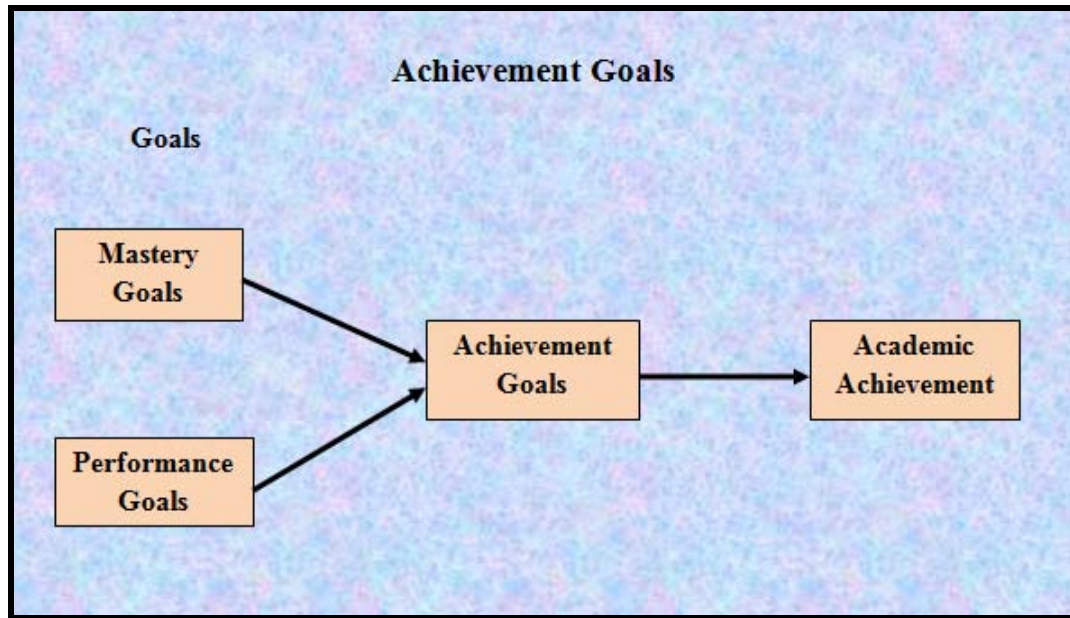
Mastery goal oriented students persist on tasks despite confronting difficult challenges because of utilisation of effective learning strategies. These strategies are dependent on the perception that effort results in success and failure can be overcome by utilising better learning strategies. Effective learning strategies include deeper processing, meta-cognitive and self-regulatory strategies. This means that they utilise effective storage and retrieval strategies of information from memory, and are well in control of their learning (Freeman, 2004; McInerney & McInerney, 2006; Patrick, 2004; Wolters, 2004).

2.3.2 Performance Goals

The performance goal orientation focuses on demonstration of high ability referenced against others' performance or against external criteria such as grades, performing above benchmarks and by succeeding with little effort. Public recognition for success is a vital aspect of pursuing performance goals. Hence, the student's focus is on their ability and self-worth. Performance goal-oriented students utilise surface level strategies such as memorisation and rote learning (McInerney & McInerney, 1998, 2006)

According to the performance goal structure, learning predominantly exists to gain extrinsic rewards and success involves out-performing others or set standards (Patrick, 2004; Wolters, 2004). Performance goals are also linked to social comparison so that students with low self-concept have a tendency to avoid challenging tasks or withdraw from tasks after failure and can lead to negative outcomes such as cheating, avoidance strategies and reluctance to cooperate with peers (Freeman, 2004). Students' achievement motivational goals are influenced by a number of factors of which classroom structures and goals are included. Hence, the traditional achievement motivational goal framework is summarised as shown on Figure 2.1

Figure 2.1: Dichotomous Achievement Motivational Goals



2.3.3 Social Goals

Researchers in achievement theory recognised the powerful influence of social goals on academic achievement. Social goals focus on the understanding of students' interactions and relationships as these contribute immensely to their adaptive motivation, engagement in school work and their ultimate achievement. Social goals of students often relate to their perceptions of teachers and peers, fairness, mutual respect and collaborative efforts (Barker et al., 2003; Patrick, 2004; Wolters, 2004). Whilst investigations into social goals of students in the PNG context have been limited, a study by Ope (2003) in PNG found the pursuit of multiple goals comprising mastery, performance and social goals.

2.3.4 Environment and Achievement Goals

Secondary schools have adolescent clients who are undergoing rapid and profound developmental changes and this can cause a number of problems for them. This is a period of transition from the comforts of primary school where previously they were seniors in their schools to secondary school where they become juniors of their schools. Change in school environment during this period can have negative effects on learning and motivation in areas such as their "...task structure, grouping practices, evaluation techniques, motivational strategies, locus of control for learning and the quality of teacher-student interactions" (McInerney & McInerney, 2006, p.497).

As reported by Khine and Chiew (2001, as cited in Phan, 2008) researchers in various parts of the globe including Australia, United States, and Singapore have found that the classroom environment and the school as a whole exerts a powerful influence on the achievement goals of students. These influences are communicated implicitly and explicitly by the school and teachers through the school culture. The school culture is manifested in visible symbols such as school newsletters, school goals, behaviour codes, policies, practices and rituals. These convey the underlying values and goals of the school and in turn, can be adopted by students. Perceiving the goals that are salient in school, classrooms and teachers, students can modify and adapt their goals accordingly (McInerney & McInerney, 1998; Renchler, 1992).

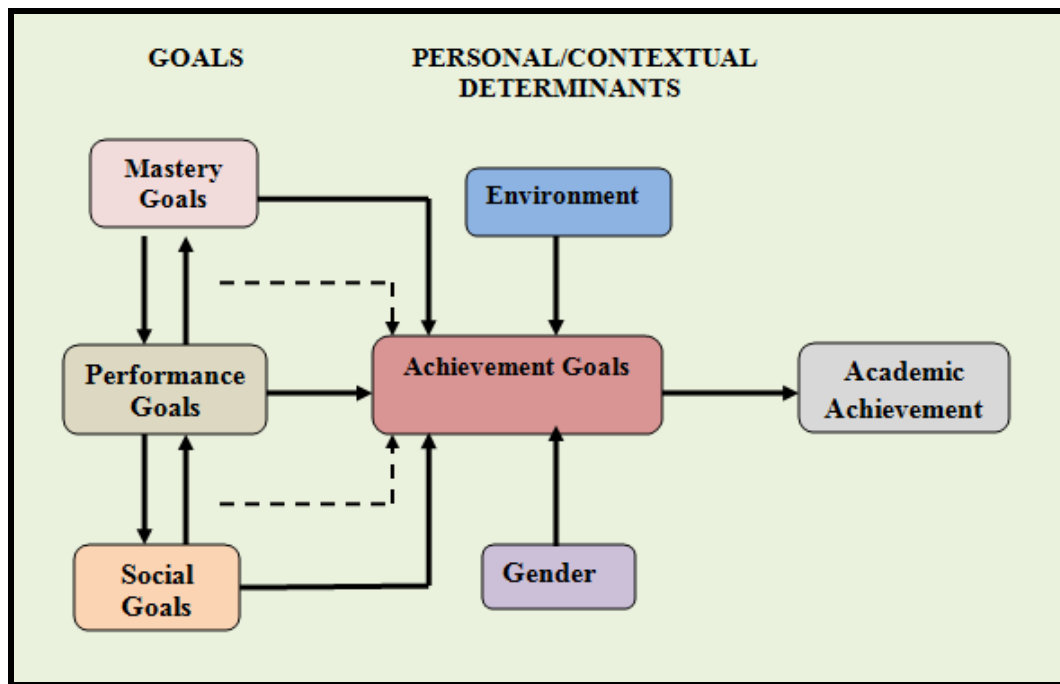
Within schools, the classroom environment can have a significant impact on student motivation and engagement. Classrooms are inherently social places where students interact with peers and their teachers. It is in these social environments, student social and academic goals are nurtured. The classroom environment can influence student perception of teacher support. Perception of teacher support is critical for building student confidence in their teachers, student self-regulated learning and behaviour. A student's capacity to interact with other students in his/her classroom and work

collaboratively with them can enhance motivation and engagement in academic tasks (Ryan & Patrick, 2001).

The social-cognitive view of motivation theorises that student perceptions of the school environment which comprises interactions with principals, teachers, other school professionals and other students “shape student school-related beliefs, affect, and behaviour” (Roeser, Midgley, & Urdan, 1996, p.409). In their study, Roeser et. al. (1996) found that in various aspects of the school psychological environment, students who perceived their schools as being oriented towards understanding, effort and personal development also perceived their teachers as caring, trustworthy, and respectful of students. In contrast, perceiving that only the most able were recognised for their effort and were supported, they in turn, perceived that their school lacked warmth and teachers were less responsive to student needs (Roeser et al., 1996)

Overall, student achievement motivational goals extend beyond the dichotomous goal orientations comprising mastery versus performance goals. It also includes social goal orientations and personal and contextual determinants such as gender and the environment of students. These facets are summarised in Figure 2.2.

Figure 2.2: Framework for Achievement Motivational Goals



Adapted from Barker, McInerney & Dowson (2003)

2.4 Self-Regulatory Learning Strategies

Self-regulatory strategies such as self-regulation, self-efficacy and self-concept have been found to exert a powerful influence on academic achievement of students.

2.4.1 Self-Regulation

The notion of self-regulated learning was born out of social cognitive theory (Bandura, 1986) which defined self-regulation as the degree to which an individual's meta-cognition, motivation, and behaviour is active (Zimmerman, 1994). Self-regulation in itself is not a cognitive ability; rather a process of self-direction whereby mental abilities are transformed into academic skills. In the process of transforming cognitive abilities

into academic skills, students learn by doing things for themselves in a proactive manner rather than covertly in response to teaching. In the context of self-regulation, learners are engaged in self-generation of thoughts, feelings and behaviours that are directed towards attainment of set goals. Learners have greater awareness of their strengths and limitations and are guided by their goals and task-related learning strategies. They employ a high level of motivation and adaptive learning methods and hold optimistic views of their futures (McInerney & McInerney, 2006; Paris & Winograd, 2003; Schunk, 1994; Zimmerman, 2002).

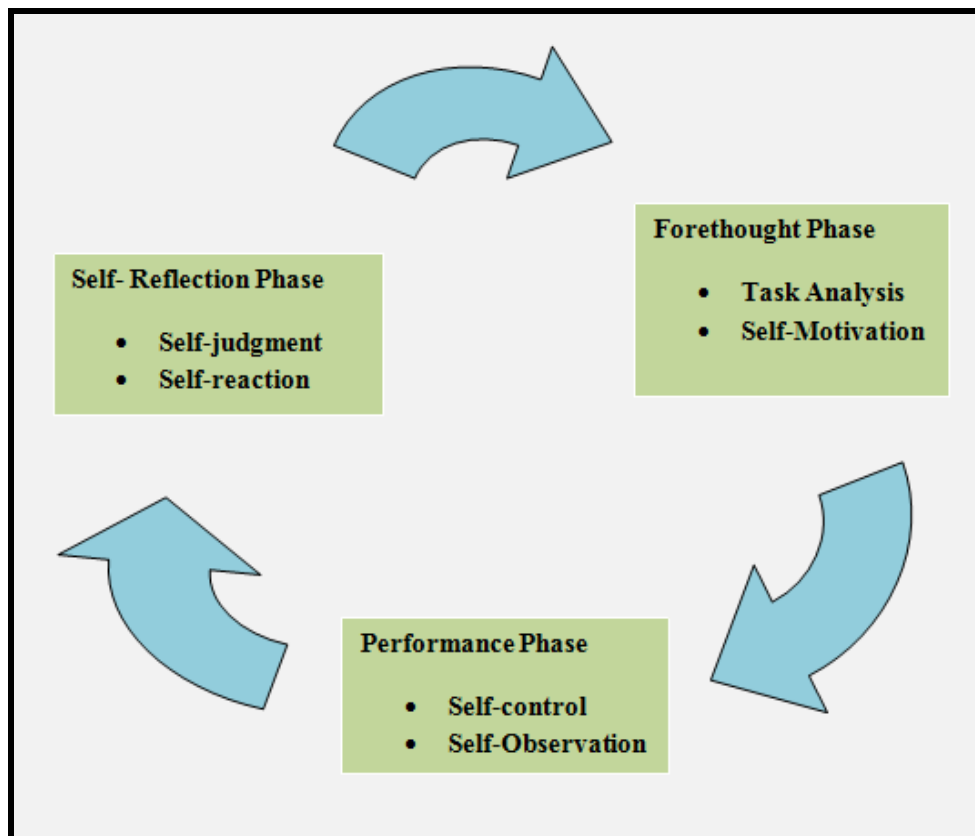
Self-regulation is described as comprising three processes:

- a. Self-observation.** There is a need for deliberate attention to events and behaviour and the learner cannot self-regulate their own actions unless they know what they do. Self-observation results in motivation, and motivation is aided by self-recording of behaviour which is characterised by time, place, and frequency of occurrence (Zimmerman, 1994, 2002) In academic settings, self-regulation in students is characterised by attributes such as paying attention, concentration on instruction, organisation, effective coding and rehearsal of information for long-term memory storage and effective usage of learning resources (Schunk, 1994).
- b. Self-judgment.** There is an element of making comparisons with one's pre-set goals and the importance placed on attainment of these goals. Goals may be fixed or dependent of others' performance (McInerney & McInerney, 2006; Zimmerman, 1994, 2002). It involves the ability to manage time, possessing positive beliefs about personal capabilities, the valuing of learning, and a sense of pride and satisfaction with personal efforts (Schunk, 1994).
- c. Self-reaction.** This may be an evaluative or substantial aspect of self-regulation which involves individuals' beliefs about their progress. An individual's beliefs about positive progress leads to a sense of accomplishment, which in turn,

enhances self-concept and motivation (Zimmerman, 1994, 2002) In academic settings, the evaluation of personal performance progressively leads to self-monitoring and self-modulating (Schunk, 1994). Self-monitoring and self-modulating involve being in a position to manage time to do academic work, adopting learning strategies that enhance achievement and learning, help or information seeking strategies.

This process was later re-defined by Zimmerman (2002) as occurring in a cyclical manner comprising three phases as shown on Figure 2.3.

Figure 2.3: Zimmerman’s Cyclical Model of Self-Regulation



Adapted from Zimmerman, 2002

The cyclical model holds the view that self-reflections from prior efforts in learning effect subsequent forethought processes and that information from one phase can be utilised in subsequent phases.

2.4.1.1 Importance of Self-Regulation

A significant expected outcome of self-regulation is life-long learning skills. Upon completion of formal education, young people have to learn many skills informally. Those who develop high levels of self-regulation place themselves in a position of advantage for better opportunities for promotion, attractive jobs or success in whatever tasks they perform (Zimmerman, 2002). Self-regulatory processes have been found to have a high correlation with academic achievement and that self-regulation processes are teachable and lead to heightened levels of student motivation and achievement. However, very few teachers or schools prepare students to take control over their learning. Students are often given limited opportunities for decision making concerning academic tasks to pursue, strategies for processing complex assignments or study partners. At the same time, very few teachers and schools encourage self-regulatory processes such as goal-setting for academic work, study strategies, self-evaluation of personal work, or estimate their level of competence on new tasks (Zimmerman, 2002).

2.4.1.2 Self-Regulation in Cross-Cultural Contexts

Examination of a number of cross-cultural studies into self-regulation reveals interesting information. For example, a study by Niemi (2002) comparing the self-regulation and moral orientation among Finnish and Chinese Grade 9 adolescents in schools in suburban towns in Finland and China found two contrasting orientations. The Finnish adolescents held a more individualistic perception of their lives by being more self-regulated and self-determined compared to the Chinese adolescents who had grown up in a society which emphasises collective values.

2.4.2 Self-efficacy

Self-efficacy was initially defined as an individual's belief about personal capabilities to exercise control over their personal level of functioning and over events that have potential effect on life outcomes (Bandura, 1977). Self-efficacy beliefs also influence how individuals feel, think, motivate and behave themselves. Students' efficacy beliefs have considerable influence on self-regulatory learning, personal aspirations and level of motivation and academic achievement. Furthermore, students whose level of self-efficacy is high have a tendency to set themselves higher goals and stronger commitments for engagement in specific activities (Bandura, 1986, 1994).

Students who are self-efficacious are self-organised, proactive, and self-regulated rather than being reactive. In academic settings, students' self-efficacy enables them to determine what they do with the knowledge and skills they have learned (Pajares, 2002). This, in turn, influences their academic performance in a number of ways. First, the choices they make and the course of action they undertake is influenced. In situations of making a choice, students tend to undertake tasks with which they feel they are confident and avoid those with which they are not confident. Second, the effort that needs to be expended on a task and how long they can persevere when confronted with a challenge is determined. When confronted with adverse situations such as poor performance in a subject, students with high levels of resilience can persevere. Third, is related to the amount of stress and anxiety the students experience. When students are efficacious, they enjoy the tasks in which they are engaged. Fourth, self-efficacy exerts powerful influence on students' levels of performance. Self-efficacy beliefs are then influential during all phases of self-regulation- forethought, performance and self-reflection, because students with high levels of self-efficacy utilise more effective self-regulatory strategies.

The study of self-efficacy has drawn interest from researchers who have focused on several different aspects of the construct. For example, a study by Pajares (2002) into the

role of self-efficacy and general mental ability in mathematical problem-solving among high school students found that both self-efficacy and mental ability had a direct effect on performance.

A comparative analysis of the relationships between self-efficacy, gender, and performance also shows some interesting findings. For example, a study by Bong (1998) which made a comparison on generality of academic self-efficacy judgment between groups of students with different personal characteristics in four Los Angeles high schools showed that boys demonstrated comparable strengths in self-efficacy across academic domains. By comparison, girls tended to distinguish between their verbal and mathematics efficacy more clearly.

Both boys and girls efficacy in mathematics was found to be equal in the elementary years but by the time they reached the middle school and beyond, boys rated themselves more efficacious than girls. Girls' efficacy beliefs in language and arts, however, were reported to be higher. This difference arises as a function of the influence of home, cultural, educational and mass media factors. Maths and Science are often portrayed as masculine domains (Pajares, 2002).

Another study (Yamauchi, 1997), examining the influence of culture, gender and the development of perceived academic self-efficacy being in the Hawaiian context found that girls performed better than boys on standardized tests of achievement. This was attributed to cultural norms for compliance and achievement. In the Hawaiian culture girls and women have a high expectation of bringing family together, maintaining kinship networks and achievement. Such cultural gender expectations are also compatible with the expectations of female students in school which in turn, enhance their academic self-efficacy.

2.5 Social Constructivist Gender Theory

Gender theory recognises equality in potential but at the same time, allows for differences between genders. Gender theory is described as a more comprehensive form of feminism and examines how sexual differences are organised, constructed and/or inherited (Handrahan, 1999). Others (Kiluva-Ndunda, 2001; Lopez, 2003) add that race and gender have no inherent meaning other than those constructed by the society. Kiluva-Ndunda (2001) defines gender as

a social, cultural, economic and political construction of what it means to be a girl or a boy, or a woman or man in a given context. It is a social process that ascribes characteristics and behaviours to women and men according to their sex (p.3).

Hence, gender is described as a process of assigning difference and meaning to the behaviours which a particular society believes to constitute the masculine and feminine social spheres (Lopez, 2003). This process of defining gender by society has meant that girls and women throughout the underdeveloped world have often lived in poverty, undereducated or uneducated, oppressed and exploited.

In the PNG context, the definition of gender depends largely on the inheritance and political systems entrenched in the local traditions of societies in various parts of the country. Within the context of the inheritance and political systems, a society determines and assigns the nature of roles and responsibilities to be assumed by males and females.

McElhanon & Whiteman (1984, as cited in Flaherty, 1998) identified two dominant cultural inheritance and political systems in PNG: patrilineal and matrilineal systems. Matrilineal systems are found predominantly in the islands of Bougainville, New Ireland, Milne Bay and New Britain. Female members trace their decent to a common ancestress over successive generations of females and generally, land rights and rights of

descent are passed on through women and in some instances through a mother's brother. In some areas like Bougainville Island, women also have rights to political inheritance as "hedmeri"² where clan leadership is passed on from mother to daughter. In matrilineal societies significant numbers of women have been also been found to excel in their pursuits.

In contrast, patrilineal systems exist predominantly on the New Guinea mainland and members in a patrilineal system trace their decent through a common male ancestor and rights to land are generally held in common by male members. The political and social status of females in the patrilineal societies is generally low compared to males. The UNICEF (2004) project on "Accelerating Girls Education in Papua New Guinea" identified girls in the Highlands and MOMASE regions, as well as Gulf in the Papuan region and parts of West New Britain in the New Guinea Islands region as the most disadvantaged. The communities in these regions embrace patrilineal systems.

Gender differentiation commences at birth or with modern technology, even before the birth (Dovona-Ope, 2008; Peach, 1998). Male babies are treated differently from female babies in many respects: the way they are handled, the clothing that is worn, the types of toys made available to them, the games they play, the chores assigned to them, the different messages that they receive about the appropriate gender behaviours expected of them. In school, males tend to be more outspoken than females, males tend to be praised more than females, and males' disruptive behaviour tends to be tolerated more than females. These responses prevent girls from developing their confidence and self-esteem and even thinking capacities. Consequently, lack of these can have a negative influence on academic achievement. Such gendered distinctions continue into occupations, where males are encouraged to enter careers that require competitiveness and achievement-

² Political status accorded to a woman as head of a clan in a Bougainville matrilineal society.

oriented skills while females tend to be encouraged to undertake careers within the helping professions. Cultural institutions such as the media, schools and the church tend to contribute to and maintain gender roles and gendered hierarchies that place males in more privileged positions than females.

2.5.1 Gender and Participation

Girls' access to and participation in education has been a major problem confronting girls in many developing countries. Reports from the African countries of Malawi and Kenya, Asian countries of Bangladesh and Pakistan, and Pacific countries like PNG have revealed that access and participation continues to be a major problem for girls in these countries. In PNG, Kenya and Malawi, governments use a highly selective national education system to control access to each subsequent level of education due to limited resources. Consequently, in this process, participation of both boys and girls drop considerably at each stage but an under-representation of girls becomes more evident the higher the school level (Chamdimba, 2003; Kiluva-Ndunda, 2001). Additionally, in each of these countries governments have introduced a quota policy to increase selection of girls to secondary schools. Girls' access to education in developed countries is not, in theory, a problem as most of these countries have a compulsory education policy.

Studies in some developing countries have reported that the academic achievement of female students has been lower than male students. For instance, Kiluva-Ndunda (Kiluva-Ndunda, 2001) reported that in Kenya fewer girls perform well in mathematics and science except in the "all girls" schools where achievement levels can be quite high.

2.5.2 Gender, Achievement Motivational Goals and Achievement

Gender is one of the personal variables that have been attributed to differences in motivational functioning and achievement between boys and girls. Girls have a tendency to attribute their achievement to effort, which is the result of mastery goal orientation, whereas boys attribute achievement to ability and luck resulting from employing performance goals (Rusillo & Arias, 2004; Smith & Sinclair, 2003).

In conceptualising female achievement goal patterns, Fan & Karnilowicz (2000) note that by neglecting the communal perspective of achievement, traditional achievement motivation models do not adequately define female achievement motivation. Female achievement motivation was considered to be more a communal success process in which one does not get into social comparison or social competition. Rather, female achievement motivation focuses on the desire to achieve and gain rewards through collaborative efforts and interactions with others.

A number of cross-cultural studies examining the types of achievement goals used by students have reported a motivation structure that extends beyond the traditional dichotomous motivational goal orientations. For example, Fay (2001) undertook a study involving 10 high school seniors working on a Graduation Challenge in Vermont, USA, and found that they used dual goals with one goal having dominance over the other depending on the tasks given. Another study by Smith & Sinclair (2003) involving Year 12 students in four schools in the Sydney metropolitan region indicated that dual/task performance-approach goals were a more productive cluster of motivational attributes than the single goal cluster.

American studies by Gurian, Henley, & Trueman (2001) and Lee (1997) showed that girls were not performing as well as the boys in the areas of mathematics and sciences.

This was attributed to unfair treatment of girls in schools and undervaluing of the ways girls think, learn and react. Consequently girls were said to have lost their self-esteem as they mature and advance through the education system. The disparity between the academic achievement of male and female students paved way for serious effort from governments, funding agencies, and educational experts in developing strategies to improve female students' achievement.

Greater focus on girls' education worldwide, in some respect, has been to the detriment of male students in some places. For example, an Australian study (Trent & Slade, 2001) revealed a decline in the academic achievement and retention rates among male students. It was found that boys attributed the decline in academic achievement to unequal treatment between the male and female students where girls are treated better than boys. Furthermore, a study by Forgas, Leder & Thomas (2003) supports the findings of Trent & Slade (2001) which claims that Australian male students are now becoming educationally disadvantaged and alarm bells are ringing as examination results showing a dominance of female students receiving the top grades in mathematics. The trend in completion rates is also now showing more Australian females than males completing Year 12 and continuing onto tertiary education.

Like the Australian studies, the results of an American study by Hudley (1997) challenges the results of earlier studies when he warned that African American male students were more likely to experience alarming levels of academic failure and school adjustment than female students. Even amongst the first generation black, Latino and Asian youth in Florida, girls were outperforming boys in terms of educational attainment, grade-point averages, and educational aspirations. Similar trends, favouring girls among second generation Vietnamese American in New Orleans, Louisiana and Mexican American, St Antonio, Texas have been evident across a number of American states (Lopez, 2003).

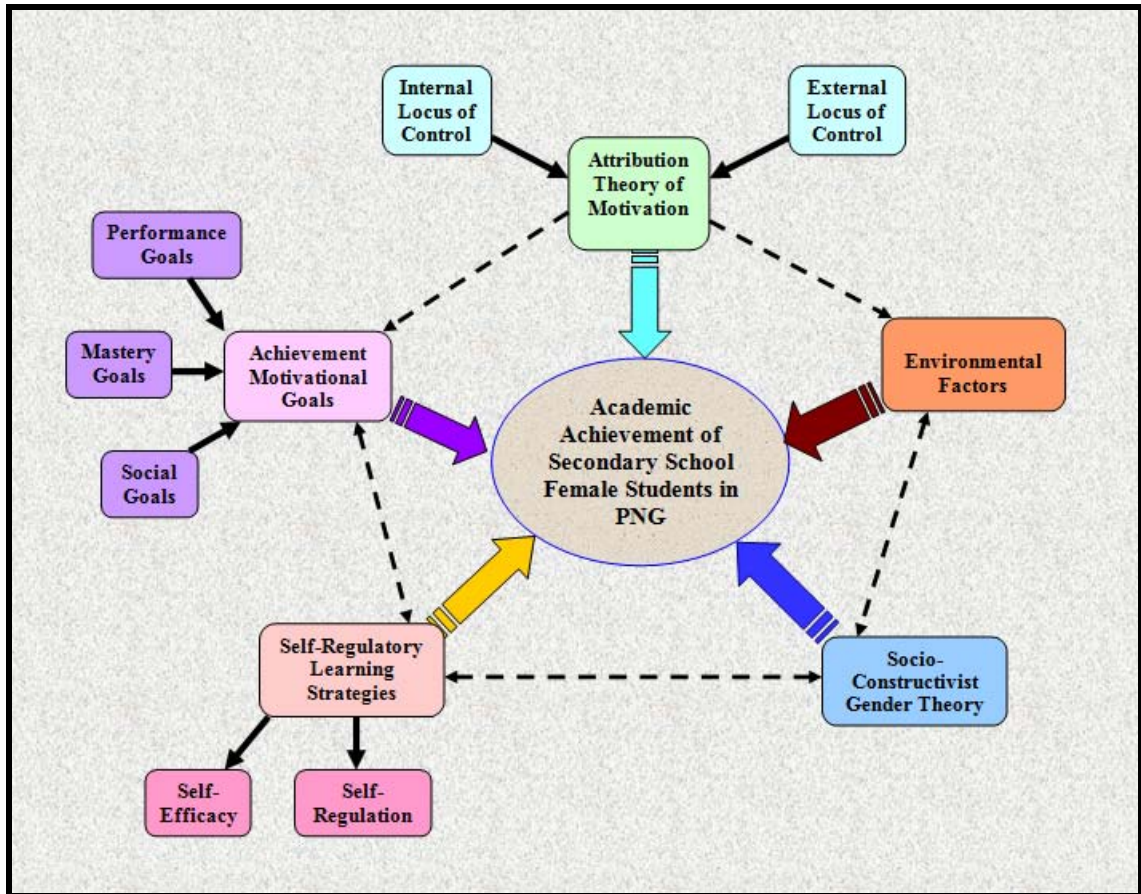
As discussed in Chapter 1, in the PNG context, the Grade 12 Higher School Certificate examination results indicate that nationally, female students have been performing consistently better than male students in Language and Literature. However, the 2004 examination results were positive for female students' performance showing that female students performed better than male students across all subjects except Chemistry and History (Papua New Guinea Department of Education. Higher school certificate examination, 1998, 1999, 2000, 2001, 2002 and 2004). Although this may be attributed to high mean scores resulting from the smaller population of Grade 12 female students, it is significant. If the 2004 results were to continue the emerging trend in the PNG context could follow a similar path as the Australia's New South Wales.

2.6 Theoretical Framework for this Study

The theoretical framework for this study is presented in graphic form in Figure 2.4 and embraces five key conceptual frameworks. It is the function of the theoretical framework to integrate and organise the five underlying theories that contributed to the creation of the body of knowledge and its meaning. The body of knowledge is linked to the reality of the research.

The five key conceptual frameworks relevant to this study are embedded in (1) the attribution theory of motivation, (2) achievement motivational goal theory, (3) self-regulatory learning strategies, (4) socio-constructivist gender theory, and (5) environment. Figure 2.4 shows a direct link between each of the five major conceptual frameworks and the academic achievement of female students as well as a strong influence between the major theories forming the conceptual framework. The sources of influence on academic achievement can be attributed to personal and/or contextual determinants (Barker et al., 2003) or as internal or external factors (Scholl, 2002).

Figure 2.4: Theoretical Framework For This Study



In this conceptual framework, attribution theory is strategically located at the top of the diagram as it provides the over-arching concepts of internal and external locus of control. These provide the conceptual framework under which various participant attributions gathered through the design of this study are categorised. In the initial categorisation, achievement motivational goals and self-regulatory learning strategies are categorised under internal locus of control whilst socio-constructivist gender theory and environment are categorised under external attribution. Each of these major categories has significant influence on academic achievement. However, in some

circumstances, there is a relationship between the five categories: achievement motivational goals, self-regulatory, socio-cultural gender and environment, in their influence on the academic achievement as discussed in the literature review. In relating these to a unique and culturally complex context like PNG, it is not known what influences the motivational determinants such as achievement goals and self-regulatory learning strategies which are important for female students' academic success.

2.7 Summary

Chapter 2 reviewed five theoretical concepts underpinning this study which were employed in developing a theoretical framework which examined female students' attributions for academic achievement. The theoretical framework comprised (1) the attribution theory of motivation, (2) the achievement motivation theory, (3) self-regulatory learning strategies, (4) socio-constructivist theory, and (5) the influence of the environment and their impact on the academic achievement of students.

Achievement motivational goals theorists provide a social-cognitive perspective of motivation and achievement goals by conceptualising that learners are motivated to learn in order to achieve their goals. These goals represent the different reasons that students seek to achieve and are considered to direct students' behaviour, cognition and affect in their engagement in academic tasks. Additions to the achievement motivational goal theory framework recognised the powerful influence of social goals on academic achievement. The focus of social goals is on understanding student interactions and relationships as these contribute immensely to their adaptive motivation, engagement in school work and their academic success. Achievement goals of students have also been found to be nurtured by the environment such as the classroom environment and the school as a whole which exerts a powerful influence on the achievement goals pursued by students.

Self-regulatory strategies such as self-regulation and self-efficacy have been found to exert a significant influence on the academic achievement of students. Self-regulation is not a cognitive ability or an academic performance skill; it is a process of self-direction whereby a student's mental abilities are transformed into academic skills. In the process of transforming cognitive abilities into academic skills, students learn by doing things.

Self-efficacy was initially defined as an individual's belief about his or her capacity to effect their lives (Bandura, 1977). Student self-efficacy beliefs influences how they feel, think, motivate, and behave themselves in academic settings. The higher the level of self-efficacy, the higher the goals and the stronger the commitments are likely to emerge for engagement in specific activities.

Socio-constructivist gender theory recognises how a society defines what it means to be a girl or a boy. Gender differences in academic achievement are well documented with girls attributing their achievement to their effort and boys with a tendency to attribute their achievement to their ability or luck.

CHAPTER THREE: RESEARCH DESIGN AND METHODOLOGY

3.0 Overview of the Chapter

Chapter 3 describes the research design and methodology employed in this study. **Section 3.1** is an introduction to the chapter. **Section 3.2** outlines the data collection procedures; **Section 3.3** discusses the issues of reliability and validity of the instruments; **Section 3.4** describes the sampling techniques used; **Section 3.5** describes the research sites; **Section 3.6** expounds on the data analysis procedures; **Section 3.7** describes the research design; **Section 3.8** presents the philosophical underpinnings of the research design; **Section 3.9** clarifies the researcher's position in text; **Section 3.10** summarises the ethical considerations of the research; and **Section 3.11** is the chapter summary.

3.1 Introduction ◀

This study was designed to examine the factors that have either inhibited PNG school female students from gaining access to or completing secondary education, and those that have facilitated the academic success of current students. The study was guided by the following key research questions:

1. What factors inhibit female students from gaining access to and/or completing secondary schooling?
2. To what factors do female students, currently undergoing secondary education attribute their academic achievement?

Data were collected from three groups of females. These were:

Group A: Females who (1) had left school without completing Grade 8; (2) who had completed Grade 8 but were not selected to undertake secondary studies; and (3) who were selected to undertake secondary studies but did not take up the offer.

Group B: Females who, (1) had left school during the course of Grades 9 and 10; (2) who completed Grade 10 but were not offered a place in Grade 11; and (3) who were offered a Grade 11 place but could not take up the offer.

Group C: Females who were completing Grade 12.

The research methodology and design employed in this study was chosen in response to the unique sociocultural context in which it was conducted. Participants representing speakers of some of PNG's more than eight hundred distinct languages, diverse ethnic cultures and different geographical locations were drawn from two contrasting research sites labelled Research Site 1 and Research Site 2. Research Site 1 was located in the highlands region while Research Site 2 was located in the southern region of PNG. The two research sites were selected as they represent two main types of societal systems found in various parts of PNG and to capture any culturally located differences that may significantly influence the school education experience of the participants.

The research design in particular, was significantly influenced by the unusual circumstance in which fifty percent of the initial data collected in 2006 which were

stored electronically, were stolen during a break and enter to the home of the researcher within one week of return to Australia from the research field trip in PNG. This resulted in several changes in the areas of research design, the data collection techniques and the sample size when the second round of data collection eventuated in 2007. Initially the research design was explanatory mixed methods but changed to triangulation mixed methods research. The initial sample size in 2006 study was 250 participants but was reduced to 178 in the 2007 study. As it was expensive to conduct another lot of workshops to bring together participants to a central location as was done in the 2006 study, the researcher employed convenience sampling procedures in the second round of data collection in the 2007 study.

To avoid any potential bias of the researcher, being a female and a highly educated Papua New Guinean from one of the country's societal systems, the study utilised a mixed methodology and research design, hence allowing for multiple sources of data. The research framework was informed by the theoretical underpinnings of pragmatic and transformative-emancipatory and socio-cultural gender positions (Creswell, 2005; Creswell & Plano-Clark, 2007; Handrahan, 1999; Mertens, 2005b; Tashakkorri & Teddlie, 1998a). Specific design issues appropriate to the context of this study included matters related to cultural competence and cultural sensitivity. A summary of the methodological aspect of this study and the data analysis techniques used are presented in Table 3.1.

Table 3.1. Summary of the Mixed Methods Research Approach and Data Analysis

Research Instrument	Data Analysis
<p>Research Instrument 1:</p> <p>School Leaver Survey</p>	<p>Descriptive (SPSS) Factor Analysis (SPSS) One-way Analysis of Variance (SPSS) T-Tests (SPSS)</p>
<p>Research Instrument 2:</p> <p>Grade 12 Survey</p>	<p>Descriptive (SPSS) Factor Analysis (SPSS) One-way Analysis of Variance (SPSS) T-Tests (SPSS)</p>
<p>Research Instrument 3:</p> <p>School Leaver Interview and Focus Group Schedule</p>	<p>Thematic Analysis (NVivo 8)</p>
<p>Research Instrument 4:</p> <p>Grade 12 Interview and Focus Group Schedule</p>	<p>Thematic Analysis (NVivo 8)</p>

3.2 Data Collection Procedures

Both quantitative and qualitative procedures were used in the study. These comprised the data gathered from surveys, interviews and focus groups. The data collection procedure is described in detail in the following subsections.

3.2.1 The Surveys

Quantitative data was collected through two sets of surveys containing attributional scales (AS). One set was designed for participants in Group A and B and the other set for participants in Group C. The survey questionnaire for Groups A and B was translated into Tok Pisin³ to provide an opportunity for participants from Research Site 1, who were fluent Tok Pisin speakers, to use this language if they wished to. The two surveys with the Tok Pisin versions can be found in Appendix A, B and C.

A cross-sectional survey design (Cohen, Manion, & Morrison, 2007; Creswell, 2002, 2005; de Vaus, 1995; Johnson & Christensen, 2004; Wiersma & Jurs, 2005) was employed in developing two sets of highly structured, closed and numerical surveys to measure participants' attributions for their academic success or failures. They were developed by adopting the formats and adapting some items from existing surveys comprising (1) the *Patterns of Adaptive Learning Survey (PALS)* (Midgley, Huda, Anderman, Anderman & Freeman, 2000); (2) the *Goal Orientation Measure and General Task Self-Efficacy Measure* (Brelan IV, 2001); (3) *The Survey of Parental Background* (Australian Government, 2001); and (4) *Longitudinal Surveys of Australian Youth* (Rothman & McMillan, 2003). The items from these sources that were considered for adaptation were carefully screened to ensure relevance and appropriateness of the items to the PNG context (Cohen & Manion, 2000; Mertens, 2005a).

The PALS by Midgley, *et. al.* (2000) was used as a key reference in developing the Likert Scale format used in the survey instrument for this study. The PALS also contains scales that measure students' and teachers' beliefs about factors such as goals, self-

³ Tok Pisin is one of PNG's 3 national languages

efficacy and self-regulation that influence academic performance. As the PALS has been used in cross-cultural contexts including PNG (Ope, 1997), China (Sexton-Radek & Paul, 2002) and in comparisons between Asian Americans and Anglo Americans (Zusho, Pintrich, & Cortina, 2004), it was considered an ideal source for adopting the format and for adapting some items that were culturally appropriate for participants in this study.

The Goal Orientation Measure and General Task Self-Efficacy Measure (Breland IV, 2001) is similar to PALS. It was used in this study as a source of reference for the surveys format and for selecting and adapting some items that focused on goals and self-efficacy. The Survey of Parental Background (Australian Government, 2001) and Longitudinal Survey of Australian Youth (Fullarton & Ainley, 2000; Rothman & McMillan, 2003) were only perused to develop ideas about the format and the nature of items for collecting specific demographic data. No items were adopted or adapted from these sources.

The two surveys contained 67 five-point summated rating scales each, also referred to as Likert Scales (Creswell, 2002; de Vaus, 1995; Johnson & Christensen, 2004). They measured attitudes, beliefs, feelings, opinions, perceptions and behaviour of participants about the attributions for their academic success and/or failure (de Vaus, 1995; Wiersma & Jurs, 2005). The items in Part B and C comprised items containing the rating scale of *1= Not at all true; 2= Not true; 3= Somewhat true; 4= True; and 5= Very true*. Each item was worded positively.

The surveys were almost identical except for a voice difference. As the participants in Groups A and B were school leavers, all the items in their surveys were written in past tense. Group C comprised current students hence, the items in their surveys were all in the present tense. The items in the two sets of surveys were divided into three parts.

For Group A and B, the surveys were issued to selected participants who had signed the consent to participate in the study. They filled in the surveys during a break on the third

day of each training workshop⁴ at both sites. The Grade 12 students were initially given the consent form to participate in the survey to give to their parents, one week in advance. The deputy principals at both sites arranged the times for selected participants whose parents had signed the consent forms to fill the survey forms. Prior to filling the survey, the purpose, importance and the procedures for the surveys were explained to all the participants. The survey took about 45 minutes to 1 hour to complete.

3.2.1.1 Part A of the Surveys

Part A contained 10 items and was designed to collect demographic information including parents'/guardians' occupational and educational status, gender of their teachers, the subjects they studied, whom they lived with, who paid their school fees and the self-reported measures of past academic achievement. Full versions of both surveys in English and Tok Pisin can be found in Appendix A, B, C. A 5-point rating scale was used to collect measures of past achievement from Grades 8, 9 and 10 school leavers. Item 2 from Part A is provided in Table 3.2 as a sample.

⁴ The training workshops in Basic Home Care were specifically designed to bring together school leaver participants from various communities to central locations where data were collected from participants.

Table 3.2. Samples of Items from Part A of the Grades 8, 9 &10 Survey

PART A- Group A and B- English Version

Item 2: How well do you think you performed in the following subjects? In the following, rate your performance out of 5 by ticking the appropriate box beside each subject.

English	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
	NOT AT ALL GOOD		AVERAGE		VERY GOOD
Maths	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
	NOT AT ALL GOOD		AVERAGE		VERY GOOD
Science	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
	NOT AT ALL GOOD		AVERAGE		VERY GOOD
Social Science	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
	NOT AT ALL GOOD		AVERAGE		VERY GOOD

The rating scale represents 1= *Not good at all*; 2= *Not Good*; 3= *Average*; 4= *Good*; 5= *Very good* for participants in Group A and B was used in consideration of participants in this study who had left school over a ten-year period from 1998 to 2007. It would have been difficult for many of the participants to provide detailed achievement information such as marks, grades or teacher reports. This period was also significant as major structural and curriculum changes occurred as part of the educational reformation in PNG. Details of the old and the reformed education structures are on Figures 1.2 and 1.3.

Participants in Group C were asked to provide their grades in the core and major subjects for Semester 2 of Grade 11 and Semester 1 of Grade 12 as a measure of their academic achievement. The rating scale for participants in Group C comprised the usual grades A, B, C, D, and E used in the upper secondary level.

Table 3.3: Samples of Items from Part A of the Grade 12 Survey

PART A- Group C- Grade 12 Version

Item 2: List the core and the major subjects you study and the grades you have attained in the last two semesters.

Subjects	Last Two Semesters Grades	
	Grade 11 Semester 2	Grade 12 Semester 1
1.		
2.		
3.		
4.		
5.		
6.		
7.		

3.2.1.2 Part B of the Surveys

Part B of the surveys contained 35 items and was designed to ascertain inherent causal factors that influenced academic success or failure of school leavers and Grade 12 students. The items were arranged in a number of sections with each measuring a specific aspect of inherent causal factors as indicated in the following:

- Items 11-17-Personal goals (task-focused and ability focused goals);

- Items 18-19- Teamwork;
- Items 20-26-Perceived classroom and teacher goals (task-focused and performance-focused goals);
- Items 27-33- Perceived parental goals (task-focused and performance-focused goals);
- Items 34-36- Self-efficacy
- Items 37-41- Self-regulation;
- Items 42- 45- Self-concept.

Some examples of the items in Part B of the survey are provided in Figures 3.4. Refer Appendix B for a detailed survey.

Table 3.4: Samples of Items Measuring Beliefs, Perceptions, and Attitudes of Participants

Item 11: Group A & B Version

11. My reason for doing the tasks in my core subjects was because I liked learning.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NOT AT ALL TRUE		SOMEWHAT TRUE		VERY TRUE

Item 11: Group C Version

11. My reason for doing the tasks in my core subjects is because I like learning.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NOT AT ALL TRUE		SOMEWHAT TRUE		VERY TRUE

Item 21: Group A & B Version

21. In my class you were allowed to make mistakes so long as you were learning

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NOT AT ALL TRUE		SOMEWHAT TRUE		VERY TRUE

Item 21: Group C Version

21. In my class you are allowed to make mistakes so long as you are learning

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NOT AT ALL TRUE		SOMEWHAT TRUE		VERY TRUE

Item 27: Group A & B Version

27. My parents and/or guardians wanted school work to be challenging for me.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NOT AT ALL TRUE		SOMEWHAT TRUE		VERY TRUE

Item 27: Group C Version

27. My parents and/or guardians want school work to be challenging for me.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NOT AT ALL TRUE		SOMEWHAT TRUE		VERY TRUE

Item 41: Group A & B Version

41. When I had difficulty solving a problem in a subject, I enjoyed trying different ways to identify the one that worked.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NOT AT ALL TRUE		SOMEWHAT TRUE		VERY TRUE

Item 41: Group C Version

41. When I have difficulty solving a problem in a subject, I enjoy trying different ways to identify the one that works.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NOT AT ALL TRUE		SOMEWHAT TRUE		VERY TRUE

3.2.1.3 Part C of the Surveys

Part C of the surveys contained items measuring a range of participant beliefs, opinions and perception about external or situational factors that influenced their academic success. These consisted of items measuring parents/guardians', teachers' and school

support, availability and access to curriculum and learning resources, gender equality, school routine, safety issues, the religious influence of their families and were presented as follows:

Items 46-50- Perceived parental support;

Items 51-56- Perceived promotion of gender equality in school;

Items 57- 60- Perception of learning resources;

Items 61-62- Perception of the school curriculum;

Items 63-66- Class and school size;

Items 67-70- School emotional environment;

Item 71-73- School routine;

Items 74-76- School Support;

Items 77- Perception of the influence of personal religious faith

Some examples of the items in Part C of the survey are provided in Figures 3.5. Refer Appendix C for a detailed Survey.

Table 3.5. Samples of Items from Part C of the Survey

Item 52: Group A & B Version

52. My teachers encouraged girls to participate in class.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NOT AT ALL TRUE		SOMEWHAT TRUE		VERY TRUE

Item 52: Group C Version

52. My teachers encourage girls to participate in class.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NOT AT ALL TRUE		SOMEWHAT TRUE		VERY TRUE

Item 68: Group A & B Version

68. When I had personal and academic concerns in school, I had someone to talk to.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NOT AT ALL TRUE		SOMEWHAT TRUE		VERY TRUE

Item 68: Group C Version

68. When I have personal and academic concerns in school, I have someone to talk to.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NOT AT ALL TRUE		SOMEWHAT TRUE		VERY TRUE

3.2.2 Survey Pilot Study

After developing and reviewing the survey items, a pilot study, as described by Creswell (2005) of the two surveys inclusive of the English and Tok Pisin versions, was conducted at a College of Distance Education (CODE) centre at Research Site 1. The CODE centre contained a cross-section of students who had left school at grades 6, 7, 8,

9, and 10 and who were now given an opportunity to up-grade their education through further study. The pilot study involved 22 female students who had left school over the period 1998 to 2006. The participants in the pilot study were allowed up to a maximum of one hour to complete the surveys.

As explained by Creswell (2005) the purpose of a pilot study is to enable the researcher to make changes and refinements to the instrument based on feedback from a small sample who completed and evaluated the instrument. The pilot study was in effect a pre-test to determine the appropriateness of the English and Tok Pisin versions, to identify problems in the administration of the questionnaires and to confirm the relevance of the survey items.

The participants in the pilot study were requested to take note of the items they found difficult or ambiguous whilst undertaking the surveys. The process allowed for the identification of deficiencies, ambiguities and cultural insensitivity in items which were not apparent during the initial development of the questionnaires. Appropriate adjustments to the surveys were made before their use in the study.

3.2.3 Interviews and Focus Group Schedules

In this study both one-on-one interviews and focus groups were used to collect qualitative data from participants. One-on-one interviews and focus groups were viewed as essential for capturing the voices of participants as they reflected on their experiences, beliefs, attitudes and values that had either impeded or facilitated their academic success. This type of rich information is not easily accessible through a survey questionnaire.

The benefits of interviews in research have considerable support (eg. Best & Kahn, 2006; Cohen et al., 2007; Creswell, 2002; Creswell & Plano-Clark, 2007; Silverman, 2006; Wiersma & Jurs, 2005). These authors argue that interviews provide better

opportunities for participants to think carefully about their responses, interpret events and experiences and to express more openly their opinions.

Focus groups were also set up to gather shared ideas of participants representing all three groups. Krueger (2000) defined focus groups and the strategies of focus groups as a “carefully planned discussion designed to obtain perceptions in a defined area of interest in a permissive, non-threatening environment” (p.6). Focus groups created an atmosphere for tapping into additional insights through the interaction of ideas among participants (Creswell, 2005; Krueger, 2000; Lodico, Spaulding, & Voegtle, 2006; Mertens, 1998).

The use of focus groups was seen as an appropriate means of obtaining relevant data from participants by tapping into a collective voice which is culturally relevant in the study context. The communication approach in the PNG cultural context is one that employs a non-confrontational approach requiring consensus, sharing of ideas and participation (Tuaru, 2007), thus the relevance of focus group strategy. Participants were asked to reflect on specific questions asked by the interviewer and had to listen to each other and make additional responses beyond their initial responses.

The participants from Groups A and B were combined to create one group at each research site owing to limited numbers who were available to participate within the time frame of the study. In the analysis phase of this research the contributions of participants from Group A and B focus groups were reported separately.

3.2.3.1 Interview and Focus Group Protocols

Two interview protocols for individual interviews and the focus groups were constructed; one for Group A and B, and the other for Group C (see Appendix D for the Tok Pisin version of Group A and B interview). Each interview and focus group protocol comprised 4 items which were designed for use in both one-on-one interviews and focus group meetings. The first item asked for basic information for identification

purposes and for assigning participants into the three groups and the two research sites. The second item was an open-ended question, with several variations attached to the root to accommodate the specific characteristics of each group of participants. Items 3 and 4 were included as extensions to the key questions. The items are shown in Figure 3.6:

Table 3.6: Group A and B Interview and Focus Group Protocol- English Version

1. Please introduce yourself to me (us) by telling me (us)
 - a. Your name
 - b. Where you are from
 - c. The grade you completed or the last grade you were in before leaving school and
 - d. The year you completed or left school.

2. You did grade 8 but did not undertake the examinations...

OR

You sat the Grade 8 examinations and were either selected or not selected to undertake secondary education...

OR

You were selected, went onto high school but dropped out of school without completing grade 9 or 10...

OR

You sat the grade 10 examination but were either selected or not selected to continue to grade 11...

...what problems did you encounter that affected your learning and in turn, your academic achievement? Please explain. (When you say "...", what do you mean?)

3. As a female student how much support did you receive at school and home?

School _____ Home _____

Why? When you say “ _____ ” what do you mean?

4. Describe how you felt in terms of your safety between home and school and in school? Why?

The interview protocol for Groups A and B was also translated into Tok Pisin for use with participants in Research Site 1 as many people from this area communicate in Tok Pisin in preference to English. Thus all the interviews with participants in Groups A and B in Research Site 1 were conducted in Tok Pisin as the researcher was also a fluent speaker of the language. The translated Tok Pisin version of the interview and focus group protocol is shown in Appendix D.

The Group C participants’ interview protocol was constructed similarly to the Group A and B interview protocol. However, item 2 focused on participants’ attributions for their success in school rather than what might have negatively affected their learning and achievement. The items in the Group C interview protocol are shown in Figure 3.7.

Table 3.7: Group C Interview Protocol

Item 1. Please introduce yourself (yourselves) by telling me (us) clearly:

a. Your name _____

b. Your place of origin _____

Item 2. You are amongst the most successful of your cohort of female students our school system has ever produced. What is it that has facilitated your learning and your achievement in school? What enabled you to come this far in your education?

Item 3. As a female student how much support did you receive at school and home?

School _____ Home _____

Why? When you say “_____” what do you mean?

Item 4. Describe how you felt in terms of your safety between home and school and in school?

Why?

Prior to conducting interviews, each participant in Groups A and B at both sites was asked if she was willing to participate in an interview. The purpose of the interview was explained to each potential participant and once they understood and agreed to participate, they were asked to sign a consent form. Most participants who were approached were willing to participate in the interviews. All interviews and focus group meetings were recorded on an MP3 voice recorder and later transcribed.

All interviews and focus groups with participants in Groups A and B in Research Site 1 were conducted in Tok Pisin. They were conducted at a conference centre in the heart of Central Business District (CBD). These were transcribed and translated to English prior to conducting data analysis.

Interviews with participants in Group A and B at Research Site 2 were conducted in an outside setting available in the CBD at that site. The focus group interviews were conducted at a University Centre at Research Site 2. All individual interviews and focus group meetings in Research Site 2 were conducted in English as the majority of the population can communicate in English.

Consistent with the language policy pertaining to the use of English in schools, all interviews and focus groups with participants in Group C at both research sites were conducted in English at the participants’ schools. Available classrooms at the respective secondary schools were used for both individual interviews and focus group meetings.

Participants in Group C were met a week earlier and given consent forms for their parents and/or principal to sign. If they were day students, their forms were signed by their parents and if they were boarding students their school principals signed the consent forms. The purpose and significance of the study was explained and participants were informed about the recording of interviews. Procedures for maintaining anonymity were also explained to participants.

Most of the interviews took approximately 10 to 20 minutes dependent on the level of openness and willingness of the participants to disclose personal issues. The focus group meetings took up to two hours depending on the number of participants in each group and the long pauses in between some of the contributions. All interviews were recorded on an MP3 voice recorder and later transcribed by the researcher.

3.3 The Reliability and Validity of the Instruments

In accordance with important research issues raised by numerous research methodology authorities (Best & Kahn, 2006; Cohen et al., 2007; Creswell, 2005; B.; Johnson & L. Christensen, 2008), this research needed to ensure that the data used provided both accurate and credible results, thus a need to address the questions of reliability and validity.

3.3.1 Reliability

In developing the survey questionnaire, the author tested the reliability of the survey questionnaire scale through the method of internal consistency. As the instrument was designed to measure internal and external factors that influenced academic achievement, an internal consistency of the scales was assessed. Internal consistency of the scales was assessed to identify the average correlation among all the items that make up the scale to

ensure that all the items that make up the scale measured the same underlying attributes (Pallant, 2007). A Cronbach's coefficient alpha (α) was used to measure the internal consistency of the scale. The acceptable Cronbach's coefficient alpha is $\alpha = >.70$. In this respect, all the variables in Parts B and C of the survey questionnaires were entered into the Statistical Packages for the Social Science (SPSS) Version 14 for testing the reliability of the scales using Cronbach's coefficient alpha (α). The reliability for Group A survey questionnaire was $\alpha = >.869$; Group B was $\alpha = >.790$, and Group C was $\alpha = >.778$, all above the acceptable measure of internal consistency. Thus, the scales of the survey questionnaires were assessed as being acceptable, consistent and reliable. Individual survey items that presented weak Cronbach's alpha coefficients were removed to increase the overall α for each survey questionnaire.

3.3.2 Validity

In mixed methods contexts validity is defined by Creswell & Plano-Clark (2007) as the "ability of the researcher to draw meaningful and accurate conclusions from all the data in the study" (p.146). In this study two forms of validation of the survey questionnaire, interviews and focus groups during the development were used: cultural and triangulation validation (Cohen et al., 2007).

3.3.2.1 Cultural Validity

From the outset, the research design for this study was shaped to accommodate the complexity and diversity that existed in the socio-cultural environment of PNG. Thus, it was absolutely critical to address questions of cultural competence and cultural sensitivity and to employ strategies that took these matters into consideration.

According to Joy (2003) and Morgan (2005) cultural validity is the degree to which a research design is appropriate to the cultural context of the study. Cohen & Manion (2000) also point out that cultural validity influences "planning, implementation and

dissemination” (p. 139) hence, requires a strong level of sensitivity to the participants’ cultures. As a female researcher, in planning the design of this study, careful consideration of culturally appropriate approaches in dealing with gatekeepers, who were mostly males, and the language used were important issues of concern. Language of potential participants was another important aspect accommodated for in the process of ensuring cultural validity. Hence, opportunities were provided for participants to use one of the two national languages, English and Tok Pisin, during data collection. As part of this process, both the quantitative and qualitative instruments were translated into Tok Pisin for use at Research Site 1 where this language is widely spoken. Focus groups are culturally relevant in communal societies like those in PNG where people are more comfortable discussing issues in groups rather than as individuals.

3.3.2.2 Triangulation Validity

Triangulation, as applied in mixed methods research, was the principal method of validation. As pointed out by Cohen *et. al.* (2007), Creswell & Plano-Clark (2007) and Lincoln (1985), triangulation involves the use of more than one method of data collection. Consequently, one data collection method substantiates or provides strengths to compensate for the weaknesses of the other. Thus, multiple sources of data in this study increased the likelihood of a more valid picture of the experiences of former and current Grade 12 students. In this triangulation mixed methods study, participants were selected at the two sites to undertake the surveys, the interviews and focus group meetings, thus minimising the potential threats to validity (Creswell & Plano-Clark, 2007).

3.4 Participants and Sampling Procedures

3.4.1 The Participants

A sampling and data collection for this study was conducted twice with an initial sample size of 278 participants. The first data collection was conducted in 2006, however, the data was lost soon after return to Australia through theft during a home burglary. Consequently, a second set of data was collected in 2007 at the same research sites but with a selection of a reduced sample size. This comprised 178 female school leavers from Grades 8, 9 and 10 and Grade 12 students in the two-phase study. The school leavers who were selected were those who had left school over a ten-year period from 1998 to 2007 and the Grade 12 female students were current students during the period of data collection in 2006 and 2007. However, only 134 participants of the target number actually participated in the study. The 134 constituted three groups comprising two groups of female school leavers labelled “Group A” and “Group B” and one group of Grade 12 students labelled “Group C” at each research site. The 134 participants comprised 92 who responded to the surveys and 42 who participated in either the interviews or focus groups. Details are presented in Tables 3.8 and 3.9.

3.4.1.1 The Sample Size of the Survey Questionnaire

Out of a total of 92 participants in Groups A, B and C at both research sites who responded to the surveys, 4 (4%) respondents did not complete their surveys correctly and these were excluded from subsequent analysis of data, reducing the valid survey forms to 88. Out of the 88 valid survey forms, 43 (49%) came from Research Site 1 and 45 (51%) came from Research Site 2. There were 23 (26%) participants from groups A, 34 (39%) participants from Group B and 31 (35%) from group C. Distribution of survey participants is presented on Table 3.8.

Table 3.8: Participants in the Surveys

N=88

Groups	Site 1	Site 2	Total
A. School Leavers- Grade 8	10	13	23
B. School Leavers- 9-10	20	14	34
C. Grade 12 Students	13	18	31
Total	43	45	88

3.4.1.2 Interview and Focus Group Sample

In this study, interviews and focus group meetings were conducted to collect qualitative data. Forty-two respondents participated in interviews and focus groups. Seventeen participants were interviewed and 25 participated in the focus groups. Participants from groups A and B at both sites were combined to create one group of school leavers for focus group meetings owing to small numbers involved. However, in the analysis of results, each group was discussed separately. A summary of the distribution of participants in interviews and focus groups is shown on Table 3.9.

Table 3.9: Participants in Interview and Focus Groups

N=42

GROUPS	Interviews		Focus Groups		TOTAL
	Site 1	Site 2	Site 1	Site 2	
A. School Leavers-Grade 8	2	3	2	0	7
B. School Leavers-Grades 9-10	3	3	4	5	15
C. Grade 12 Students	3	3	6	8	20
Column Totals	8	9	12	13	42

3.4.2 The Sampling Techniques and Procedures

In consideration of the research questions and the contextual features of this study, the researcher used three different sampling techniques to select the participants for the research. This comprised stratified purposeful sampling, convenience sampling and systematic sampling.

3.4.2.1 Stratified Purposeful Sampling

Consistent with the research questions which clearly defined the parameters for this study, the researcher commenced the initial sampling process with a stratified purposeful sampling procedure to obtain a representative sample of the PNG population. Stratified purposeful sampling is the stratification of a population based on specific criteria such as age or gender which the researcher aims to focus on (Cohen *et al.*, 2007; Creswell, 2005; Mertens, 2005a). Thus, stratified purposeful sampling was considered most appropriate

for grouping the sample initially by research sites followed by the groups within the sites. Because of the complex and very diverse nature of PNG population, a truly representative sample is difficult, if not, impossible to obtain. Instead, two very different geographical and socio-cultural regions were identified as a means of capturing some of the population diversity that exists in the country. The two sites contained people from several different ethnic and cultural backgrounds as well as language and socio-economic status who were identified through the personal details on the survey questionnaires and interviews. The geographical nature of the country also limited the study to the two research sites as air transport, which is often the only means of travelling between most of the main centres of PNG, was expensive. The researcher, although an outsider to both sites, was familiar with the communities and was confident of being accepted by people in the two communities.

Further stratification was carried out and led to the creation of three groups, A, B and C, into which participants were assigned based on three selection criteria set for this study. To qualify as participants in the three groups at each research site, the participants had

- a. left school during, or had completed, Grade 8, 9, 10 during the period from 1998 to 2007. The ten year period was considered adequate and useful for obtaining a cross-section of participants from different cohorts who had either dropped out of school or had completed a level of education such as Grade 8 or 10. Group C consisted of Grade 12 students in 2007 school year;
- b. parents of whom at least one, was a native to the research sites; or
- c. lived at the research site from birth or had spent most of their life at the research site.

The origin of the participants was important for examining the influence of predominant societal and cultural systems, values and beliefs on academic achievement. The two

research sites were carefully selected for having either, predominantly patrilineal or matrilineal cultural values and practices in the communities.

3.4.2.2 Convenience Sampling

Having set parameters for sampling through the stratification process, the selection of participants for Groups A and B was conducted through convenience sampling. Convenience sampling is a selection of participants because of their willingness and availability to be studied (Creswell, 2005; Mertens, 2005a). The researcher employed convenience sampling to draw samples of school leavers to make up participants in Groups A and B. Participants who matched the selection criteria for Groups A and B were invited to participate in this study while undergoing training workshops in Home Basics offered by the researcher at central locations at the research sites. During their attendance at the training workshops the researcher checked to ensure that those who had met the criteria were willing to complete the survey questionnaires and to be interviewed or to participate in a focus group. However, after the loss of the one-on-one interviews and focus groups meetings data, a second group of participants were selected after four months⁵.

The second round of sampling entailed direct contact with visitors to the CBD at each research site. A brief explanation about the purpose of the study was given to each individual who appeared to fit the age range for Group A and B participants. Willing participants were asked to sign consent forms and were interviewed immediately. Those who were willing to participate in the focus groups were invited to the venues that were arranged for the focus groups meetings.

⁵ Data from interviews and focus groups were stolen during a burglary at the researcher's home five weeks after returning from PNG.

In using convenience sampling for Groups A and B, the researcher was aware of the limitations in representativeness of the sample. However, a check on participants' ethnic backgrounds at both research sites and the selection criteria indicated a good representation of participants from the different districts in the provinces where the research sites were situated. Support from both communities for this study was overwhelming.

3.4.2.3 Systematic Sampling for Group C

Systematic sampling is a form of probability-based sampling and was employed for selecting Group C participants. The procedure involves the selection of every *n*th person of a population until the required sample size is reached (Cohen et al., 2007; Creswell, 2005; Mertens, 2005a).

In this study, systematic sampling allowed for the selection of a representative sample of grade 12 female students at the secondary schools located within the two research sites. It was also a suitable technique for the selection of an equal number of participants from two schools that did not have equal population of female students. Details of the systematic sampling carried out are given below.

3.4.2.3.1 Systematic Sampling of Group C at Research Site 1.

Group C comprised the Grade 12 students at the only government run secondary school in the capital of Research Site 1. The school there comprised a Grade 12 female student population of 61. In order to select a total of 20 to participate in the survey questionnaire, every 3rd female student was selected. To select a sample size of 3 to participate in the individual interviews, every 20th female student was selected. To select a sample size of 10 to participate in the focus group interviews, every 6th female student was selected.

3.4.2.3.2 Systematic Sampling of Group C at Research Site 2.

At Research Site 2, the Grade 12 female student population was 91. Thus, in order to select 20 female participants to respond to the survey questionnaire, every 5th female student was selected. To select a sample size of 3 to participate in the interviews, every 30th female student from Grade 12 was selected. For a sample size of 10 to participate in the focus groups, every 9th grade 12 female student was selected.

3.5 The Research Sites

In this study participants were drawn from two research sites which were the provincial capitals and the surrounding districts. These were labelled Research Site 1 and Research Site 2.

3.5.1 Research Site 1

Research Site 1 was a small provincial capital comprising approximately 22,000 residents. It is located 1600 metres above sea level and is in the highlands region of PNG. The highlands region comprises five provinces. According to the PNG Business and Tourism Directory, the provincial population of Research Site 1 was approximately 429,480 people. Research Site 1 has one of the largest state-run secondary schools in the country with approximately two thousand students. This secondary school has six feeder primary schools located in town and a number of lower secondary schools in the province's districts that offer up to grade 10 education. Some of the students from the high schools who passed their Grade 10 examinations enrol at this secondary school for Grades 11 and 12 studies. The school provides boarding facilities for students from the districts.

Research Site 1 is easily accessed by people representing many ethnic groupings who speak distinct languages and practice the unique cultures found in the province's eight

(8) districts as well as the greater highlands region. Owing to the reasonably good road network, many people from the surrounding communities and districts as well as neighbouring provinces in the region frequent the capital for business such as banking, market, shopping and to access social services such as health services, some of which are not available in the districts.

3.5.2 Research Site 2

Research Site 2 is a small but growing provincial capital of a maritime province situated in the southern region of PNG. It has a population of approximately 15000 residents. According to the national census 2000, the provincial population of the research site was 209,054 (Papua New Guinea Business and Tourism Directory pngbd.com). There are four provinces that make up the southern region. Research Site 2 is the capital of a province that contains people from numerous ethnic communities in the island districts that are scattered over many nautical miles of sea and mainland of PNG. The site has one government run secondary school with an enrolment of approximately 700 students. Students come from two feeder primary schools in town and many other primary schools within the district. Upon completion of Grade 10 in the lower secondary schools in the districts, students who fulfil the entry requirements for Grade 11 can enrol in the secondary school located in the capital of Research Site 2. The secondary school also provides boarding facilities for students from the districts.

The countryside surrounding Research Site 2 does not have a very good road network linking communities on the mainland. The sea transport system linking the communities on the islands is not frequent. Thus, not many people have daily access to the provincial capital. Of the four provinces in the southern region, Research Site 2 is located in an area whose people follow a predominantly matrilineal culture. The majority of people from this province trace their descent through successive generations of females. Females in matrilineal societies such as in Research Site 2 and the surrounding areas claim the rights of descent and have significant control over properties such as land.

They hold greater domestic authority and a higher value is placed on them for sustaining lineage. At both research sites, communities are generally communal in nature and kinships through extended family, tribal or clanships or the ‘wantok system⁶’ is important.

3.6 Data Analysis

Consistent with the research design involving the collection of both quantitative and qualitative data, the analysis also involved both quantitative and qualitative techniques. Data analysis procedures used in this study are described in detail.

3.6.1 Quantitative Analysis

Four data analysis techniques using the Statistical Package for the Social Sciences (SPSS) were used for analysing the data generated through the survey questionnaires. The techniques comprised descriptive analysis, factor analysis, one-way analysis of variance (ANOVA) and T-tests.

A descriptive analysis was conducted on the survey questionnaire to check on frequencies, means and standard deviations for each variable. Principal component factor analysis as explained by Cohen & Manion (2000); Pallant (2007); Stevens (1992); and Tabachnick & Fidell (2007) was also conducted. Principal component factor analysis was conducted as it is a powerful data reduction technique and in this way, was

⁶ Wantok system is a support network system originally based along language lines. However, in contemporary PNG this includes networks extending beyond language groupings.

used to reduce 67 variables into smaller sets or factors. This in turn, created more manageable data sets and allowed for an indepth understanding of the research phenomenon. Although it is more commonly used with large scale studies, Stevens (1996, as cited in Pallant, 2007), pointed out that the sample size requirements advocated by researchers has been reducing over the years with more research in this area. Mertens (1998) for example, recommended that at least five participants per variable was needed to conduct a factor analysis.

Another issue considered in this study was the strength of inter-correlations amongst the items. Tabachnick & Fidell (2001, as cited in Pallant, 2007) recommended a correlation matrix comprising a correlation coefficients of above .3 must be attained to show as evidence of inter-correlations amongst items. In this study there was evidence of correlation coefficients of above 0.3 in the factor analysis. Two measures of factorability, Bartlett's test of sphericity and Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy were also considered in this study. The Bartlett's test of sphericity at the $p < .05$ level is needed to be considered adequate whilst the the KMO index, which ranges from 0-1 should have .6 as a minimum for a decent factor analysis. In this study, although the sample size was small, the KMO was maintained at $KMO = .6$ with a statistically significant 'p-value' of $p = < .05$. The general Cronbach's alpha coefficient set for all sets of factors was maintained at the normal minimum of $\alpha = .70$ (Tabachnick & Fidell, 2001, as cited in Pallant, 2007).

ANOVA test on causalities for academic achievement was conducted for the identification of the significant differences between the three major groups. T-tests on causalities for academic achievement were conducted to identify statistically significant differences between the participants' attributions at the two research sites.

3.6.2 Qualitative Analysis

The process of qualitative analysis commenced with the transcription of interview and focus group discourses. Discourse from Site 1 were translated into English. The transcribed and, in some instances, translated data were entered in full into the NVivo Version 8.0 database for coding. Coding was conducted using a thematic approach. This involved initially identifying keywords which were entered into NVivo as tree nodes or codes. These codes formed the themes into which excerpts from the transcribed interview or focus group data were entered. The thematic approach in qualitative analysis is described by Creswell (2005) as “the inclusion of extensive discussion about themes that arise from analysing a qualitative database... extensive quotes and rich details” (p. 266) which are used to support the themes. The themes are reported in detail in Chapters 6 and 7.

3.7 The Research Design

This study employed a mixed methods research design guided by transformative-emancipatory and pragmatic paradigms as well as consideration of cultural competence and cultural sensitivity.

3.7.1 Mixed Methods Research

As explained in the previous sections of this chapter, mixed methods research can be conceptualised as the combining of quantitative and qualitative research in a study (Creswell, 2002, 2005, 2009; Creswell & Plano-Clark, 2007; Mertens, 2005a; Tashakkorri & Teddlie, 1998a, 2003). In this study it involved the combining of data from two survey questionnaires, individual interviews and focus group meetings at the two research sites. A broader definition of mixed methods research as a research design with a philosophical framework that guides the process of data collection and analysis

was presented by Creswell & Plano-Clark (2007, p.5) who defined mixed methods research as a:

...design with philosophical assumptions as well as methods of inquiry. As a methodology, it involves philosophical assumptions that guide the direction of the collection and analysis of data and the mixture of qualitative and quantitative approaches in many phases in the research process. As a method, it focuses on collecting, analyzing, and mixing both quantitative and qualitative data in a single study or series of studies. Its central premise is that the use of quantitative and qualitative approaches in combination provides a better understanding of research problems than either approach alone.

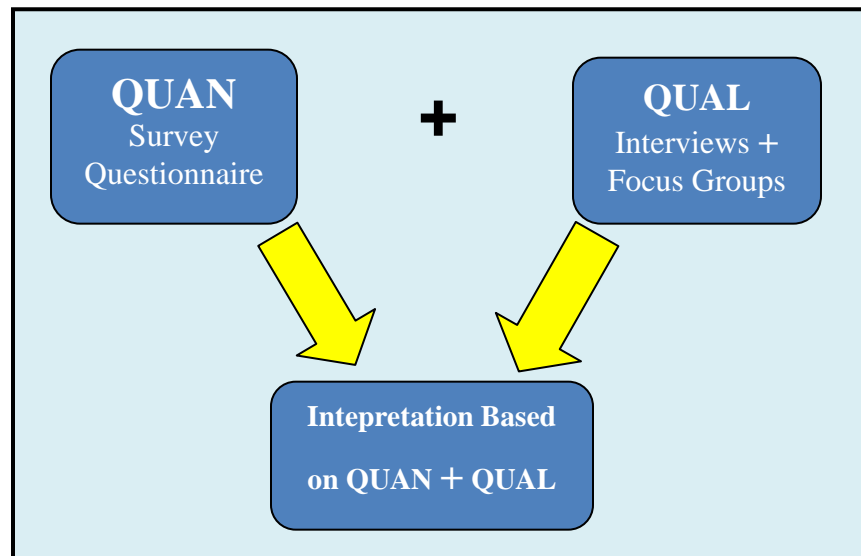
Several alternatives to mixed methods research designs with various labels have been offered by authorities on mixed methods research over the years. For example, Mertens (2005a) identifies pragmatic parallel, pragmatic sequential, transformative parallel, transformative sequential mixed-methods. Creswell (2003) used the labels “sequential explanatory strategy”, “sequential exploratory strategy”, “sequential transformative strategy”, “concurrent triangulation strategy”, “concurrent nested strategy” and “concurrent transformative strategy” to describe specific mixed methods designs. In his work Creswell (2005), collapsed the various approaches into “triangulation design”, “explanatory design”, and “exploratory design”. The use of various names for mixed methods research is an indication of the development in this field over the years. In this study the researcher employed a triangulation mixed methods design.

3.7.1.1 Triangulation Mixed Methods Design

A triangulation mixed methods design was employed to collect, analyse, converge and interpret both qualitative and quantitative data in this study. According to the researchers and writers (Creswell, 2005; Creswell & Plano-Clark, 2007; Johnson & Christensen,

2008) a triangulation mixed methods design involves a simultaneous collection, convergence of quantitative and qualitative data and utilisation of results to understand a research problem in a single study. It is believed that triangulation results in a substantial increase in credibility of the research findings. As Johnson and Christensen (2008) point out, the purpose of employing a triangulation mixed methods design is for “complementarity when the investigator seeks elaboration, enhancement, illustration and clarification of the results from one method with results from the other” (p.451). Thus the research design for this study was as follows:

Figure 3.1: Triangulation Mixed Methods Research Design



3.8 Philosophical Assumptions Influencing the Research Design

The underlying philosophical assumptions guiding the methodological framework of this study related to the importance of the research questions and the potential outcomes of the research in facilitating change. Thus the mixed methods design was guided by two

theoretical paradigms which are closely allied to the mixed methods research designs. These were the pragmatic paradigm and the transformative-emancipatory paradigm (Creswell & Plano-Clark, 2007; Mertens, 2005a; Tashakkorri & Teddlie, 1998b). As the study was conducted in a highly complex socio-cultural context, consideration of cultural competence (Mays, De Leon Siantz, & Viehweg, 2002) and cultural sensitivity (Tchacos & Vallance, 2004) were also essential. Despite the uniqueness of each theoretical position, they all elucidate the underlying purpose of this study.

3.8.1 Pragmatic Position

Pragmatism was important in guiding the design of this study in that it emphasises the importance of the research questions over either the research methods or the underlying worldviews guiding the research methods. According to Tashakkorri (1998a) “pragmatists decide what they want to research, guided by their personal value systems, that is, they study what they think is important to study” (p.27). Pragmatism is closely allied with mixed methods research, embraces pluralism and focuses on “what works” in obtaining research data and results (Creswell & Plano-Clark, 2007; Mertens, 2005a; Tashakkorri & Teddlie, 1998a, 1998b). Thus, in consideration of the contextual issues associated with the research, the researcher ensured that the research questions guiding this study accommodated the theoretical positions that allowed for both quantitative and qualitative data collection and analysis methods.

3.8.2 Transformative-Emancipatory Position

The transformative-emancipatory perspective on research was used in this study as a basis for examining viewpoints concerning a wide range of issues that impacted on the pursuits for advancement in education by an under-represented population in a developing nation. The inclusion of the values and viewpoints of marginalised groups is imperative to the transformative-emancipatory paradigm (Creswell & Plano-Clark, 2007; Mertens, 2005a; Tashakkorri & Teddlie, 1998a). Mixed methods research within a

transformative-emancipatory framework emphasises the importance of research in promoting social change by addressing issues of empowerment and other issues affecting marginalised groups such as women and people with disability (Creswell, 2005; Creswell & Plano-Clark, 2007; Mertens, 2005b; Tashakkorri & Teddlie, 1998a). Although participants in Groups B and C of this study were a privileged group within the PNG education system, they were a minority and an under-represented group at the secondary school level as discussed in Chapter 2. This study provided an opportunity for them to convey their experiences about what inhibited or facilitated their academic achievement in school.

3.8.2.1 Cultural Competence

The study which was conducted in a highly complex socio-cultural context involved participants from approximately 9 different ethnic, tribal and language groupings from predominantly patrilineal communities in Site 1. Site 2 consisted of participants from approximately 10 ethnic and language groupings from predominantly matrilineal communities. Having participants from highly complex and diverse communities demanded of the researcher, a high degree of cultural competence and cultural sensitivity which are amongst the basic principles of the transformative paradigm.

When conducting research in such highly complex and diverse cultural contexts, it is important to understand the culture of the participants to be able to conduct valid research (King, Sims, & Osher, 2007; Mays et al., 2002). Culture is a product of huge social undertaking by a group of people or organisations and impacts such things as dominant values of a society, religious beliefs, accepted norms of conduct and the intellectual achievements of a group of people. It also includes their art, science and music, their dominant patterns of living, including land use, family and gender. Thus, to understand the cultural context of people and organisations, it is vital for the researcher to have a certain degree of cultural competence.

Ability of researchers to function effectively and professionally with people and organisations from different cultural contexts entails four cognitive components (King et al., 2007; Martin & Vaughn, 2007) which were also imperative for the researcher in this study and were demonstrated as follows:

- (a) **Awareness of one's own cultural worldview.** In this study awareness involved the researcher's capacity for assessing personal reactions of participants from ethnically diverse backgrounds, and awareness of participants' reactions towards the researcher.
- (b) **Attitude towards cultural differences.** As the researcher in this study was an outsider to the research sites, developing a positive attitude towards cultural differences between two research sites, between participants and between gatekeepers at each research site was imperative. Valuing of diversity was equally important and meant preparedness to accept and respect the differences of participants from very distinct backgrounds, customs, ways of thinking, ways of communicating, values, traditions and institutions. As differences existed between the two research sites and between participants the issues emerging from interviews and focus groups were powerfully influenced by participants' cultures. Other powerful factors included their geographic location and socioeconomic status. These all required the employment of the most culturally relevant data collection strategies.
- (c) **Knowledge of different cultural practices and world views.** Despite being an outsider to both cultural contexts, the researcher had some basic understanding of some dominant cultural practices and worldviews of those contexts having lived and worked at both research sites. This assisted the researcher in ensuring that research worldviews and the design employed were inclusive and provided equal treatment of participants.

(d) Cross-cultural skills. Cross-cultural skills involve developing and applying appropriate skills in cross-cultural contexts. Communication is the fundamental tool by which people interact in organizations and includes varying gestures and other non-verbal communication across cultures (King et al., 2007). Communication was particularly important in the planning stages for establishing contacts with relevant authorities and gatekeepers to access participants at the research sites. The researcher needed to adhere to their channels of communication and procedures that were culturally relevant. As an application of cultural competence in this research, dialogues were established with a total of 12 Christian churches serving at the two research sites through their respective Ministers Fraternal and a Christian organisation, the Young Christian Women's Association (YWCA) which also became one of the sponsors of the research workshops. This was important as the PNG contemporary cultural context is also Christianised and in many communities activities of people are often centered around their church calendars. Thus, accessing participants for this particular study was made easier by establishing partnerships with the local churches and a Christian non-government organization working with young women at the research sites rather than employing other strategies.

As the purpose of the study was clarified, and samples of resource material for the Home Basics training workshop were presented, the leaders of the communities saw the value of the training package and the contributions of this study. Meaningful partnerships were immediately established and made the conduct of this study easier. In these partnerships the researcher was to provide the training and the training materials free to participants in return for participation in the study. Community leaders provided the training venues, conducted publicity to bring participants together. The YWCA at Research Site 1 and a funding organisation for the churches at Research Site 2 provided the sponsorships for the training workshops for their Group A and B participants. Such a collaborative approach was culturally acceptable and the support received from women and men at

both research sites was overwhelming. Support from men was evident in their attendance at the training workshop venues and in Research Site 2, took responsibility for preparing refreshment throughout the duration of the workshops.

Papua New Guineans generally come from communal communities where people live in villages or small hamlets and extended family ties play an important role in collaborative decision making. In this cultural context, as explained by Tuaru (2007), there is a need to use a non-confrontational approach utilizing consensus, sharing of ideas, participation and collaboration. For example, in settling land issues or in payments of bride price or funeral feasts, decisions about planning and distribution of food from feasts associated with these are made in collaboration with others which must include clan chiefs, or headman or headwomen. This is often done to ensure that everyone benefits as a result of the decision made. Ideally, interactions during the research process should be mutually beneficial for both study participants and researchers. The use of focus groups to tap into group voices of participants was also consistent with the communal nature of the participants' communities. This resulted in significant input from both the former and current female students.

3.8.2.2 Cultural Sensitivity

Although cultural sensitivity is a key issue in communication in the health profession, it is equally relevant in education as well. Cultural sensitivity is being aware of existing cultural differences as well as similarities that exist, without assigning values, that is, better or worse, right or wrong, to those cultural differences (Wittmer, 1992). Cultural sensitivity in this study involves an understanding and appreciation of the cultural context of the research participants. In the PNG context, it involved a need to be aware of organisational culture, cultural and linguistic diversity and similarities. The researcher needed to be aware of potential personal biases held as an insider or outsider to the context so that these did not interfere with interactions with participants and the analysis of findings.

3.9 The Researcher in Text

Whilst mixed methods research design provides excellent opportunities for combining research methods that can generate generalisable and in-depth data, there can be challenges in finding the appropriate voice that truly represents the author(s) throughout the mixed methods research writing journey. Hence, an evaluation of personal values in relation to utilisation of appropriate voice in writing the research findings for an audience in a culturally diverse and complex context needed to be considered.

As a researcher from a matrilineal culture, where being a woman gives her a significant political and social status, the protocol permits the researcher's voice to be represented by male kin, often brothers, maternal cousin brothers or maternal uncles on important clan issues and decisions. This involves being addressed to and reciprocating male kin in the second person voice. As a member of the broader PNG culture which is predominantly male dominated and patrilineal, the researcher worked with the gatekeepers and stakeholders who were all male. In this cultural context the researcher's voice, if direct, could be rejected because of being a woman.

Thus within this complex context, writing the reports of the findings of this mixed methods research can be a quandary in itself. However, Hertz (1997, as cited in Graue, 2006) highlights that the voice adopted by various authors differs by methodological and theoretical traditions they employ. The voices adopted by authors include impersonal voice which allow for communicating authority but removing themselves from text, first person plural voice utilizing a convention that homogenizes all the authors into a collective authorial voice and transformative intellectual voice from an advocacy or activist platform. Creswell and Plano Clark (2007) also suggested a consideration of personal voice for qualitative components and impersonal voice for quantitative components depending on the mixed methods research design type and the weighting given to the quantitative and qualitative components. In triangulation design, "the audience to whom the study is directed will weigh heavily in the decision about the point

of view” (Creswell & Plano-Clark, 2007, p.153) and how that is expressed. Hence, in consideration of the researcher’s cultural values and the mixed methods research values, an integration of these values was accepted for the researcher to be represented in the impersonal voice throughout this thesis.

3.10 Ethical Considerations

This study was given the approval of the Human Ethics Committee of the University of Southern Queensland (USQ). As the surveys, interviews and focus groups involved school students and participants in the research sites in two provinces of PNG, research approvals were also obtained from three organisations in PNG. An initial approval was obtained from the PNG National Department of Education to access schools in the country and to engage students in this study. This approval was used to obtain further endorsement from the provincial authorities in the provinces that contained the research sites.

The purpose of the study was explained in either Tok Pisin or English to all respective participants prior to being asked to sign consent to their involvement in this study. Issues of confidentiality were also discussed with each participant or group of participants explaining how anonymity of their identity was to be maintained once data were collected. In addressing the issue of confidentiality and privacy of participants in the qualitative analysis, it was considered culturally appropriate to use the pseudonyms representing female names from the research sites instead of the actual names of participants.

The University of Southern Queensland regulations on storage of data materials requires that they be stored for 5 years from the time of collection, however as the data will be stored in PNG, the PNG laws on storage of data, requires the storage for up to 7 years. During this period the data will be stored in a locked safe.

3.11 Summary

This chapter presented the details of the research design and methodology employed in this study. It employed a triangulation mixed methods research design guided by two methodological worldviews comprising pragmatic paradigm and transformative-emancipatory paradigm. Cultural competence and cultural sensitivity were also imperative to this study that was conducted in a socio-culturally complex context. Three sets of instruments consisting of two sets of survey questionnaire, two sets of individual interviews and focus group protocols were used to collect quantitative and qualitative data. A reliability test for internal consistency of the scales was conducted on both survey questionnaires to ensure that the scales used were reliable tools for data collection. The study also used three different sampling techniques to select the three groups of research participants at the two research sites. Three sampling techniques were used to match the specific characteristics of the participants and the unique contextual features of the study.

The data from the survey questionnaires were analysed using SPSS Version 14.0. Data analysis conducted included descriptive analysis for examining frequencies, means and standard deviations, the factor analysis to reduce the variables to only those that contained the key variables. ANOVA and T-tests were also conducted to examine the differences in rating across the three groups and between two research sites. Qualitative data was entered onto NVivo Version 8.0 for coding and thematic analysis. This assisted in generating major themes from the participants in the three groups and participants at the two research sites.

CHAPTER FOUR: RESULTS OF THE SURVEYS

4.0 Overview of the Chapter

Chapter 4 reports the results of two separate surveys used in this study. The first survey was designed and administered to Grade 8, 9 and 10 school leavers (Groups A and B) and the second survey was designed and administered to Grade 12 students (Group C). The survey for the school leavers was designed to address the research question: “*What factors inhibit former female students from gaining access to and or completing secondary education?*” The survey for Grade 12 students asked, “*To what factors do female students currently undergoing secondary education attribute their academic successes?*”

In this chapter, **Section 4.1** provides the Introduction to the Chapter. **Section 4.2** reports the results of the descriptive analysis of the demographic information. **Section 4.3** presents the report of the results of the Principal Component Factor Analysis on Part B and C of the surveys. **Section 4.4** reports the results of the Analysis of Variance (ANOVA) between the three groups (Groups A, B and C). **Section 4.5** presents the report of the results of the T-Tests which indicate the differences between the two research sites from which the participants were drawn. **Section 4.6** provides the summary of the chapter.

4.1 Introduction

Of the 127 participants in this study, 88 (69%) responded to all items in their respective surveys. The data from the survey were entered into the Statistical Packages for the Social Sciences (SPSS) Version 14. Frequency analyses were initially conducted to identify any missing data and to confirm participant numbers. There were 10 variables that generated the demographic information from the participants and 67 variables that generated measures of attributions for academic achievement.

The internal consistency of the survey scales in Part B and C were assessed using the Cronbach's coefficient alpha test. Internal consistency is the extent to which the items that comprise the scales 'hang together' and ensure that the scales measure the same construct. An ideal Cronbach's coefficient alpha (α) should be .70 or higher (Creswell, 2005; Pallant, 2007). Although the sample size for this survey was small, the Cronbach's coefficient alpha for each item and the overall survey was maintained at $\alpha = .70$ and above. The overall computed value of Cronbach's coefficient alpha on the scales across all 67 items contained in Part B and C of the Group A and B survey was $\alpha = .87$ and for Group C was $\alpha = .78$. These measures were higher than the acceptable measure of Cronbach's coefficient alpha of $\alpha = .70$.

4.2 Descriptive Analysis of the Demographic Information

A descriptive analysis was conducted on Part A of the surveys which contained the demographic information about the participants. The 10 items producing this information were:

Item 1. Place of participants' origin

Item 2. Subject ratings and grades;

Item 3. Gender of subject teachers;

Item 4. Student support services;

Item 5. Place of residence of participants;

Item 6. Occupational status of fathers and or male guardians;

Item 7. Occupational status of mothers and or female guardians;

Item 8. Educational status of parents or guardians;

Item 9. Source of tuition fees

Item 10. Sibling position

Item 1 was used as an identifier to assign participants into groups and research sites. The place of origin was not necessarily where they resided as in towns, but the province of origin of their parents. The results of the other 9 items are reported as follows:

4.2.1 School Achievement of Groups A, B and C

Participants in Group A and B were asked to rate their academic achievement on a 5-point rating scale. The scale ranged from “*Not at all good*” to “*Very good*”. The normal grading system for Grades 8-10 employs “Distinction, Credit, Upper Pass, Pass and Fail” grades. However, a rating scale was preferred as many participants from Group A and B would have left school some years earlier and some of them would not have been able to recall their exact grades. The core subjects studied by all participants in Groups A and B were English, Mathematics, Science and Social Science. The ratings of achievement and grades in these subjects are reported in Figures 4.1 to 4.2.

The school achievement of participants in Group C was measured using the existing school grading system of “A, B, C, D and E” as the participants in Group C were still in

school. It was also assumed that they were able to accurately report their grades. Group C results are presented in Figures 4.3 to 4.4.

4.2.1.1 Ratings of Achievement in Subjects by Group A-Grade 8 School Leavers (SLs)

Group A comprised participants who (1) had left school during Grade 8; (2) who were not selected to undertake secondary education school upon completing Grade 8; or (3) who were selected for secondary school but could not take up the offer. Ratings of their academic achievement are presented as follows:

Figure 4.1 Academic Achievement Ratings for Group A

N=23

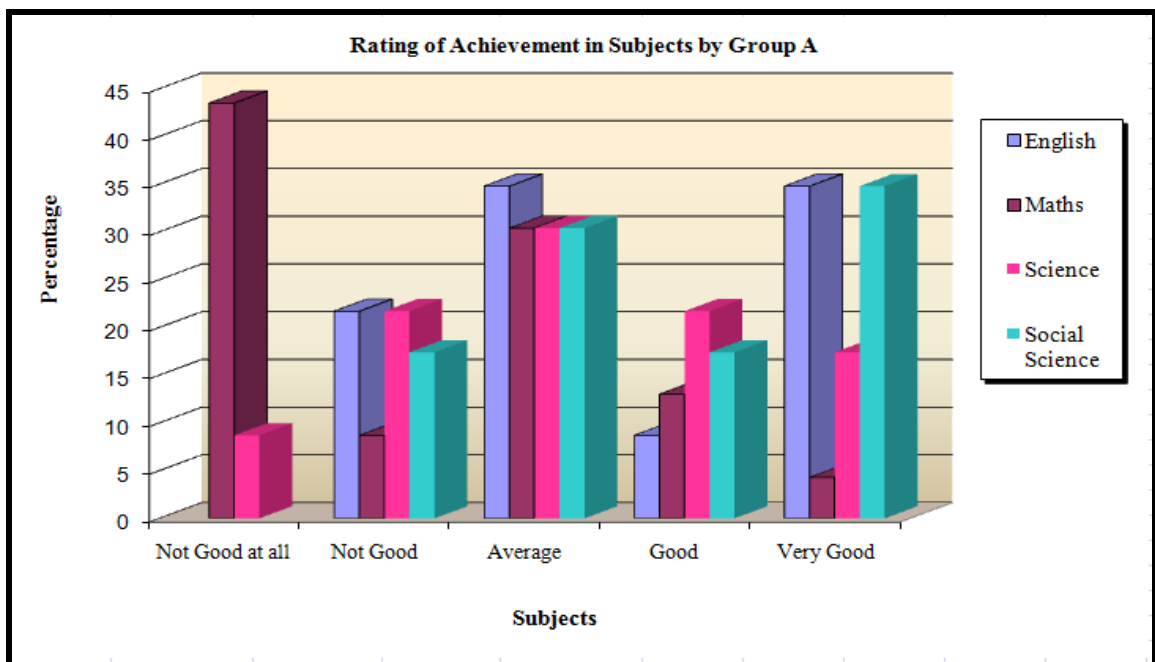


Figure 4.1 shows that with the exception of Science, the ratings of achievement in the subjects were not normally distributed. The achievement ratings of participants in Group

A in English and Social Science were positively skewed. In contrast, their rating of their achievement in Mathematics was negatively skewed.

The participant ratings of achievement in the subjects at both sites were similar, indicating that Group A participants did better in Science and Social Science and performed poorly in Mathematics. In English, Group A participants in Site 2 reported performing better than the participants in Site 1.

4.2.1.2 Academic Achievement Ratings for Group B- Grade 9-10 School Leavers

Group B comprised participants who, (1) had left school during the course of Grades 9 or 10; (2) had left school after Grade 10 examinations; and/or (3) were selected undertake Grade 11 studies but could not take up the offer. Their ratings of achievement in subjects they had studied are as follows.

Figure 4.2: Academic Achievement Ratings in Subjects for Group B

N=34

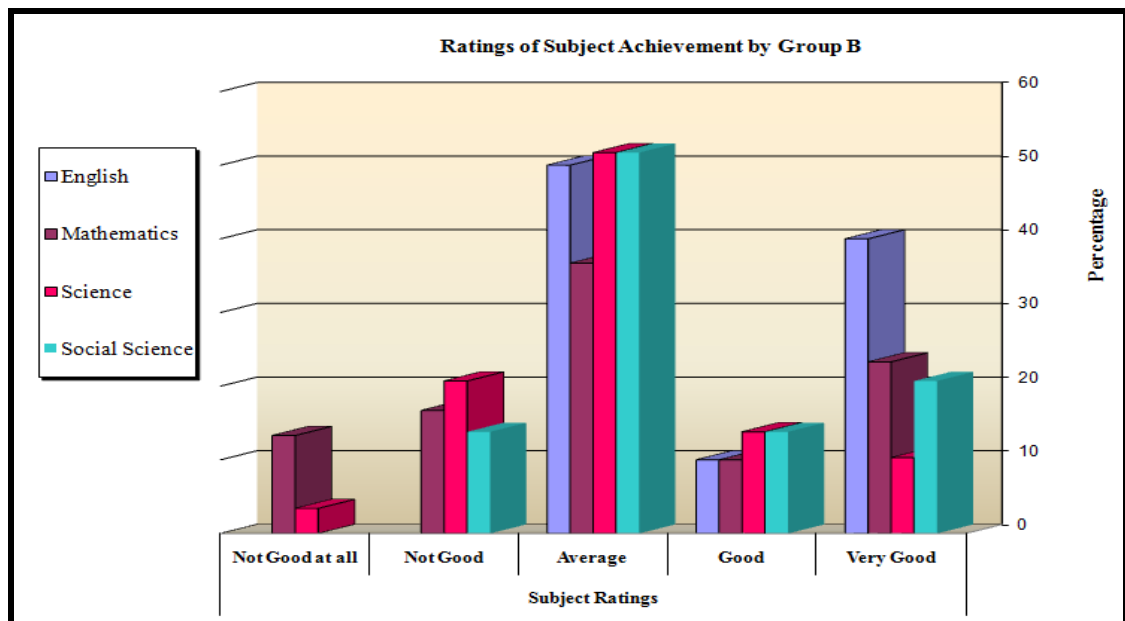


Figure 4.2 shows that the self-ratings of academic achievement by the majority of the students was average and above average across all subjects. This suggests that as SLs, factors other than academic achievement may have contributed to them not completing secondary school or progressing onto Grades 11 and 12. It could have also meant that the selection benchmarks, commonly referred to as “cut off marks” might have been too high.

An examination of the ratings of achievement by Group B participants in Site 1 and 2 indicated that participants in Site 1 generally rated their achievement across all subjects at average and above. In contrast, Group B participants in Site 2 rated their achievement in Mathematics and Science as poor but the ratings for English and Social Science were at average and above.

4.2.1.3 Subject Grades of Group C- Grade 12 Students

Group C comprised 31 Grade 12 students who studied a range of subjects. Their selection to Grade 11 and 12 was based on their internal cumulative results in Grade 9 and 10 assessments and the external examination at the end of Grade 10. Language and Literature (L & L) was a core subject for all Grade 11 and 12 students. Students selected their major and minor subjects from a range of subjects offered by their schools.

The Grade 11 Semester Two and Grade 12 Semester One contributed 50% of internal marks towards the final results in the Higher Secondary School Certificate (HSC). The other 50% of the marks came from the external Grade 12 HSC examinations. Their internal assessment results were important for application to tertiary studies and further training. Figure 4.3 summarises the grades attained by Group C in Semester Two of Grade 11.

Figure 4.3: Grades Attained by Group C in Semester Two Subjects of Grade 11

N=31

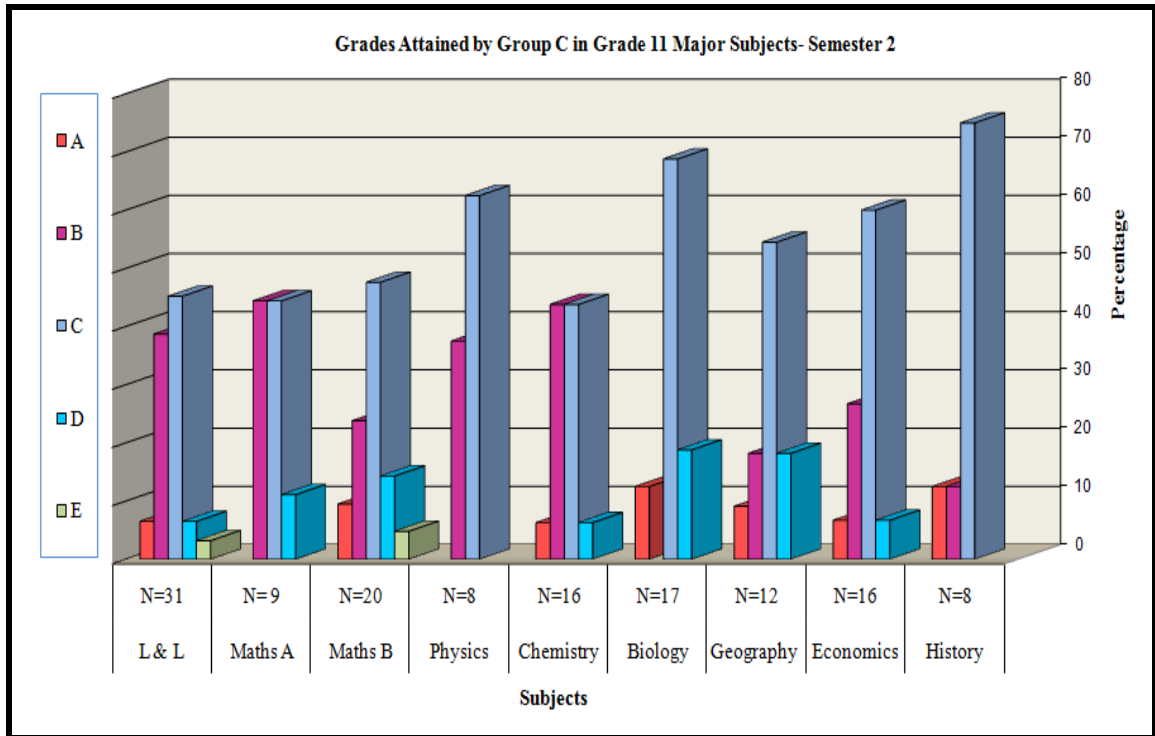


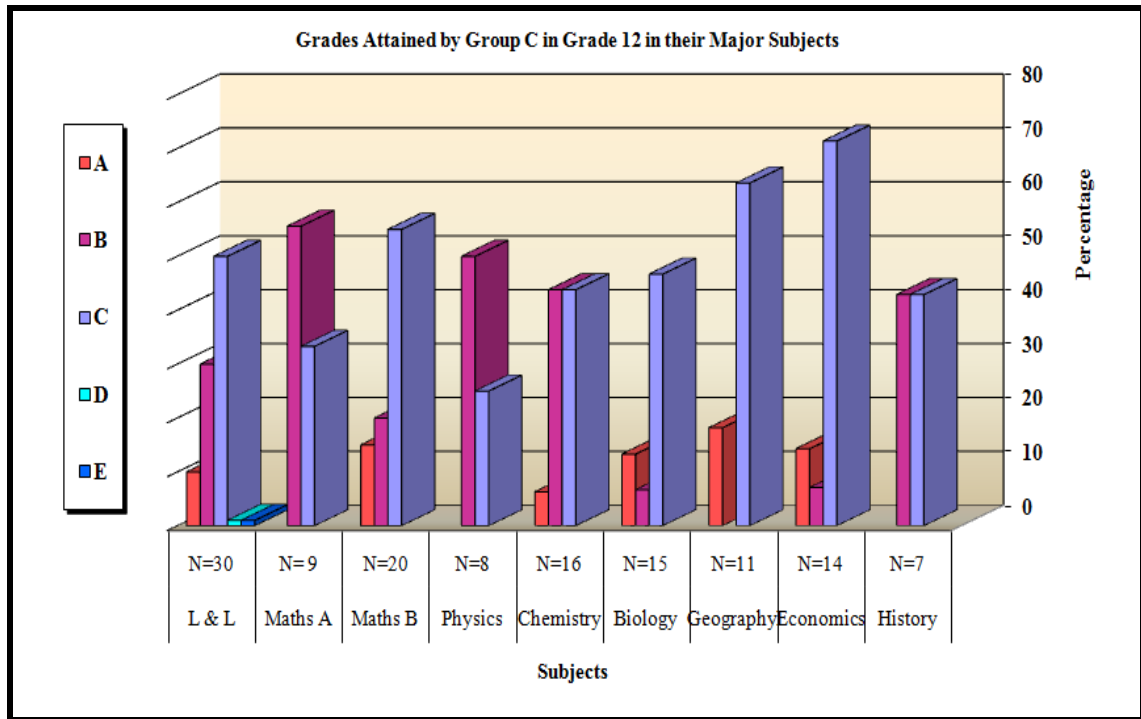
Figure 4.3 shows that the majority of students in Grade 12 attained a “C” grade and better across all subjects they studied in Semester Two of Grade 11. A significant number of students also reported attaining “D” and “E” grades across a number of subjects. In Grade 12 Semester 1, notable improvements occurred in Maths A, Physics, Chemistry and generally across all subjects from Semester Two in Grade 11.

Figure 4.4 shows the grades in all subjects for Semester One of Grade 12. An examination of Grade 12 results between the two sites indicates that Grade 12 participants in Site 1 generally performed slightly better than the participants from Site 2. The strengths in Grade 12 participants from Site 1 were in the core subject, L & L, and in the sciences comprising Maths A, Physics, Chemistry and Biology. In addition,

they performed well in History. In contrast, the majority of students in Site 2 did not attain the grades as high as students in Site 1. Generally the majority of students in Site 2 attained “C” grades across most subjects and a significant number attained “D” grades.

Figure 4.4: Grades Attained in Semester One of Grade 12

N=31



4.2.2 Gender of Subject Teachers

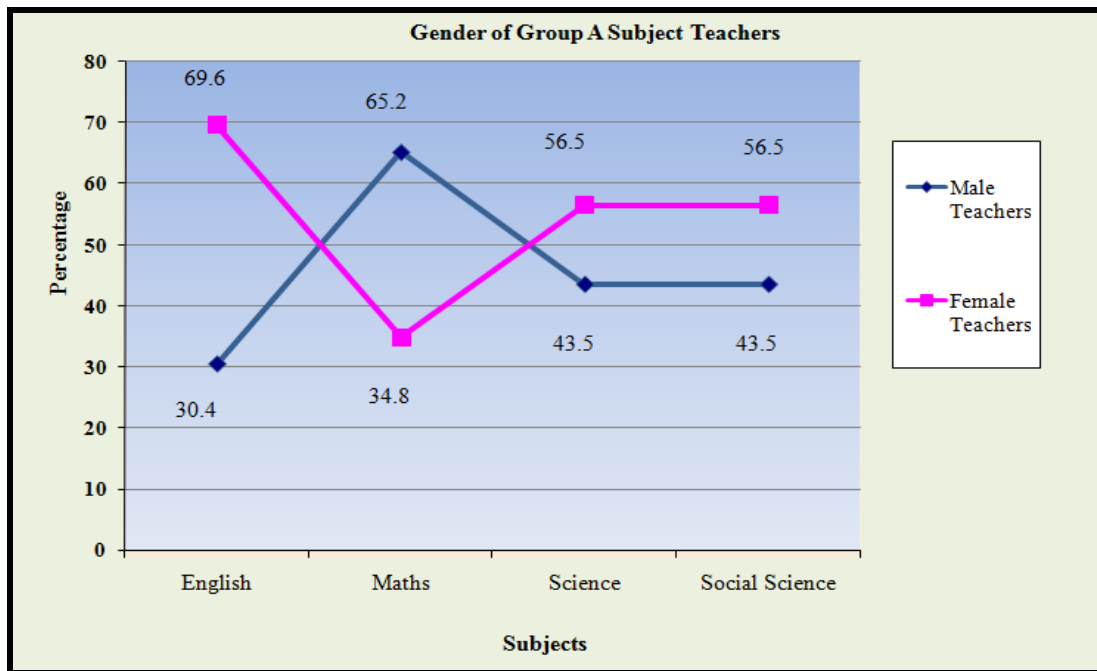
In a country where male dominance is evident in many facets of society, data about the gender of teachers was imperative for examining a degree of influence teachers had on the academic achievement of participants. Participants in Groups A, B and C were asked to indicate the gender of their subject teachers. The report about the gender of teachers is presented separately by groups.

4.2.2.1 Gender of Subject Teachers for Group A- Grade 8 School Leavers

The majority of primary schools in PNG are often small and located in remote rural areas unless they are in rural government or mission stations. Primary school teachers posted to the schools to teach Grade 7 and 8 often have to teach subjects that they are not necessarily trained to teach. Figure 4.5 presents the participants' report of the gender of their teachers in Group A across a range of subjects.

Figure 4.5: Gender of Subject Teachers for Group A

N=23



In Figure 4.5, a large number of Group A participants reported being taught by female teachers in all subjects except Mathematics. Mathematics was a subject in which a majority of participants indicated a poor performance as shown in Figure 4.1. An

examination of subject teachers at the two research sites indicated similar results indicating more female teachers who taught English and Science at both research sites, more male teachers who taught Mathematics and gender equality was evident in the teachers who taught Social Science.

4.2.2.2 Gender of Subject Teachers for Group B- Grades 9-10 School Leavers

The majority of high schools in PNG are located in towns and cities, and rural government or church mission stations. High school teachers are trained to teach two specialist subjects. Figure 4.6 shows the gender of subject teachers for Group B.

Figure 4.6: Gender of Subject Teachers for Group B

N=34

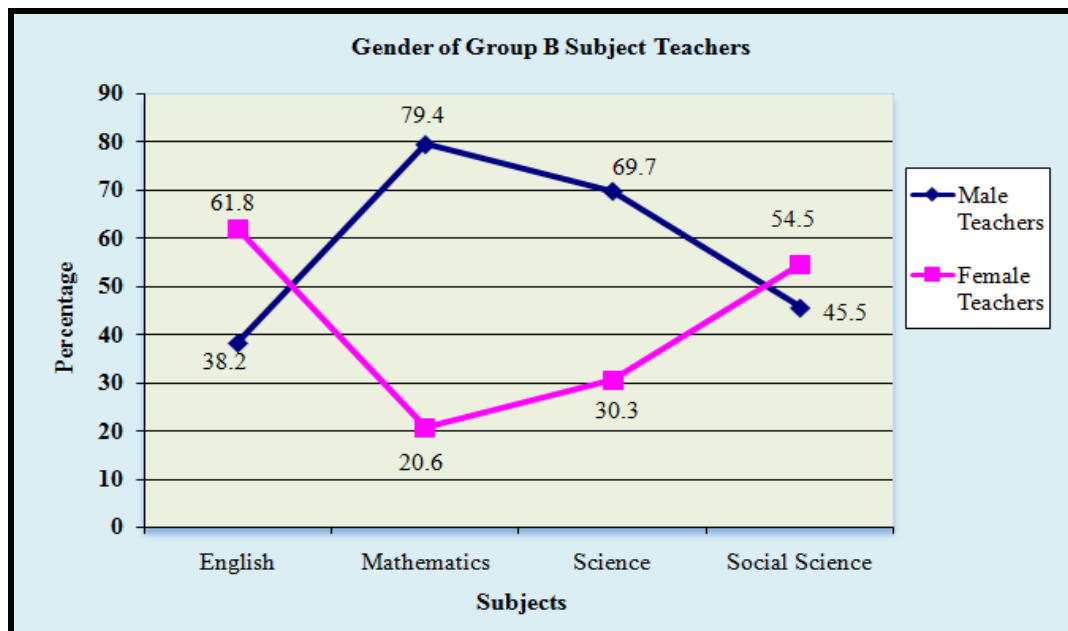


Figure 4.6 shows that the majority of SLs in Grades 9-10 were taught by male teachers in mathematics and science. Although significant percentages of the participants

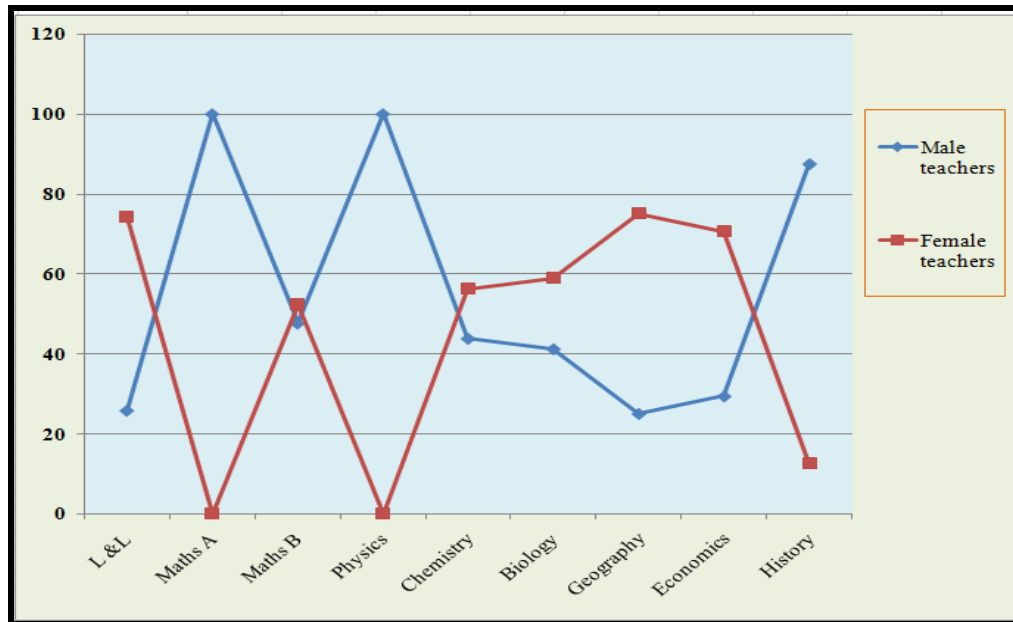
reported performing poorly in these subjects, the majority of participants reported an average performance. In contrast, English was generally taught by female teachers and the majority of Group B participants reported performing at average and above in this subject. Teaching of Social Science was almost equally shared between male and female teachers but with slightly more female teacher involvement. It was also one of the subjects in which the majority of Group B participants reported an average and above performance (refer Figure 4.2). An examination of the gender of subject teachers at both research sites indicated similar trends.

4.2.2.3 Gender of Teachers for Students in Group C- Grade 12 Students

In this section gender of teachers who taught participants only in Grade 12 are presented as the survey item did not specifically ask for data about the gender of Grade 11 teachers. The results of participants' responses are presented in Figure 4.7.

Figure 4.7: Gender of Subject Teachers for Group C

N=31



According to Figure 4.7, Maths A and Physics were two subjects taught totally by male teachers. History was also taught by more male teachers compared to female teachers. As shown in Figure 4.3, it was in these subjects that the highest percentages of Grade 12 female students who participated in this study reported attaining the high grades. The other subjects consisting L & L, Maths B, Chemistry, Biology, Geography, and Economics were taught by more female teachers. A large percentage of participants also reported attaining higher grades in Chemistry.

4.2.3 Student Support Services in School

Participants in this study were asked to indicate whether their schools provided student support services to assist them when they had personal or academic concerns. They responded to item 4 “*My school offers(ed) student support services which provided academic and personal support*”. The results are summarised in Figure 4.8.

Figure 4.8: Student Support Service in Schools

N=88

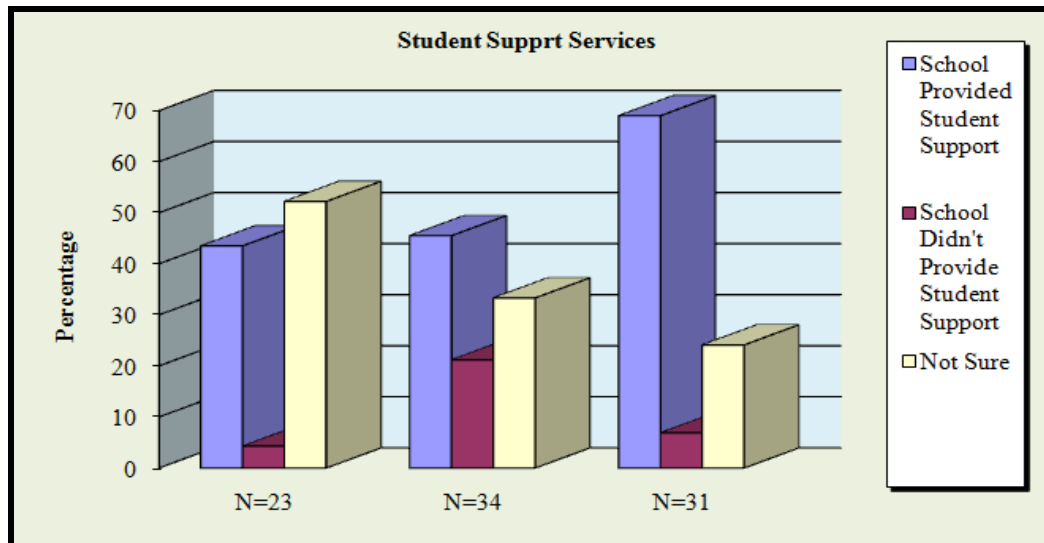


Figure 4.8 shows that there was an increasing level of student support and awareness of the provision of the support services throughout the progressive grades.

4.2.4 Place of Residence for Participants in Groups A, B, and C

Data concerning who the students lived with and where they lived while they were in secondary school was important in the PNG context. Generally Papua New Guineans have large families and those in towns and cities also tend to have extended family members living with them. These have potential negative impacts for students commuting to school from home if they do not have privacy to study at home when they have to share their rooms with a number of other residents. Female students living at home can be deprived of sufficient study time when they have to attend to home chores. It can also be unsafe for young girls travelling to school from home owing to long

distances travelled. Hence, students in this study were asked to indicate with whom and where they lived.

The results supported anecdotal evidence that Group A students lived at home and commuted daily to school. Consequently, most of them were likely to have travelled long distances if their schools were far from their villages and were more likely to encounter problems between home and school. As most secondary schools are located in central locations such as the district or church centres or in towns which are often far from the participants' villages, most of them provide boarding facilities for students. The majority of Group B and C students resided in the boarding facilities in their schools although quite a large number also reported commuting between home and school.

4.2.5 Occupational Status of Parents and/or Guardians

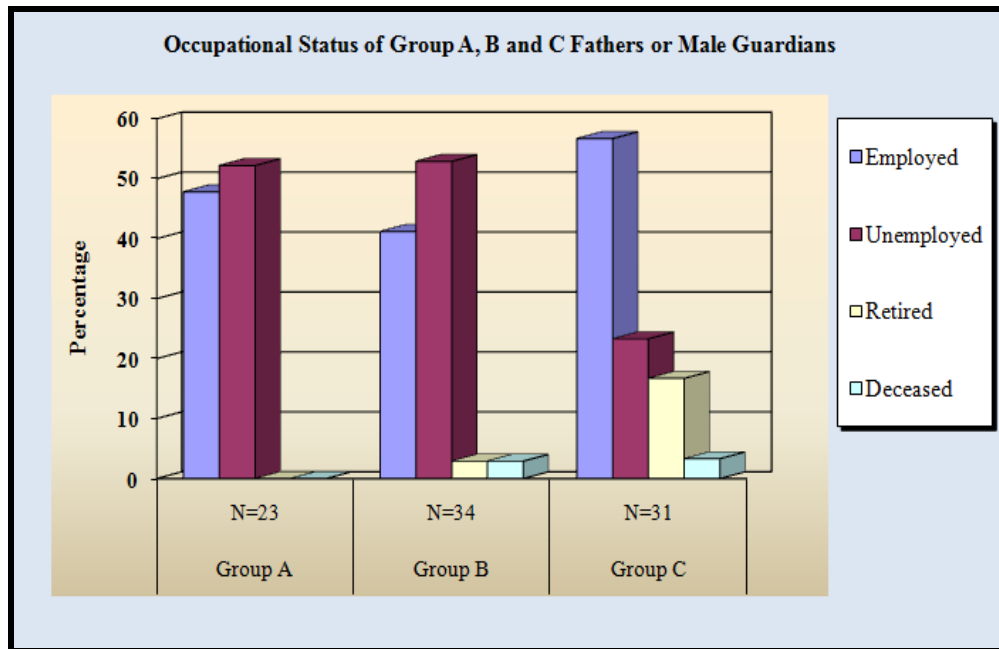
Participants in Groups A, B and C were asked to provide information about the occupational status and the occupations of their parents and/or guardians.

4.2.5.1 Occupational Status of Fathers and/or Male Guardians

Figure 4.9 shows that unemployment rates amongst the fathers and/or male guardians of students in Group A and B was reported to be high. In contrast, the majority of Group C fathers and/or male guardians were employed.

Figure 4.9: Occupational Status of Group A, B, and C Fathers and/or Male Guardians

N=88



The fathers and/or male guardians who were employed were in a range of occupations comprising technical jobs such as building, clerical work and air traffic control. Others were in professional jobs as architects, teachers, university lecturers, medical practitioners and accountants. Some were self-employed or owned properties on which they grew crops.

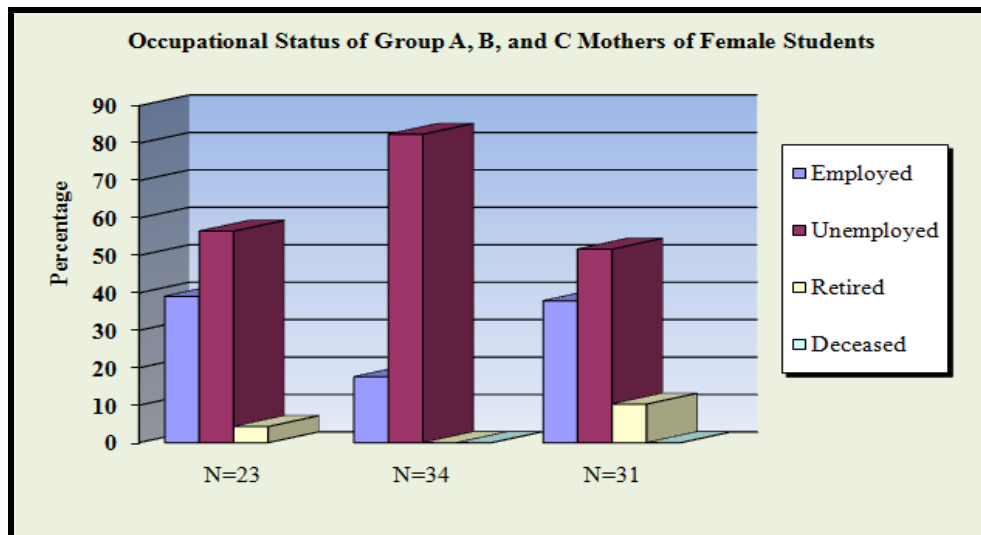
At Site 1 half the fathers and/or guardians in Group A and C were employed. By contrast, the majority of fathers and/or guardians of students in Group B were unemployed. In Site 2, for almost every father and/or guardian of a student in Group A who was employed, there was a father or a guardian who was unemployed. The majority of fathers and/or guardians of students in Group C were employed and this was evident at both sites.

4.2.5.2 Occupational Status of Mothers/Female Guardians

Figure 4.10 shows that there was generally a high unemployment rate amongst mothers and/or female guardians across all three groups. However, there was also a significant number of mothers and/or female guardians in Group A and C who were also employed. Mothers and/or female guardians who were employed were in occupations such as clerical work, nursing, teaching or in management roles. In contrast, the majority of Group B mothers and/or female guardians at both sites were unemployed.

Figure 4.10: Occupational Status of Group A, B and C Mothers and/or Female Guardians

N=88



4.2.6 Educational Levels of Parents or Guardians

The participants in this study were also asked about the educational levels of their parents and/or guardians. All participants in Groups A, B and C responded to item 8 which asked, “If your parents/guardians have been educated, what was their highest

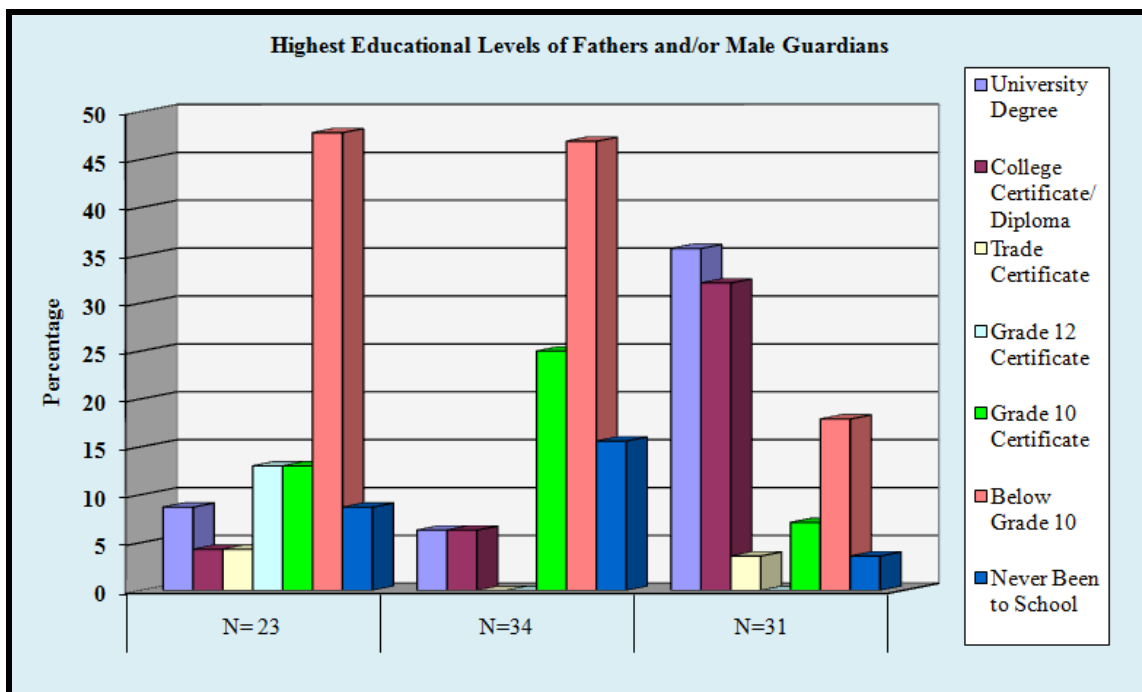
level of education?” Responses to this item are presented separately by gender of parents and /or guardians in groups and by research sites in Figures 4.11 and 4.12.

4.2.6.1 Educational Levels of Fathers and/or Male Guardians

Figure 4.11 shows that the majority of fathers and/or male guardians of participants in Groups A and B had a below Grade 10 level of education. This suggests that the majority of them would have left school from either Grade 6 or 8 under the old education structure. Groups A and B also had quite a significant number of fathers and/or male guardians who had never been to school. In contrast, the majority of fathers and/or male guardians of students in Group C had a college or university education.

Figure 4.11: Highest Educational Levels of Fathers and/or Male Guardians

N=88



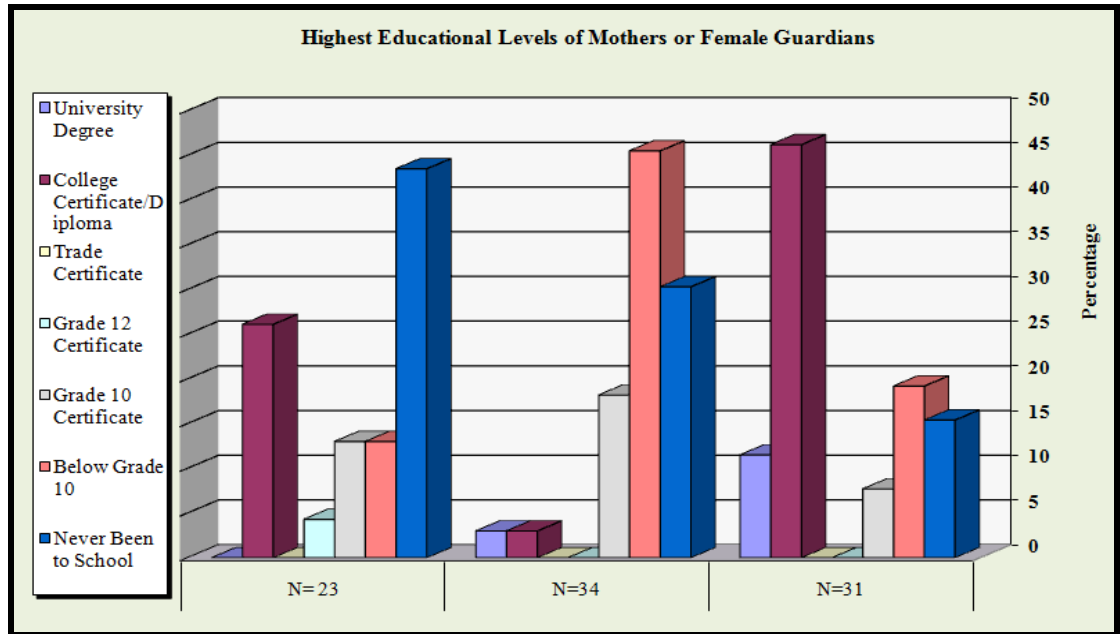
Generally, fathers and/or male guardians of participants in Group A and B at both research sites had lower levels of education compared to higher number of fathers and/or male guardians of students in Group C who had either a college or university education. A major difference between the two research sites was that a higher number of fathers and/or male guardians of participants in Site 2 were more educated than those in Site 1.

4.2.6.2 Educational Levels of Mothers and/or Female Guardians

Figure 4.12 shows that a higher percentage of mothers and/or female guardians in Groups A and B either had no formal education or had a minimal level of education. This was in contrast to a large number of mothers and/or female guardians of students in Group C who had a college education and a significant number who were university graduates.

Figure 4.12: Highest Level of Education of Mothers and/or Female Guardians

N=88



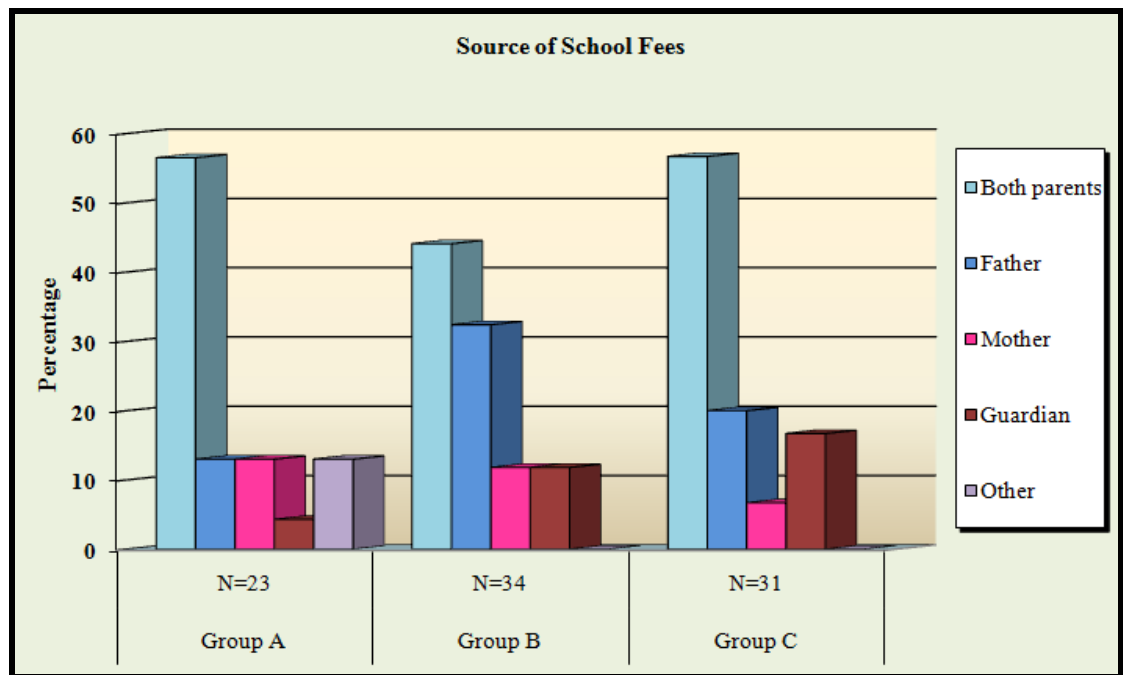
At both research sites, the majority of participants in Group A and B had mothers and/or female guardians who had lower levels of education or no formal education. However, of those that had formal education, mothers and/or female guardians of students in Site 2 had a higher level of education. The results of item 8 in the survey show that majority of mothers and/or female guardians of students in Group C at Site 1 were slightly better educated with some university graduates and a larger percentage with a college education. By contrast, the majority of mothers and/or female guardians of students in Group C at Site 2 had a college level education. The results also indicate significant percentages of mothers and/or female guardians across all three groups had no formal education.

4.2.7 Source of School Fees

Participants in Groups A, B and C were asked about the source of their school tuition fees. Findings are summarised in Figure 4.13.

Figure 4.13: Sources of School Fees

N=88



Across all three groups the school fees were paid by one or both parents and/or guardians. As the majority of parents in groups A and B are unemployed in the formal sector, they survived on subsistence farming or fishing and in the highlands, families ran small holder coffee blocks from which they earn their income. Surplus produce from subsistence farming is sold at local markets and school fees are paid with money earned from the sale of this produce as well as cash crops. Unemployed parents are sometimes assisted by older children if they are employed. Extended family members sometimes assist with the tuition fees either as a group or as individuals supporting each other. Any

assistance from extended family members or “wantoks” is often a form of investment which has to be reciprocated in the future. This form of support network is based on cultural notions of investment.

4.2.8 Sibling Position as a Child from a Mother

Students in this research were specifically asked to report about their sibling positions from their mothers to avoid conflicting reports from students who come from polygamous or blended families. Sibling position, particularly for daughters, is important in undertaking domestic responsibilities as these can cut into quality time for study. In family distress situations arising from divorce or loss of a parent, the oldest daughter in a family would most likely leave school to assume parental responsibilities over younger siblings. Older children who are employed often contribute towards paying school fees for the younger siblings. Findings on sibling position are summarised in Figure 4.14.

Figure 4.14: Sibling Position as Child from the Mother

N=88

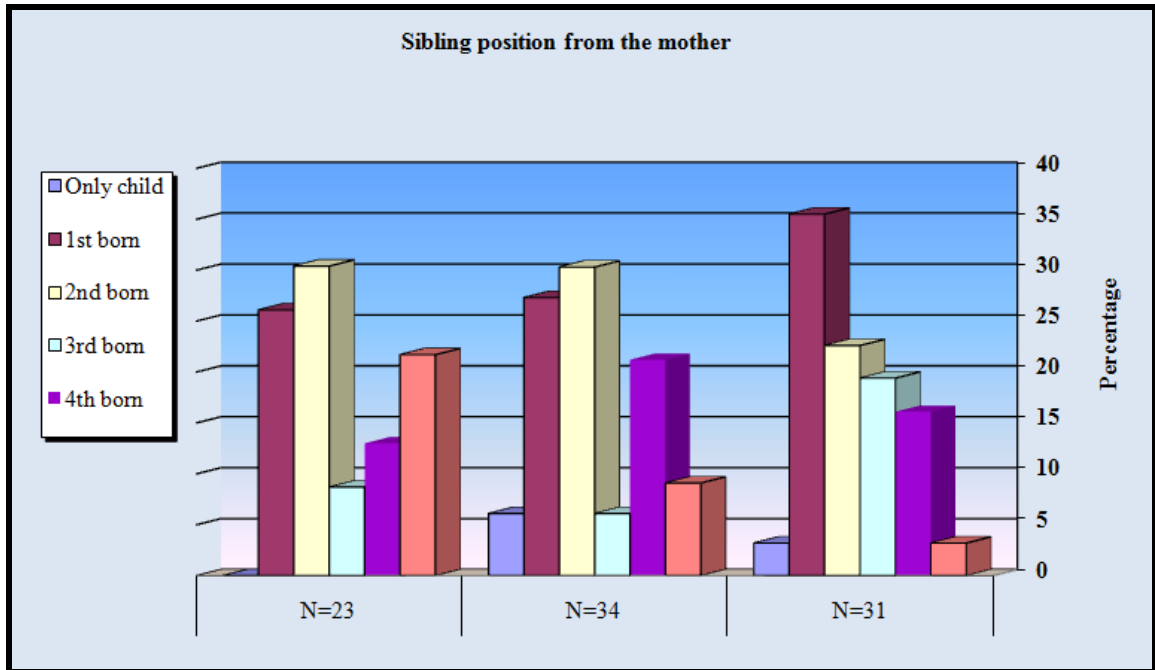


Figure 4.14 shows that a higher percentage of students in all three groups were either first or second born in their families. In a lot of PNG cultures, daughters, particularly if they are the eldest child or eldest daughter in a family, tend to have a lot more responsibilities in helping their mothers with domestic chores such as preparing meals and taking care of younger siblings. If they didn't board at school, they would have most likely spent some of their study time on helping with home chores. In family distress situations they would have possibly assumed responsibilities to care for their parents or younger siblings. This potentially could have contributed towards under-performance and school drop out. As shown on Figure 4.14, the majority of the participants in Groups A and B were second born and the majority in Group C were first born.

4.3 The Principal Component Factor Analysis on the Surveys of Groups A, B and C

Part B and C of the survey used by Group A and B, and Group C participants' were subjected to the Principal Component Factor Analysis separately using SPSS Version 14 to address the two research questions that guided this study. As the survey comprised 67 items containing a range of possible factors that influence academic achievement, a Principal Component Factor Analysis was conducted on the surveys for each group.

The Principal Component Factor Analysis was employed as a data reduction measure to generate smaller sets of factors or components that contributed significantly to the academic achievement of participants. The key factors revealed by the factor analysis were put through further tests by conducting an analysis of variance (ANOVA) to identify the differences between the three groups in their ratings of the attributions for academic achievement in the surveys. T-tests to assess the differences between the ratings for academic achievement at the two research sites was also conducted.

Prior to performing the Principal Component Factor Analysis on data from each of Parts B and C of the survey, a suitability of data for factor analysis was assessed. Inspection of the correlation matrix showed the presence of many coefficients of .3 and above which is the acceptable minimum (Pallant, 2007; Tabachnick & Fidell, 2007). This indicated a need to proceed with the factor analysis. Despite the small sample size, the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy value was maintained at the recommended value of .6 and the Bartlett's Test of Sphericity reached a statistical significance of $p < .05$, thus supporting the factorability of the correlation matrix (Pallant, 2007; Tabachnick & Fidell, 2007). The KMO is a measure of factorability. Cronbach's alpha coefficient measuring reliability of the scales for each item in each set of factors in all three research groups was set at the normal recommended $\alpha = .7$ and only the factor components with eigenvalues of above 1 were considered for further investigation.

Details of these findings are presented in Tables 4.1- 4.10. The results of the factor analysis are presented by research group as factors within the control of the participants or internal attributions and factors external to the control of participants or external attributions.

4.3.1 The Factor Analysis on Part B of the Survey

The factor analysis on Part B of the survey for each group was conducted to identify the key internal attributions that influenced the academic achievement of female students in secondary schools in PNG. The results of the factor analysis on Part B of the survey are presented separately for each group.

4.3.1.1 Group A- Grade 8 School Leavers

The Principal Component Factor Analysis conducted on Part B of Group A survey responses revealed the presence of 11 components with eigenvalues exceeding 1, explaining 18.02 percent, 14.88 percent, 11.87 percent, 9.29 percent, 8.23 percent, 6.50 percent, 5.80 percent, 5.28 percent, 4.03 percent, 3.05 percent and 2.93 percent of the participants attributions for academic achievement. However, an inspection of the screeplot revealed a clear break after the fourth component, thus a further test on the four components was conducted. A reliability test on the four components revealed that the fourth component had a weak reliability, thus it was decided to retain only three components for further investigation. This was further supported by the results of Rotation Method using Varimax with Kaiser Normalisation which showed only three components with eigenvalues exceeding 1. Summary of the details are provided in Table 4.1.

The three components in Part B consisted of a total of 12 items which indicated an attribution to key factors influencing academic achievement. Factor loading 1 was made up of five items which were labelled as, “*Self-Regulation; Personal Performance Goals;*

Personal Mastery Goals". Factor 2 had four items which were labelled as "*Perceived Parental Performance Goals; Personal Performance Goals; Perceived Classroom Mastery Goals*". Factor 3 consisted of three items labelled "*Self-Regulation; Perceived Parental Performance Goals*". In summary, the three factor loadings indicated that a combination of five key internal factors was attributed to as influencing the academic achievement of Grade 8 SLs as presented in Table 4.1. These were (1) Personal Performance Goals; (2) Personal Mastery Goals; (3) Perceived Parental Performance Goals; (4) Perceived Classroom Mastery Goals; and (5) Self-Regulation.

Table 4.1: Factor Analysis on Part B of the Group A Survey- Three-Factor Solution

Item	Factor Loading		
	1	2	3
PART B. FACTORS WITHIN THE CONTROL OF PARTICIPANTS			
Factor 1: Self-Regulation; Performance Goals; Mastery Goals ($\alpha=851$)			
Item 37: Even if they took up more time, I liked the subjects that made me think deeply	.829		
Item 12: I liked the work given in my core subjects because they really made me think	.788		
Item 14: I wanted to do better than other students in the core subjects	.717		
Item 41: When I had difficulty solving a problem in a core subject, I enjoyed trying different ways to identify the one that worked.	.703		
Item 11: My reason for doing the tasks given in my core subjects was because I liked learning	.695		

Factor 2: Perceived Parental Goals; Personal Performance Goals; Perceived Classroom Mastery Goals ($\alpha=.828$)

Item 29: My parents/guardians would have liked it if I had showed that I got better grades than others	.895
Item 13: I tried my best to improve on my past performance	.875
Item 20: In my class it was important to understand the work, not just memorise it	.791
Item 27: My parents/guardians wanted the school work to be challenging for me	.668

Factor 3: Self-Regulation; Perceived Parental Performance Goals (.758)

Item 38: In the core subjects, I checked over my work to ensure that it was correct	.915
Item 30: My parents/guardians wanted me to gain good results to continue onto tertiary education	.854
Item 39: I was always prepared for tests in advance	.644

4.3.1.2 Group B- Grade 9-10 School Leavers

The Principal Component Factor Analysis conducted on Part B of Group B surveys revealed the presence of 4 components with eigenvalues exceeding 1, explaining 28.02 percent, 19.73 percent, 14.00 percent, 9.04 percent of the participants attribution to academic achievement. An inspection of the screeplot revealed a clear break after fourth component, thus the four components were retained for further investigation using Rotation Method using Varimax with Kaiser Normalisation. The results of the test confirmed all four components with eigenvalues exceeding 1. Summary of the details is presented on Table 4.2.

The four components in Part B of survey for Group B comprised 3 items in Factor 1 which were labelled, “*Self-Regulation; Personal Performance Goals; Perceived Parental Performance Goals*”. Factor 2 contained 3 items which were labelled “*Self-Efficacy*”. Factor 3 contained labelled, “*Mastery Goals; Self Efficacy*”, and 4 items in Factor 4, labelled “*Personal Performance Goals; Self-Efficacy*”. In summary, as shown on Table 4.2, a combination of the following five internal factors was attributed to as the key factors that influenced the academic achievement of the Grade 9-10 school leaver participants. These were (1) Personal Performance Goals; (2) Perceived Parental Performance Goals; (3) Mastery Goals; (4) Self-Efficacy; and (5) Self-Regulation.

Table 4.2 Factor Analysis for Group B on Part B of the Survey- Four-Factor Solution

Item	Solution			
	1	2	3	4
PART B. FACTORS WITHIN THE CONTROL OF PARTICIPANTS				
Factor 1. Self-regulation, Personal Performance Goals; Perceived Parental Performance Goals ($\alpha=.764$)				
Item 41: When I had difficulty solving a problem in a core subject, I enjoyed trying different ways to identify the one that worked.	.841			
Item 15: I preferred to study the core subjects that I did well in than those I did poorly.		.814		
Item 27: My parents/guardians wanted school work to be challenging for me.			.767	
Factor 2. Self-Efficacy ($\alpha=.769$)				
Item 35: I could master the skills and new ideas taught in the core subjects.			.903	
Item 34: I could understand the key points that were taught in the core subjects.				.848

Item 36: I understood the teachers in my core subjects. .570

Factor 3. Mastery Goals and Self- Efficacy ($\alpha=.701$)

Item 11: My reason for doing the tasks given in my core subjects was because I liked learning. .828

Item 12: I liked the work given in my core subject because they really made me think. .817

Item 45: I usually did well on tests in my core subjects. .594

Factor 4. Performance Goals and Self-Efficacy ($\alpha=.813$)

Item 13: I tried my best to improve on my past performance. .911

Item 14: I wanted to do better than other students in core subjects. .648

Item 44: I had a good understanding of my subjects. .621

Item 43: I found it easy to learn things in school. .615

4.3.1.3 Group C-Grade 12 Students

The principal components factor analysis conducted on Part B of Group C survey questionnaire revealed the presence of 3 components with eigenvalues above 1, explaining 38.81 percent, 16.77 percent, 13.32 percent of participants attribution to academic achievement respectively. The screeplot revealed a clear break after second component, thus the two components were retained for further examination by conducting a rotation of the components. The results of the Rotation Method using Varimax with Kaiser Normalisation showed the two components with eigenvalues exceeding 1. Each factor component was indicated by their strongest factor loadings. The summary containing the details is presented on Table 4.3.

The two components in Part B of Group C survey comprised a total of 11 items. Factor 1 consisted of 7 items which were labelled, “*Self-Regulation; Personal Mastery Goals; Self-Efficacy*”. Factor 2 comprised 4 items which were labelled “*Perceived Classroom Goals; Perceived Parental Goals; Personal Mastery Goals*”. In summary, the Grade 12 students attributed their academic achievement to a combination of five internal key internal factors (1) Personal Mastery Goals; (2) Self-Regulation; (3) Self-Efficacy; (4) Perceived Classroom Goals; and (5) Perceived Parental Goals.

Table 4.3 Factor Analysis for Group C on Part B of Survey- Two-Factor Solution

Item	Factor Loading	
	1	2
PART B. FACTORS WITHIN THE CONTROL OF PARTICIPANTS		
Factor 1. Self-regulation and Mastery Goals ($\alpha = .824$)		
Item 41: When I have difficulty solving a problem in a core subject, I enjoy trying different ways to identify the one that works.	.829	
Item 39: I always start preparing for tests in advance.	.804	
Item 37: Even if they take up more time, I like the subjects that make me think deeply.	.712	
Item 11: My reason for doing the task given in my core subjects is because I like to learn.	.681	
Item 44: I have a good understanding of my core subjects.	.642	
Item 40: I use a study method that helps me very well.	.606	
Item 38: In the core subjects I check over my work to ensure it is right.	.573	

Factor 2. Perceived Classroom Performance Goals, Perceived Parental Performance Goals and Mastery Goals ($\alpha = .726$)

Item 21: In my class you are allowed to make mistakes so long as you are learning.			.836
Item 27: My parents/guardians want school work to be challenging for me.		.355	.740
Item 12: I like the work given in my core subjects when they really make me think.		.533	.713
Item 24: Teachers encourage us to get good grades to undertake tertiary studies in the future.			.547

4.3.2 Factor Analysis on Part C of the Surveys

The factor analysis conducted on Part C of the surveys was to identify significant external factors that influenced the academic achievement of female secondary students in PNG. The results are reported separately for each group.

4.3.2.1 Group A-Grade 8 School Leavers

The principal components factor analysis conducted on Part C of Group A survey questionnaire revealed a presence of another 11 components with eigenvalues exceeding 1, explaining 21.85 percent, 12.47 percent, 11.12 percent, 8.54 percent., 6.92 percent, 6.13 percent, 5.84 percent, 5.36 percent, 4.25 percent, 3.95 percent, and 3.53 percent of the participants' attributions for academic achievement. An inspection of screeplot revealed a clear break after the third component and further tests using Rotation Method using Varimax with Kaiser Normalisation supported the results. It showed three components with eigenvalues exceeding 1. The summary of the results are presented on Table 4.4.

The three components in Part C which contributed to academic achievement of Group A school leavers comprised a total of 14 items. Factor 1 comprised 7 items which were labelled “*Availability of and Access to School Curriculum & Resources, and Class Size*”. Factor loading 2 contained 3 items and were labelled “*Safety and the School Emotional Environment*”. Factor loading 3 labelled “*School Psychological and Emotional Environment, School Size, and Gender Inclusivity*”. Hence, the Grade 8 SLs attributed their academic achievement to a combination of the following six external factors: (1) School Psychological and Emotional Environment; (2) School Size; (3) Class Size; (4) Gender Inclusivity; (5) Safety; and (6) Availability of and Access to School Curriculum & Resources.

Table 4.4 Factor Analysis for Group A on Part C of Survey- Three-Factor Solution

Item	Factor Loading		
	1	2	3
PART C: FACTORS EXTERNAL TO THE CONTROL OF PARTICIPANTS			
Factor 1: Availability of of and Access to Curriculum Resources; Class Size ($\alpha = .842$)			
Item 58: My subjects provided up to date variety of resources.	.814		
Item 57: My subjects had enough resources such textbooks and computers.	.793		
Item 63: My class was overcrowded with students.	.770		
Item 55: My school gave equal access to resources such as textbooks, computers, etc, to both boys and girls.	.747		
Item 59: My core subjects were well resourced with teachers.	.747	.327	
Item 62: The school offered a wide range of curriculum for me to choose what I thought would prepare me for the future.	.704		
Item 60: I had access to appropriate facilities and services such as a study table to study after school hours.	.667	.355	

Factor 2: Safety; School Psychological and Emotional Environment ($\alpha = .809$)

Item 69: I felt safe in school.	.923
Item 67: My school made me feel a valuable member of the school	.813
Item 70: I felt safe between home and school.	.733

Factor 3: School Psychological and Emotional Environment; School Size; Gender Inclusivity ($\alpha = .757$)

Item 72: Each school period was sufficient to cover each core subject.	.865
Item 53: I had both male and female teachers teaching me.	.759
Item 66: My school was very large.	.747
Item 68: When I had personal and academic concerns in school, I had someone to talk to.	.476

4.3.2.2 Group B- Grade 9-10 School Leavers

The principal components factor analysis conducted on Part C of Group B survey questionnaire revealed a presence of 5 components with eigenvalues exceeding 1, explaining 27.72 percent, 15.96 percent, 13.38 percent, 8.98 percent and 6.72 percent respectively. However the screeplot revealed a clear break after fourth component, hence the four components were retained for further investigation. This was further supported by the results of Rotation Method using Varimax with Kaiser Normalisation which showed all four components with eigenvalues exceeding 1. Each factor component is indicated by their strongest factor loadings. The summary of the details is presented on Table 4.5.

The four components in Part C of the survey for Group B SLs consisted of a total of 13 items. Factor loading 1 comprised 7 items which were labelled *Parental Support; School*

Psychological and Emotional Environment; Availability of and Access to Curriculum Resources; Gender Inclusivity. Factor 2 consists of 3 items labelled “*Gender Inclusivity at School and Home*” and Factor 3 contained 4 items labelled “*Safety; School Psychological and Emotional Environment; School Routine*”. Factor 4 contained 4 items labelled “*School Curriculum Resources-Teachers; Religious Faith and Spirituality; Gender Inclusivity*”. The four factor loadings have some key factor labels that are similar, however, an examination of the items in each factor indicates the specific focus each item contributes to the key factors. In summary, the Grade 9-10 SLs attributed their academic achievement to a combination of the following eight external factors: (1) Parental Support; (2) School Psychological and Emotional Environment; (3) Availability of and Access to Curriculum Resources; (4) School Curriculum Resources-Teachers; (5) Religious Faith and Spirituality; (6) Safety; (7) School Routine; and (8) Gender Inclusivity at School and Home.

Table 4.5: Factor Analysis for Group B on Part C of the Survey-Four-Factor Solution

Item	Factor Loading			
	F1	F2	F3	F4
PART C: KEY FACTORS EXTERNAL TO THE CONTROL OF PARTICIPANTS				
Factor 1: Parental Support; School Psychological and Emotional Environment; Availability of and Access to Curriculum Resources; Gender Inclusivity ($\alpha=.819$)				
Item 47: I felt encouraged when my parents/guardians ensured I had necessary resources to support my learning.	.817			
Item 67: My school made me feel a valuable member of the school.	.711			
Item 46: I felt settled because my parents ensured that my fees were paid on time.	.698			

Item 55: My school gave equal access to resources such as textbooks, computers, etc, to both boys and girls.	.651	.484	
Item 66: It was easy to get to know other students in my class.	.633	.396	
Item 57: My subjects had enough resources such as textbooks and computers.	.612	.314	.396
Item 56: My textbooks featured both male and female examples.	.531	.526	.348
Factor 2: Gender Inclusivity at School and Home ($\alpha=.832$)			
Item 53: I had both male and female teachers teaching me.		.802	
Item 54: I had female teachers teaching me in Science, Mathematics, or Technology.		.740	
Item 49: My parents/guardians gave their children equal opportunity to attend school.	.431	.637	
Factor 3: Safety; School Psychological and Emotional Environment; School Routine ($\alpha=.728$)			
Item 70: I felt safe between home and school.		.789	
Item 73: We had bloc periods to cover content, research and practical in my core subjects.		.722	
Items 68: When I had personal and academic concerns in school, I had someone to talk to.		.711	
Item 69: I felt safe in school.		.559	353
Factor 4: Availability of and Access to Curriculum Resources-Teachers ($\alpha=.742$)			
Item 59: My core subjects were well resourced with teachers.		.791	
Item 77: My religious faith contributed positively towards my achievement in school.		.363	.658

Item 52: My teachers encouraged girls to participate in class.	.525	.593
Item 51: My school promoted equal treatment of boys and girls.	.485	.544

4.3.2.2 Group C- Grade 12 Students

The principal components factor analysis conducted on Part C of the survey for Group C revealed a presence of 2 components with eigenvalues above 1, explaining 40.12 percent and 21.59 percent of the participants' attributions for academic achievement respectively. However the screeplot showed a clear break after third component and these were retained for further examination by conducting a rotation of the components. The results of the Rotation Method using Varimax with Kaiser Normalisation confirmed the three components with eigenvalues exceeding 1, explaining 32.45 percent, 24.30 percent, and 18.51 percent of the participants' attributions for academic achievement. However a check on the reliability indicated that the third component did not have a strong reliability, hence only two factors were included for analysis. Each factor component is indicated by their strongest factor loadings and the summary containing the details is presented on Table 4.6.

The two components in Part C of survey for Group C comprised 3 items in Factor 1 labelled, "*School Curriculum and Resources; School Psychological and Emotional Environment*". Factor 2 consisted of two items labelled "*Availability of and Access to Curriculum Resources*". In summary, the Grade 12 students attributed their academic achievement to a combination of the following three external factors: (1) School Curriculum and Resources; (2) School Psychological and Emotional Environment; and (3) Availability of and Access to Curriculum Resources.

Table 4.6: Factor Analysis for Group C on Part C of the Survey- Two-Factor Solution

Item	Factor Loading	
	F1	F2
PART C: KEY FACTORS EXTERNAL TO THE CONTROL OF PARTICIPANTS		
Factor 1: School Curriculum and Resources; School Psychological and Emotional Environment ($\alpha=.791$)		
Item 68: When I have personal and academic concerns in school I have someone to confide in.	.838	
Item 62: The school offers a wide range of curriculum for me to choose what I think will prepare me for the future.	.832	
Item 61: The curriculum prepares me well for what I want to do in the future.	.828	
Factor 2: Availability of and Access to Curriculum Resources ($\alpha=.754$)		
Item 58: My core subjects provide up-to-date variety of resources.		.913
Item 57: My core subjects have enough amounts of resources such as textbooks and computers.		.797

4.4 Differences Between the Groups

The study involved three distinct groups of participants who were selected to draw information about the significant factors that impeded and or facilitated their academic achievement. Thus, one-way Analysis of Variance (ANOVA) on attributions was conducted to identify significant differences in the mean scores on the dependent

variables across all three groups. The level of significance for the one-way ANOVA was set at $p < .05$. Summaries of results are presented separately for Part B and Part C in Tables 4.7 and 4.8.

4.4.1 Differences Between the Groups- Part B of the Surveys

Part B of the surveys comprised a total of 35 items that measured factors that were considered to be within the control of individual participants. These contained factors such as personal goals and perceptions, beliefs and values about the goals emphasised in their classrooms, perceived parental goals, their self-regulatory learning strategies comprising self-efficacy, self-regulation and self-concept which in turn, were considered to influence academic achievement. Thus, a one-way ANOVA test was conducted on the responses to the Part B survey items to identify the items that generated statistically significant differences between the three research groups. As the one-way ANOVA does not indicate which of the groups differ significantly, a post-hoc test, which indicates the groups that do differ significantly, was conducted. The summaries are presented on Table 4.7.

Table 4.7: Results of ANOVA of Attributions and Post-hoc Test for the Variables in Part B of the Survey

ANOVA							POST- HOC TESTS		
Source		SS	df	MS	F	p	Group	* Diff.	p
11. My reason for doing the tasks given in my core subject was (is) because I like(d) learning	Between Groups	6.38	2	3.19	3.42	.037	Group A Group B	-.38	.31
							Group C	-.70	.03*
	Within Groups	78.33	84	.93			Group B Group A	.38	.31
							Group C	-.32	.39
	Total	84.71	86				Group C Group A	-.70	.03*
							Group B	.32	.39

15. I prefer(red) to study the core subjects that I do(did) well in than those I did poorly.	Between Groups	24.08	2	12.04	5.25	.007	Group A	Group B	-.42	.57
								Group C	.79	.15
	Within Groups	195.01	85	2.29			Group B	Group A	.42	.57
								Group C	1.21	.01*
	Total	219.09	87				Group C	Group A	-.79	.15
								Group B	1.21	.01*
20. In my class it is (was) important to understand the work, not just memorise it.	Between Groups	14.53	2	7.27	8.43	.00	Group A	Group B	-.67	.02*
								Group C	-1.05	.00*
	Within Groups	73.29	85	.86			Group B	Group A	.67	.02
								Group C	-.37	.25
	Total	87.82	87				Group C	Group A	1.05	.00*
								Group B	.37	.25

21. In my class you are (were) allowed to make mistakes so long as you are (were) learning.	Between Groups	20.21	2	10.11	5.39	.01	Group A Group B	-.06	.99
							Group C	-1.04	.02*
	Within Groups	159.41	85	1.88			Group B Group A	.06	.99
							Group C	-.98	.01*
	Total	179.63	87				Group C Group A	1.04	.02*
							Group B	.98	.01*
30. My parents/guardians want(ed) me to gain good results to continue onto tertiary education.	Between Groups	.90	2	.45	3.69	.03	Group A Group B	-.23	.04*
							Group C	-.23	.05*
	Within Groups	10.37	85	.12			Group B Group A	.23	.04*
							Group C	.00	1.00
	Total	11.27	87				Group C Group A	.23	.05*
							Group B	-.00	1.00
35. I can (could) master the skills	Between Groups	16.19	2	8.10	7.33	.00	Group A Group B	-.92	.01*
							Group C	-1.02	.00*

and new ideas taught in the core subjects.	Within Groups	93.81	85	1.10			Group B Group A	.92	.01*
							Group C	-.10	.92
	Total	110.00	87				Group C Group A	1.02	.00*
							Group B	.10	.92
							Group C Group A	.29	.48
							Group B	-.17	.74
43. I find (found) it easy to learn things.	Between Groups	19.48	2	9.74	7.11	.00	Group A Group B	-.51	.24
							Group C	-1.20	.00*
	Within Groups	116.51	85	1.37			Group B Group A	.51	.24
							Group C	-.68	.06
	Total	135.99	87				Group C Group A	1.20	.00*
							Group B	.68	.06

(1)* $p < .05$

(2) All figures have been rounded.

(3) Likert scale responses: 1. Not at all true; 2. Not true; 3. Somewhat true; 4. True; 5. Very true

Table 4.7 summarises the results for Part B of the survey responses and measures the differences between Groups A, B and C. The results of the one-way ANOVA test on the attribution scales on Part B of the survey responses revealed only 7 items with significant differences in the mean scores between the three research groups. These were found in: Personal Goals, Perceived Classroom Goals, Perceived Parental Goals and Self-Efficacy.

4.4.1.1 Personal Goals

Personal goal orientations refer to the underlying reasons or purposes for engaging in academic work. Personal goal orientations include cognitive and behavioural components and these goals foster different patterns of response to school work and in turn, academic achievement (Freeman, 2004; McInerney & McInerney, 1998, 2006; Patrick, 2004; Wolters, 2004)

Statistically significant differences in the mean scores were found in two aspects of personal goal orientation. These were personal goals oriented towards mastery of tasks and personal goals oriented towards performance of tasks. In item 11, the strongest difference of $p < .03$ was found between Group A and C and it related to personal goals orientated towards mastery of tasks (mastery goal) and was evident in their performance of tasks because they liked learning.

Groups B and C differed significantly in their mean scores at $p < .01$ on personal goals in item 15. Item 15 showed personal goals oriented towards performance goals focused on preference to study the subjects in which participants performed better than the subjects in which they they performed poorly.

4.4.1.2 Perceived Classroom Goals

Perceived classroom goals are goals that students perceive to be promoted in their classrooms. Classrooms and their ethos can be perceived to promote a range of goals such as mastery and understanding of learning tasks and/or focusing on performing better than other students or attaining better grades. Aspects of the social environment of

classrooms such as perceptions of teachers and student support, fairness, mutual respect and relationships, collaborative efforts of students are understood to contribute to adaptive motivation and engagement in school work and goal orientations (Barker, McInerney, & Dowson, 2003; Patrick, 2004; Wolters, 2004)

Significant differences in mean scores were found in Items 20 and 21. These items were both focused on the perception of the classroom as promoting mastery oriented goals. In item 20, the significant difference in mean scores between Group A and C was $p < .00$. In item 21, there was a significant difference in the mean scores between Group A and C at $p < .02$ and between Group B and C at $p < .01$.

4.4.1.3 Perceived Parental and/or Guardian Goals

When students are oriented towards parental and/or guardian goals, they tend to pursue similar goals in which they perceive their parents and/or guardians to promote. Perceived goals of parents and/or guardians may be orientated towards performance such as performing better than other students or attaining higher grades. They could be mastery goal-oriented, focused on gaining better understanding and enjoyment of learning tasks. Hence, in academic settings they seek to live up to the goals and wishes of their parents.

Difference in the mean scores on perceived parental and/or guardian goals were found to be significant between the participants in Groups A and B at $p < .04$ and between A and C at $p < .05$ in Item 30. This item focused on perceived parental and/or guardian goal for their children to gain good results to undertake tertiary studies.

4.4.1.4 Self-Efficacy

Self-efficacy refers to an individual's belief about personal capabilities to exercise control over personal level of functioning and over events that have a potential effect on his/her life (Bandura, 1977). Self-efficacy beliefs also influence how individuals feel, think and are motivated to behave. Student efficacy beliefs have considerable influence on self-regulatory learning, personal aspirations and level of motivation and in turn,

academic achievement. Furthermore, students whose level of self-efficacy is high have a tendency to set themselves higher goals and have stronger commitment for engagement in learning activities. Significant differences in mean scores in self-efficacy in items 35 and 43 were found between the participants in Groups A and B at $p < .01$ and A and C at $p < .00$.

4.4.2 Differences Between the Groups - Part C of the Surveys

Part C of the survey comprised a total of 32 items that measured factors that were considered to be situational and external to the control of individual participants. These contained a range of issues such as parental and teacher support, gender inclusivity, school environment, curriculum and resources, student support service, religious faith and school routine that could have influenced academic achievement. A one-way ANOVA test on the attribution scales was conducted on the responses to the items contained in Part C to identify the items that generated statistically significant differences. As the one-way ANOVA does not specify the groups that differ significantly, a post-hoc test, which indicates the groups that do differ significantly, was conducted. Summaries of the one-way ANOVA and post-hoc tests on Part C responses are presented on Table 4.8.

Table 4.8: Results of ANOVA of Attributions and Post-hoc Test Between Groups A, B and C for the Variables in Part C of the Survey

ANOVA							POST- HOC TESTS		
Source		SS	df	MS	F	<i>p</i>	Group	* Diff.	<i>p</i>
46. I felt settled because my parents ensured that my school fees were paid on time.	Between Groups	22.54	2	11.29	4.74.	.01	Group A Group B	-.28	.78
	Within Groups	201.96	85	2.38			Group C	-1.20	.02*
	Total	224.50	87				Group B Group A	.28	.78
							Group C	-.92	.05*
							Group C Group A	1.20	.02*
							Group B	.92	.05*
47. I felt encouraged when my	Between Groups	30.12	2	15.06	8.12	.00	Group A Group B	-.34	.62
							Group C	-1.40	.00*

parents/guardians ensured I had necessary resources to support my learning.	Within Groups	157.65	85	1.86			Group B	Group A	.34	.62	
	Total	187.77	87					Group C	-1.05	.01*	
							Group C	Group A	1.40	.00*	
								Group B	1.05	.01*	
51. My school promoted equal treatment of boys and girls.	Between Groups	14.21	2	7.10	4.46	.01	Group A	Group B	.02	1.00	
	Within Groups	135.39	85	1.59				Group C	-.83	.05*	
							Group B	Group A	-.02	1.00	
	Total	149.59	87						Group C	-.85	.02*
								Group C	Group A	.83	.05*
								Group B	.85	.02*	
52. My teachers encouraged girls to participate in class.	Between Groups	22.10	2	11.05	5.65	.01	Group A	Group B	-.88	.06	
	Within Groups	166.22	85	1.96				Group C	-1.28	.00*	
							Group B	Group A	.88	.06	
								Group C	-.40	.49	

	Total	188.32	87				Group C	Group A	1.28	.00*
								Group B	.40	.49
59. My core subjects were well resourced with teachers	Between Groups	11.62	2	5.81	4.15	.02	Group A	Group B	-.61	.15
								Group C	-.93	.01*
	Within Groups	119.10	85	1.40			Group B	Group A	.61	.15
								Group C	-.33	.50
	Total	130.72	87				Group C	Group A	.93	.01*
								Group B	.33	.50
65. My school was very large	Between Groups	36.95	2	18.47	12.57	.00	Group A	Group B	-.84	.03*
								Group C	-1.67	.00*
	Within Groups	124.87	85	1.47			Group B	Group A	.84	.03*
								Group C	-.83	.02*
	Total	161.82	87				Group C	Group A	1.67	.00*
								Group B	.83	.02*

66. It was easy to get to know other students in my school	Between Groups	19.24	2	9.62	4.74	.01	Group A	Group B	.73	.14
								Group C	1.21	.01*
	Within Groups	172.1	85	2.03			Group B	Group A	-.73	.14
								Group C	.47	.38
	Total	191.90	87				Group C	Group A	-1.21	.01*
								Group B	-.47	.38
67. My school made me feel a valuable member of the school.	Between Groups	15.04	2	7.52	4.63	.01	Group A	Group B	.35	.56
								Group C	-.60	.20
	Within Groups	137.95	85	1.62			Group B	Group A	-.35	.56
								Group C	-.96	.01*
	Total	152.99	87				Group C	Group A	.60	.20
								Group B	.96	.01*
68. When I had	Between Groups	19.25	2	9.62	6.41	.00	Group A	Group B	.54	.24
								Group C	-.55	.24

personal and academic concerns in school, I had someone to talk to.	Within Groups	127.62	85	1.50			Group B	Group A	-.54	.24
								Group C	-1.09	.00*
	Total	146.86	87				Group C	Group A	.55	.24
								Group B	1.09	.00*
69. I felt safe in school.	Between Groups	14.58	2	7.29	4.09	.02	Group A	Group B	-.19	.86
								Group C	-.95	.03*
	Within Groups	151.50	85	1.78			Group B	Group A	.19	.86
								Group C	-.76	.06
	Total	166.08	87				Group C	Group A	.95	.03*
								Group B	.76	.06
77. My religious faith has contributed positively to my achievement in school.	Between Groups	16.61	2	8.31	6.26	.00	Group A	Group B	-.31	.59
								Group C	-1.06	.00*
	Within Groups	112.84	85	1.33			Group B	Group A	.31	.59
								Group C	-.75	.03*
	Total	129.46	87				Group C	Group A	1.06	.00*
								Group B	.75	.03*

1. $*p < .05$

2. All figures have been rounded.

3. Likert scale responses: 1. Not at all true; 2. Not true; 3. Somewhat true; 4. True; 5. Very true

Table 4.8 summarises the results for Part C of the survey responses and measures the differences between the mean scores of Groups A, B and C. The results of the one-way ANOVA test on Part C of the survey responses revealed 11 items with significant differences in the mean scores between the three research groups. The 11 items made up 6 factors comprising: Parental/Guardian Support (items 46, 47), Gender Inclusivity (item 51, 52), Availability of and Access to Curriculum Resources- Teachers (item 59), School Size (items 65, 66), School Emotional Environment (item 67, 68, 69), and Religious Faith and Spirituality (item 77).

4.4.2.1 Parental and/or Guardian Support

Parental and/or guardian support refers to the nature of support given by parents and/or guardians which promotes motivation and learning and influences academic achievement. Parental support may be offered through involvement in school activities, building and strengthening relations with the school, encouraging their children, being good role models for their children and paying for educational and related costs such as stationery, transport and lunch.

The one-way ANOVA test indicated strong differences in the mean scores in Items 46 and 47. Item 46 focused on how the participants felt when their parents and/or guardians paid their school fees on time. The results indicated that there were significant differences in the mean scores with $p < .02$ between Group A and C and at $p < .05$ between B and C.

Item 47 related to the participants rating of how they felt when their parents ensured to provide essential learning resources. Significant differences in the mean scores were found to exist between Group A and C at $p < .00$ and between Group B and C at $p < .02$.

4.4.2.2 Gender Inclusivity

Gender inclusivity refers to the act of embracing representativeness in interactions between male and female students, teachers and students without regard to gender. It

also entails equal distribution and use of curriculum resources, as well as participation and representation in the production of curriculum resources and materials.

Significant differences in mean scores were identified in Items 51 and 52. Both these items focused on gender inclusivity in terms of teachers' encouragement of participation by girls in class and equal treatment of boys and girls in school. In item 51 which focused on teachers' encouragement of participation by girls in class, there were significant differences between Group A and C at $p < .05$ and between B and C at $p < .02$. In item 52, the participants rated their perceptions about whether their schools promoted equal treatment of boys and girls. The result indicates that there was a significant difference in the mean scores at $p < .00$ between Group A and C.

4.4.2.3 Curriculum Resources: Teachers

For effective learning and academic success, students need to have a range of curriculum resources, including qualified teachers. The one-way ANOVA test indicated a significant difference in the mean scores at $p < .01$ between Group A and C on item 59. Item 59 related to how well the subjects areas were resourced with teachers.

4.4.2.4 School Size.

The size of a secondary school has been widely noted as one of the factors that impacts on a number of variables including academic achievement of students (Barnett, Glass, Snowdon, & Stringer, 2002; Crosnoe, Kirkpatrick, & Elder Jr, 2004; Speolhofer, Benton, & Schagen, 2004; Vander Ark, 2002; Viadero, 2001). Larger secondary schools have been considered to have the benefit of attracting more specialized teachers to teach different subjects and this in turn, influences the academic achievement of students. Because they have large numbers of students they are also considered to create ideal opportunities for students to choose with whom they develop friendships. In contrast, smaller secondary schools have also been found to hold a number of benefits which include the provision of an atmosphere of a sense of belonging, a more intimate environment where students feel that their presence is easily and frequently

acknowledged and support is easily accessed. Graduation rates are higher in smaller schools and there is greater teacher collaboration and team teaching (Bracy, 2001; Cutshall, 2003; Mudore, 2000).

Significant difference in mean scores was found in Items 65 and 66. Item 65 participants concerned the size of the school in terms of population and space and strong differences were found between Group A and B at $p < .03$; between *Group A and C* at $p < .0$; and between B and C at $p < .0.02$. Item 66 concerned about how easy it was to get to know other students in the school; hence a significant difference in the mean scores was evident between Group A and C at $p < .01$.

4.4.2.5 The School Emotional Environment

In educational settings, the school as a whole exerts a powerful influence on the emotional environment and the academic goals that students adopt (Phan, 2008). A school's emotional environment is believed to be influenced by a number of factors including inclusion and safety. A sense of inclusion in school develops from students being provided with opportunities to identify distinctive roles that they can play which, in turn, leads to them developing a sense of being valued by the school. Safety involves having a sound mind to think, communicate and behave in school. A safe environment has a support system in place to assist students with personal and academic concerns (Ryan & Patrick, 2001; Roeser *et.al*, 1996). Acceptance in school involves being provided with the opportunities to understand themselves better and developing their potential and opportunity to be heard. As schools provide environments where students feel they are capable, heard, accepted, safe and included, learning becomes easier, enjoyable, stimulating and positive relationships can be developed.

The one-way ANOVA test indicated significant differences in the mean scores of items 67, 68 and 69 which all focused on various aspects of their school emotional environment. Item 67 focused on whether students felt valued by their schools and a significant difference was found between B and C at $p < .01$. Item 68 focused on support services provided by the school and a significant difference in the mean scores

was evident between B and C at $p < .00$. Item 69 concerned the safety in school and a significant difference was found between Group A and C at $p < .03$.

4.4.2.6 Religious Faith and Spirituality

Religious faith entails an individual's commitment to a certain worldview that includes a reference to a transcendent authority or being (Hardy, 1998). This faith connects to a religion which is not necessarily an institution. Additionally, spirituality is a lifestyle that integrates an understanding of meaning with daily existence. This spirituality may or may not be linked to a specific religion and may or may not involve a notion of God (Hardy, 1998). One's religious faith and spirituality at the core of one's lifestyle radiates and influences life values, principles and behavior. Many of the participants in this study have their religious faith and spirituality affiliated to Christianity as practicing Christians.

In item 77, participants were asked whether their faith had contributed positively to their academic achievement. The results of the one-way ANOVA indicated significant differences between Group A and C at $p < .00$ and Group B and C at $p < .03$.

4.5 Comparison Between the Two Research Sites

Independent Samples T-Tests were conducted to determine the existence of statistically significant differences between the means of participants at the two sites for Part B and C of the survey. The results of Independent Samples T-Tests as shown on Tables 4.9 and 4.10 combined the data from all three groups to investigate the mean differences between participants at the two research sites. The Independent Samples T-Test shows Levene's Test for Equality of Variances and the T-Test for Equality of Means for each item in Part B and C of the surveys.

The Levene's Test for Equality of Variances was used to check statistical assumptions that the variances of scores for the two research sites were the same. This assisted in determining the correct t-values for use when reporting the results of the Independent Samples T-Test. If the level of significance on the Levene's Test for Equality of

Variances was larger than .05, the first line which refers to “Equal variances assumed” was used. If however, the level of significance was lower than .05, this indicated that the variance between the two groups was not the same. Thus, the t-value on the second line under “Equal variances not assumed” was used to compensate for the fact that the variances were not the same.

As there were two sites with unequal research sample size, in order to assess the significance of the mean differences, an effect size or strength of association for each set of dependent variable was calculated. The effect size is a set of statistics which indicates the relative magnitude of differences between the means of the two research sites (Pallant, 2007; Tabachnick & Fidell, 2007). There are several effect size statistics but the most common, the eta squared, was used in this study. According to (Pallant, 2007; Tabachnick & Fidell, 2007) the strength of eta squared values are measured as follows: .01=small effect; .06= moderate; and .14= large effect. The Independent Samples T-Test is reported separately for Part B and C of the surveys.

4.5.1 Independent Samples T-Test on Part B of the Surveys

A summary of the t-test results showing only the sources with significant differences between the two research sites are provided on Tables 4.9 and 4.10.

Table 4.9: Independent Samples T-test for Part B of the Surveys for Sites 1 and 2

Source	Group Statistics				Levene's Test for Equality of Variances			t-test for Equality of Means				Eta-squared
	Research Site	N	Mean	SD		F	p	t	df	Mean Diff	p (2-tailed)	
14. I want(ed) to do better than other students in my core subjects	Site 1	43	4.00	1.31	Equal variances assumed	28.27			86	-.76		.123
	Site 2	45	4.76	.57	Equal variances not assumed		.00	-3.48	56.83		.00	
27. My parents/guardians wanted school work to be challenging for me.	Site 1	42	4.14	1.22	Equal variances assumed	7.53	.01		85	-.524		.056
	Site 2	45	4.67	.91	Equal variances not assumed			-2.26	75.33		.03	
37. Even if they take (took) up more time, I like(d) the subjects that make	Site 1	43	3.84	1.34	Equal variances assumed	11.64	.00		86	-.518		

(made) me think deeply.	Site 2	45	4.36	.91	Equal variances not assumed			-2.11	73.34		.04	.049
41. When I have (had) difficulty solving a problem in a core subject, I enjoy(ed) trying different ways to identify the one that works (ed).	Site 1	43	3.74	1.43	Equal variances assumed	3.99	.05		86	-.611		
	Site 2	45	4.36	1.19	Equal variances not assumed			-2.17	81.73		.03	.049
43. I find (found) it easy to learn things.	Site 1	43	3.19	1.30	Equal variances assumed	.16	.70	-2.27	86	-.592		
	Site 2	45	3.78	1.15	Equal variances not assumed				83.64		.03	.052

1. $p < .05$
2. All figures have been rounded.
3. Likert scale responses: 1. Not at all true; 2. Not true; 3. Somewhat true; 4. True; 5. Very true

Significant differences in Part B of the surveys which contained the internal factors between the two sites were found in 5 items which covered four factors that either impeded or facilitated the academic achievement of the students. These were Personal Goals (Item 14), Perceived Parents or Guardians Goals (Items 27), Self-Regulation (Item 37, 41) and Self- Efficacy (Item 43).

4.5.1.1 Personal Performance Goals

The result of the independent samples t-test indicated that there was a significant difference between the mean scores of participants at the two research sites on item 14. Item 14 related to the personal performance goals which specifically focused on performing better than other students. The independent t-test indicated there was a significant difference between the means for Site 1 at $\chi=4.00$, $SD=1.31$ and Site 2 at $\chi=4.76$, $SD=.57$, $t(56.83)=-3.48$, and $p=.00$.

4.5.1.2 Perceived Parents and/or Guardian Goals

The results of the independent samples t-test also indicated a significant difference between the research sites in the mean scores on item 27. Item 27 related to the perceived parents and/or guardian goals specifically focusing on parents and/or guardians desire to see their children's work to be challenging. This indicates that parents and/or guardians were perceived as performance goal-oriented. The result of the independent t-test indicated a significant difference in the mean scores for Site 1 at $\chi=4.14$, $SD=1.22$ and Site 2 at $\chi=4.67$, $SD=.91$; $t(75.33)=-2.26$, and $p=.03$.

4.5.1.3 Self- Regulation

Two aspects of self-regulation were compared. The first was item 37: *Even if they take (took) up more time, I like(d) the subjects that make (made) me think deeply*. The results of the independent samples t-test showed a significant difference in the mean scores for research Site 1 and 2 on how self-regulated the participants perceived themselves. There

was a significant difference of $p=.04$ between the means for participants in Site 1 which was at $\chi=3.84$, $SD=1.34$ and Site 2 was at $\chi=4.36$, $SD=.91$; $t(73.34)=-2.11$.

The second was item 41: *When I have (had) difficulty solving a problem in a core subject, I enjoy (ed) trying different ways to identify the one that works(ed)*. Item 41 focused on a characteristic of self-regulation which relates to persistence. The results of the independent samples t-test indicated a significant difference of $p=.03$ between the mean scores of the two research sites. The means scores for Site 1 were at $\chi=3.74$, $SD=1.43$ and for Site 2 were at $\chi=4.36$, $SD=1.19$; $t(81.73)=-2.17$.

4.5.1.4 Self-Efficacy Beliefs

The results of the independent samples t-test also indicated a significant difference between the research sites in the mean scores on item 43. Item 43 was *“I find(found) it easy to learn things”* and it related to self-efficacy beliefs. An independent samples t-test indicated a significant difference of $p=.03$ in the means for Site 1 which was at $\chi=3.19$, $SD=1.30$ and Site 2 at $\chi=3.78$, $SD=1.15$; $t(83.64)=-.592$.

4.5.2 Independent Samples T-Test on Part C of the Surveys

Table 4.10 presents the summary of the results of the Independent Samples T-Test for Part C of the Survey questionnaire which contained variables that measured factors that were considered as situational or external to the control of participants in influencing their academic achievement. The findings of the t-test showed significant mean differences in five areas comprising: Gender Inclusivity (Item 53), Availability of Resources- Teachers (Item 59), Curriculum (Item 62), School Size (Items 65, 66) and the School Emotional Environment (Item 67).

Table 4.10: Independent Samples T-test for Part C of the Surveys for Sites 1 and 2

Source	Group Statistics				Levene's Test for Equality of Variances			T-test for Equality if Means				Eta-Squared
	Research Site	N	Mean	SD		F	p	t	df	Mean diff	p (2-tailed)	
53. I had both male and female teachers teaching me.	Site 1	43	4.88	.45	Equal variances assumed	20.14	.00		86			.05
	Site 2	45	4.47	1.25	Equal variances not assumed			2.10	55.49	.42	.04	
59. My core subjects were well resourced with teachers	Site 1	43	3.42	1.37	Equal variances assumed	3.70	.06	-2.09	86			.048
	Site 2	45	3.96	1.02	Equal variances not assumed				77.68	-.54	.04	
62. The school offered a wide range of curriculum for me to choose what I thought	Site 1	43	2.91	1.54	Equal variances assumed	.00	.98	-2.49	86			.07
	Site 2	45	3.71	1.49	Equal variances not assumed				85.44	-.80	.02	

would prepare me for the future.												
65. My school was very large	Site 1	43	4.26	1.22	Equal variances assumed	3.12	.08	2.06	86			
	Site 2	45	3.67	1.45	Equal variances not assumed				84.67	.59	.04	.05
66. It was easy to get to know other students in my school	Site 1	43	3.12	1.48	Equal variances assumed	.23	.64	-2.21	86			
	Site 2	45	3.80	1.42	Equal variances not assumed				85.36	-.68	.03	.05
67. My school made me feel a valuable member of the school.	Site 1	43	3.51	1.56	Equal variances assumed	25.03	.00		86			
	Site 2	45	4.44	.84	Equal variances not assumed			-3.46	63.76	-.93	.00	.12

1. $p < .05$

2. All figures have been rounded.

3. Likert scale responses: 1. Not at all true; 2. Not true; 3. Somewhat true; 4. True; 5. Very true

Significant differences in Part C of the surveys which contained the external factors were found on 5 items which covered four areas that either impeded or facilitated the academic achievement of the students. These were gender inclusivity (item 53), availability of teachers (item 59), availability of resources-range of curriculum subjects (item 62), school size (item 65), school size-opportunity to develop social networks (item 66), and the school emotional environment (item 67).

4.5.2.1 Gender Inclusivity

The results of an independent samples t-test indicated a significant difference between the research sites in the mean scores on item 53. Item 53 was: *“I had both male and female teaches teaching me”* and it related to gender balance between male and female teachers of participants at the two research sites. The result of an independent samples t-test indicated. a significant difference of $p=.04$ between the two sites and the mean for Site 1 at $\chi=4.88$, $SD=.45$ and Site 2 at $\chi=4.47$, $SD=1.25$); $t(55.49)=2.10$.

4.5.2.2 Availability of Teachers

The results of an independent samples t-test indicated a significant difference between the research sites in the mean scores on item 59. Item 59 was *“My core subjects were well resourced with teachers”* and focused on teachers as resources. The availability of teachers as resources in school influences academic achievement of teachers. An independent samples t-test indicated a significant difference of $p=.04$ between the two sites and the mean scores for Site 1 was at $\chi=3.42$, $SD=1.37$ and Site 2 was at $\chi=3.96$, $SD=1.02$); $t(77.68)=-2.09$.

4.5.2.3 Availability of Resources-Range of Curriculum Subjects

The results of an independent samples t-test also indicated a significant difference between the research sites on item 62. Item 62 was: *“The school offered a wide range of curriculum subjects for me to choose what I thought would prepare me for the future”* and focused on the availability of curriculum resources for effective

preparation for life. The results indicated a significant difference of $p=.02$ between the two sites and the mean scores for Site 1 was $\chi=2.91$, $SD=1.54$ and Site 2 was $\chi=3.71$, $SD=1.49$; $t(85.44)=.80$.

4.5.2.4 School Size

The results of an independent samples t-test indicated a significant difference between the research sites on item 65 and 66. Item 65 was: “*My school was very large*” and focused on the size of the school. The results indicated a significant difference of $p=.04$ between the two sites and the mean scores for Site 1 was $\chi=4.26$, $SD=1.22$ and Site 2 was $\chi=3.67$, $SD=1.45$; $t(84.67)=.59$.

Item 66 was: “*It was easier to get to know other students in my school*” and related to the ability of the students to develop peer relationships given the size of their schools. The results of an independent samples t-test indicated a significant difference with $p=.03$ at the two research sites and the mean scores for Site 1 was $\chi=3.12$, $SD=1.48$ and Site 2 was $\chi=3.80$, $SD=1.42$; $t(85.36)=-.68$. This indicates that there was a difference in the perception of the participants about their ability to get to know other students.

4.5.2.5 The School Emotional Environment

Item 67 was: “*My school made me feel a valuable member of the school*” focused on the participants’ perception of their school emotional environment. The result of an independent samples t-test indicated a significant difference of $p=.00$ between the two research sites. The mean scores for Site 1 was $\chi=3.51$, $SD=1.56$ and Site 2 was $\chi=4.44$, $SD=.84$; $t(63.76)=-.93$. This indicated a strong difference between the perception of the participants at the two site relating to their school emotional environment.

4.6 Summary

This chapter presented the findings of the descriptive data analyses, factor analyses, one-way ANOVA test of differences between the three groups, and the Independent Samples T-Tests for differences between the two research sites.

The descriptive data analysis conducted on the demographic information for Grade 8 SLs indicates that the majority of participants rated their academic performance in the Grade 8 examinations as average and above in English and Social Science and Science. However, some students rated themselves as having performed poorly in Mathematics and Science. With low academic performance, some students could not progress to secondary school. Others who were selected to continue could not take up the offer as a result of other factors.

A similar pattern in subject ratings was found at both research sites. The majority of Grade 9-10 SLs rated their subject achievement as above average across all subjects at both research sites. This suggests that other non-academic factors contributed to them not completing or progressing onto higher secondary school grades. A significant number of Grade 9-10 SLs also could not continue onto Grade 11 owing to low academic achievement.

The majority of Grade 12 students reported attaining a “C” grade and better across all subjects they studied in Grade 11 semester 2. In semester 1 of Grade 12, a significant improvement in subject grades from Grade 11 to Grade 12 was found. These were particularly evident in the subjects that were traditionally dominated by male students and taught by male teachers such as Mathematics A (advanced), Physics and History. Generally, the Grade 12 students in Site 1 reported performing slightly better than students in Site 2.

The findings also show that the majority of Grade 8 SLs were taught by female teachers in all subjects except in Mathematics and the majority of Grade 9-10 SLs were taught by female teachers in English and male teachers in Mathematics and Science at both sites. Teaching of Social Science at both sites was almost equally shared between male and female teachers. The majority of Grade 12 students at both sites were taught by male teachers in the traditionally male dominated subjects of

Mathematics A, Physics and History compared to all other subjects which were taught by female teachers.

The results of the data analysis also showed an increasing level of student support and awareness of support services as participants progressed through school. This support was important for students who needed to deal with personal and academic concerns that were impacting on their progress in school.

The study also showed that Grade 8 SLs commuted daily to and from school whilst most of Grade 9-10 SLs and Grade 12 students resided in the boarding facilities provided by their schools. Having said this, a significant number of students also reported residing at home.

The socio-economic status of parents and/or guardians as indicated by their level of education and employment status were found to be linked to their daughters' success in school. Students who came from families whose parents and/or guardians were educated and employed had a higher socio-economic status compared to students whose parents were less educated and unemployed. Parents and/or guardians who were educated and were employed had the financial capacity to provide educational and material support such as books and computers. They also had the capacity to provide academic support at home and to be role models, hence, helping to promote educational success for their children. By contrast, some of the students whose parents were less educated and were unemployed struggled in school. They could not complete or continue secondary schooling as their parents could not afford to pay the school fees. Hence, most of the parents and/or guardians of Grades 8, 9 and 10 SLs at both sites had lower levels of education and were unemployed in the formal employment sector. By contrast, the majority of Grade 12 students had parents and/or guardians who were better educated and were employed in the formal employment sector. Additionally, parents and/or guardians in Site 1 were found to have slightly better educational levels than parents and/or guardians in Site 2.

As the survey contained 67 items, a factor analysis was conducted to condense the items to key sets of factors that impacted on the academic achievement of the participants. The results of the factor analysis on Part B show that the academic achievement of the participants across all three groups was influenced by the

nature of goals they pursued, the goals they perceived to have been promoted by their parents, their ability to self-regulate, and their beliefs about their capabilities or self-efficacy. The results of the factor analysis on Part C indicates that the academic achievement of the participants in all three groups was also influenced by a range of external factors comprising the school psychological and emotional environment, school and class size, gender inclusivity, safety, availability of and access to curriculum resources, the availability of teachers, parental support, school routine and religious faith.

The survey was also subjected to one-way ANOVA tests to identify if there were significant differences in the scores between the three groups on both the internal and external factors that influenced the academic achievement of SLs and Grade 12 students. The results of the one-way ANOVA test which was conducted on Part B and C of the survey indicated that Group A and C differed significantly in their attributions for academic achievement in most areas that were perceived to influence academic achievement. Some differences were also found between Group B and C.

T-tests were conducted to compare the differences in the perceptions of the the participants at the two sites relating to inherent and external factors. The results of these tests indicate that there were significant differences in the inherent factors between the participants at the two sites in relation to the nature of goals they pursued, the nature of goals they perceived their parents to promote, perception of their levels of self-regulation and self-efficacy beliefs. Participants at the two sites also differed significantly in their perception of the extent to which their school and teachers practised gender inclusivity, availability of resource, the accessibility of teachers and a range of curriculum provided by their schools.

CHAPTER FIVE: RESULTS OF THE INTERVIEWS AND FOCUS GROUPS

5.0 Overview of the Chapter

Chapter 5 presents the qualitative data from the interviews and focus groups. The results are presented in the following sections. **Section 5.1** Introduction; **Section 5.2** Interview Findings; **Section 5.3** Focus Group Findings; and **Section 5.4** is the Summary of the chapter.

5.1 Introduction

A total of 42 participants were involved in the interviews and focus groups. In this chapter, participants are identified by pseudonyms representing female names to protect their identities.

Participants in Groups A and B interviews and focus group responded to four items. The first item asked participants to introduce themselves to the interviewer or their groups for identification purposes. The second item contained four variations in its root to accommodate participants with different levels of school experience (refer Tables 5.1-5.2 for details). The item sought from participants information about factors that had either impeded their access to, or completion of secondary education. The third and fourth items were extensions of the second item and attempted to collect data about (1) home and school support, and (2) safety issues in school or between home and school. The researcher specifically asked about their parental and teacher support and safety as these two factors were believed to have significant influence on academic achievement of female students. Safety of female students has been highlighted as an important issue confronting school girls in PNG and was included for this reason. Interview and focus group protocols were translated to Tok Pisin for non-English speakers (see Appendix B). All items are shown in Table 5.1.

Table 5.1: Interview and Focus Group Interview Protocol for Groups A and B

Item 1. Please introduce yourself to me (us) by telling me (us)

- a. Your name*
- b. Where you are from*
- c. The grade you completed or the last grade you were in before leaving school and*
- d. The year you completed or left school.*

Item 2. You did grade 8 but did not undertake the examinations...

OR

You sat the Grade 8 examinations and were either selected or not selected to undertake secondary education...

OR

You were selected, went onto high school but dropped out of school without completing grade 9 or 10...

OR

You sat the grade 10 examination but were either selected or not selected to continue to grade 11...

...what problems did you encounter that affected your learning and in turn, your academic achievement? Please explain. (When you say "...", what do you mean?)

Item 3. As a female student how much support did you receive at school and home?

School _____ Home _____

Why? When you say " _____ " what do you mean?

Item 4. Describe how you felt in terms of your safety between home and school and in school? Why?

Participants in Groups C, in both interviews and focus groups, also responded to four items, all of which were similar to items in the interview protocols for Groups A and B except for Item 2 and the difference in the voice. Item 2 in the Group C interview and focus group protocols asked the participants about what facilitated their learning

and academic success. These items are shown in Table 5.2.

Table 5.2: Interview and Focus Group Protocol for Groups C

Item 1. Please, introduce yourself (yourselves) by telling me (us) clearly:

a. Your name _____

b. Your place of origin _____

Item 2. You are amongst the most successful of your cohort of female students our school system has ever produced. What is it that has facilitated your learning and your achievement in school? What enabled you to come this far in your education?

Item 3. As a female student how much support did you receive at school and home?

School _____ Home _____

Why? When you say “ _____ ” what do you mean?

Item 4. Describe how you felt in terms of your safety between home and school and in school? Why?

The results of the interviews and focus groups are presented separately for the Grade 8, 9 and 10 school leavers as impediments to academic achievement and Grade 12 students as incitements for academic achievement.

5.2 The Interviews and Focus Groups with School Leaver Groups

The analysis of the interviews and focus groups for school leaver groups commenced with the transcribing and, in some instances, translating of all recorded interviews and focus group discussion. The transcribed and translated discourses were entered into NVivo Version 8.0 for coding into major themes and sub-themes that emerged consistently throughout the sessions. As the purpose was not to quantify the themes, thematic coding was used only to assist with the deposit of extracts from each interview into each theme or sub-theme so that at the end, a summary of containing participants and what they said was generated. This was important for the purpose of using excerpts of participants' discourses in the report. As a result of this process, major themes about impediments to access, completion and academic performance were identified for all school leaver groups. Major incitements for academic achievement of Grade 12 students were also identified through this process. The results of the interviews and focus groups are presented separately by groups in the following sub-sections.

5.2.1 Key Findings of Interviews with Group A

Group A comprised 2 participants, Ato and Golagaku'e, both from Site 1, who did not access secondary education as a result of non-completion of Grade 8 studies and three participants, Moreni, Mwawasa and Nagi, all from Site 2, who all completed Grade 8 but could not access Grade 9. Although the analysis of data from the interviews revealed that the majority of participants reported much support from their parents towards their education, three major factors emerged as impediments to completing Grade 8 and/or access to secondary education. These were academic under-performance, difficulty with payment of school fees and safety issues.

5.2.1.1 Academic Under-Performance Performance

As the progression onto the next level of schooling is performance-based, poor performance was revealed as one of the reasons for not accessing secondary education. Nagi, a participant from Site 2, did not perform at or above the benchmark for selection to undertake secondary education. She reported: “... *I was selected to vocational school...They selected me to go to vocational school but my parents stopped me not to go because of no school fee...*” Nagi was instead provided an opportunity to undertake a vocational education at a vocational school. Even then she couldn’t take advantage of the opportunity owing to the inability to pay the school fees.

5.2.1.2 Difficulty with Payment of School Fees

Three participants, Ato, Moreni and Mwawasa from Group A reported either performing well in school and/or making it through the selection process. However, they could not complete Grade 8 or access secondary education owing to problems with the payment of school fees. Ato from Site 1, who could not complete Grade 8 reported: “*I wanted to do my Grade 9 and there was no school fee...and when I saw that my family, like, we are a poor family and they couldn’t pay my school fee, I left. That was it...*”. Ato reported that her parents’ capacity to pay school fees became a problem for her as she had aging parents who could not harvest their cash crop to raise the money needed for her school fees. Moreni, from Site 2 who was selected to undertake secondary studies stated “*.... I finished Grade 8 and trying to go,... to do Grade 9 at K but no school fee...I just stayed back at home*”. Mwawasa, also from Site 2, was selected to undertake secondary studies. She reported: “*...and I was selected to go to high school but in, what,..., in school fee problems so I stayed home. I was supposed to go to W to do Grade 9*”.

5.2.1.3 Safety Issues

The threat to personal safety was an impeding factor to completion of education. In this study, the threat to the safety of the participants and teachers arose from election-related violence. Consequently, this resulted in non-completion of Grade 8.

Golagaku'e, a participant in Site 1 explained,

We were still in school and time for voting and counting came. Soon after the counting a fight broke out. Our current member, B, won and our people and B's people fought. They fought and our people who were the supporters of the other candidate... were stopped from going to school. Every time we went to school they beat us. It started when they beat us and chased us out of the classrooms...And the teachers too were bashed and stopped them from teaching. They were told to leave.

Threats from criminals to and from school and within school were also mentioned by participants from both research sites as an impediment to learning. Threat to personal safety was a major issue for girls who had to walk long distances to and from school. If the situation on the road was assessed to be unsafe and/or if there was no male relative to accompany them, they missed out on classes, sometimes for prolonged periods. Thus, this affected their learning. This had a negative impact on Ato who reported:

"... Over there, our village was very far and we used to walk down... and sometimes rascals⁷ would hold us up on the way... and that's why sometimes we would walk down with boys, if not we didn't bother... and stayed at school".

Moreni from Site 2 also reported:

Sometimes it's not really safe, like, school is a long way...Yea, like, (clears throat) prisoners they used to keep them here in Y, when they escape they used to come to F island... OK, one time we were staying, it was a break and enter at M and they said...That's why sometimes it's not safe. When we used to hear those news from our teachers, like especially we were girls, we are not, like confident to walk by ourselves.

⁷ In the PNG context, the term "rascals" refers to criminal gangsters.

5.2.2 Key Findings of Interviews with Participants in Group B

Group B comprised 2 participants, Saiyato from Site 1 and Sine from Site 2 who did not complete the lower secondary education and 4 participants, Aiyo, Ipisa, from Site 1, Toki, and Tova from Site 2 who completed Grade 10 but could not access Grade 11. Six factors emerged as a hindrance to the completion of secondary school. These were personal factors, difficulties in paying school fees, problematic family situations, teacher-related issues, lack of basic school and community infrastructure and the threat to personal safety.

5.2.2.1 Personal Factors

Personal factors such as negative attitude toward school, peer pressure and boy-girl relationships were cited as impediments to completing secondary education. These were reported to have impacted on their focus and commitment to studies, management of study time and in turn, academic achievement. Aiyo from Site 1 admitted that her commitment to study and time management suffered because of peer group pressure. She reported: *“Many times peer pressure, or our friends ask us to go out...”*. Toki from Site 2 reported performing poorly owing to her poor attitude towards school. She admitted to frequent truancy and peer pressure which in turn, negatively impacted on learning and performance. She reported:

All the problems that affected my studies or for me to continue onto Grade 11 are because of my attitude in school like, I was too much of running away from school. Influenced by my friends, that. I sometimes missed out special lessons like my science and maths lessons.

Boy-girl relationships were also reported as a hindrance to a female student's academic performance. Toki continued: *“Whatever problems I faced, like one other problem is like, I was making friends...I was involved in boy-girl relationship that's why she (mother) didn't want me to be a boarder”*. Aiyo from Site 1 reported: *“I've seen so many girls who, when in relationship with boys...lose focus on their studies*

and end up failing some of their subjects or courses... which they are capable of passing”.

5.2.2.2 Difficulties with Payment of School Fees

Problems with payment of school fees were one of the key factors to which the participants in Group B at both sites attributed their non-completion of or poor academic achievement in secondary school. Sine, from Site 2 who could not complete Grade 10 reported, “..., *I finished 9 but 10, I didn’t sit for my exam ..., and then no school fee and I stayed at home*”. She also reported that her parents could not support her education as she had a number of siblings who were also in school.

Uncertainties about and constant anxieties over payment of school fees in addition to other issues was also reported as a major cause of poor academic achievement by Tova from Site 2. She reported:

..., from school side that’s the second problem...my parents couldn’t help me from ..., pocket money...school fee...and the teachers sent me back, ..., second term. When I was doing my Grade 10...teacher sent me back to get the full amount of the school fee ... Then from there I, we sat for our exam, Grade 10... and then I couldn’t, I failed my Maths... my Social Science...my Science and I passed my English.

5.2.2.3 Problematic Family Situations

In the focus group interview, two participants from Site 2 attributed family issues as contributing to them performing poorly in their examinations. Family issues that were reported related to the death of a parent, a search for paternity identity and domestic violence. Tova from Site 2 reported:

The problem that affected my school when I was in Grade 9 and 10, my father was very, I mean, he got a very big sick and from, he was sleeping in the hospital for seven years at Y hospital...And then from there they couldn’t, the doctors couldn’t help him and they sent him back to the village and that was ..., he stayed with us for two years, 2004 and 2005,

and he passed away in 2005. And the problem affected me and I could not concentrate in my studies...

Toki, also from Site 2 commented on her search to find her true identity, specifically, the identity of her biological father. She also reported about the constant violence in her home. This affected her general attitude and contributed to a cycle of problems she encountered as a student, and which affected her academic achievement. She stated:

And because my mummy did not tell me who my father was I didn't take my school, school work seriously and I just had to play up in the school and that's why I had to come out in, I mean dropped out in Grade 10... My father... he only made my mummy pregnant and then he left her...and when I asked her who my father was she didn't want to tell me. She waited, she told me she was gonna, I mean, if I finished she would tell me who my father was but she didn't tell me...That's why I had to just give up from school.

5.2.2.4 Teacher-related Issues

Participants at both research sites expressed dissatisfaction at the unprofessional behaviour of some of their teachers. Unethical conduct by some of their teachers in secondary schools was reported to be in the form of lack of commitment to teaching, frequent and prolonged absences from classes, engagement in private business when they should have been teaching, seeking sexual favours from female students in school and sending students out of classrooms for non-completion of homework. Lack of commitment by some teachers to their profession and frequent absenteeism from classes was reported as a major concern by participants from Site 1. In reporting the lack of commitment and prolonged absenteeism, Aiyo from Site 1 said:

...The teachers, uuh, many of them were not honest...They used to come to town, did nothing when they were supposed to take us for class, but they would make excuses and come to town... So many teachers are not honest in conducting classes. They load us with homework without explaining them well to us...they would just leave them and go and

that's been one cause of failure... So that has been one thing, the teachers, failure of teachers... and it hasn't helped us to do well in our studies... because of that.

Ipisa, from Site 1 who attended a remote school reported:

Once in a while when they want to get their fortnightly salaries they walk all the way to somewhere at K ... There they get on the truck and come to X town. So when they come, they don't return to the school quickly...When they come here, they stay for something like one or two weeks before they return... We miss classes most times.

Ipisa also reported the intimidation and shame resulting from some male teachers asking girls for sexual favours or making sexual advances. The shame she experienced and her fear of teachers made it difficult for her to seek academic assistance from her teachers. She reported:

And a lot of times teachers ask for favours (sexual) from their students...us their students. So when we have problems in the lessons they teach us in...we feel ashamed to ask them any question...let alone ask for their assistance... It's hard for us to face them because all the teachers that go there want to have relationships with our girls and ask for sexual favours like that so we feel ashamed to seek advise from them or that we need their assistance...Because of this a lot of us drop out and don't continue.

5.2.2.5 Lack of Basic School and Community Infrastructure

Lack of basic school infrastructure such as electricity and a library and community infrastructure such as roads and bridges can make it difficult for some students to perform to their best in a school. Ipisa reported:

OK. There at ... the road is impassable. The teachers don't really go there...And we often run out of food because of the road...When there's no road, they send us home week-end after week-end and we don't settle down properly for study... And there's no power supply too so there's

no night study. We only do our study during the day...All these things made it so I didn't continue onto Grade 11.

5.2.2.6 Safety Issues

A threat to personal safety was reported as a factor that resulted in non-completion of secondary schooling only in Site 1. Saiyato from Site 1 reported that she left school for safety reasons arising from election-related violence. She stated:

...they forced us to vote and armed themselves with bows and arrows and blocked the road. They armed themselves with bush knives and axes when the ambulance went in and rescued us undercover...They destroyed the dormitory and all of us girls, ran away and stayed in the village and that was it, I stayed for good.

5.2.3 Findings from Group A and B Focus Groups

Two school leaver focus groups were established, one from each research site. Owing to the small sample sizes, the groups were combined and designated Focus Group A and B (Site 1) and Focus Group A and B (Site 2). The focus Groups A and B from Site 1 consisted of Bepito, Kunaso, Seiyo, Lagasopa, G'lakosa, and Saina, and from Site 2, Maso'li, Manasew, Toa'riku, Kurada and Sinedou

The participants in Focus Group A and B were asked about the factors that had either prevented their completion of Grade 8 and/or progression to other secondary school grades. These are reported here separately as (1) impediments to participants' completion of school grades and (2) impediments to continuing secondary school enrolment.

The analysis of focus group data revealed two key factors that hindered the completion of Grade 8 school leavers and a number of others that impeded continued enrolment in secondary school. These comprised psychological and emotional factors, personal factors such as lack of personal commitment to study, poor time management and peer pressure.

5.2.3.1 The Psychological and Emotional Distress.

Some participants disclosed having encountered situations whilst in school which were both psychologically and emotionally distressing for them. These impacted on their learning in school. The situations related to family issues such as the divorce or separation of parents, adopted children trying to find their paternal or maternal identities, complex family backgrounds, the threat to personal safety and unethical behaviour of teachers. Emotional and psychological distress became evident in a range of behaviours such as truancy, procrastination, lack of personal commitment to study, lack of focus on school tasks, poor management of study time and some easily succumbed to peer group pressure. The final outcome of these was under-performance in school. Several school leavers expressed how difficult situations they had encountered whilst in school impacted on them psychologically and emotionally and subsequently resulting in them not completing their schooling. Two participants in Group A who were affected psychologically and emotionally either by situations within their family or traumatic events were Kunaso from Site 1 and Maso'li from Site 2. Kunaso, from Group A could not continue her Grade 8 schooling as a result of one of her teachers being murdered by a criminal gang. Although she repeated Grade 8 the following year her results were poor. Kunaso added to her fellow interviewees' comments:

...In terms of criminal activities, it's worse down there...It was difficult to transfer to and from so I just stayed there. And from 6, 7, till 8 criminal activities were on the rise. Then in Term 4, just before we sat the exams, they murdered one of our teachers down there... So I left and came up here so I didn't do the exam. So I repeated in 2004 and sat the exam and here I am...

Maso'li from Group B in Site 2 was selected and enrolled in Grade 9 studies but could not complete the grade. As an opening contributor to the focus group meeting in Site 2 she said this in her reflection on not completing Grade 9:

The problem that I faced in school was that my dad left me with my mummy when I was in.....my mummy's womb (sobbing)..... My mum

brought me up with my uncle (sobbing)..... I stayed with my mumI stayed with my mum with the help of my uncle.....up until when I was in Grade 6....., my mum's uncle took me away to take care of me. I was with my mum's uncle, I did my Grade7, 8. I was in Grade 9 but then with my mum's uncle used to stop me from seeing my mum. And that used to make me...down, get worries in me and then I was in Grade 9 my dad decided to write to me. And from there I decide to leave my school and I came over looking for my dad and now I am here with my dad...That's the problem I used to face...Yea. It affected my studies and I didn't have, like I didn't have interest in schooling.

Similarly Seyio, a participant from Site 1 was an adopted child and she added to the discussion in an emotional disclosure:

... (Pause) Yea, with me its like this ... (tears whilst talking). This is how I spoiled my education, when I was in school I did well but one problem that affected my studies was a family problem.

When you, like the other sister said, when you live with your own parents you are free to talk to them about your problems in school, whatever you need, or bus fare or whatever. The small things, you know we girls need all kinds of small things, too.

As for me I was adopted and for a long time I never knew that I was living with my adopted parents. So whenever I talked to them about some things I needed in school, they used to tell me, they used to tell me, "We don't have it...". So this is one problem that developed in me and affected my education. So through all these I knew that I spoiled my education.

... So sometimes I kept problems to myself. And those that I felt they were going to listen to, I told them... And the problems I felt, they were not going to help me with I never shared with them. I used to keep them to myself and they became a problem or bothered me in school and became a pain in my head... And this is how I spoiled my education.

Toa'riku from a SLs focus group in Site 2 shared with her group that she was from a polygamous family and none of her father's three wives was her mother. In her emotional disclosure she explained:

... my father got married to three ladies. So the first wife she has four children, the second wife... she has three children, the third wife, she doesn't have any children from him. ... I was... different from all of them because none of them was my mother and... I didn't... I thought that they were ... I thought like they were my real brothers and sisters but they weren't ... I had a different mother and I've never ... (clears throat), never seen her ... they never told me that I was ... different from them... until ...may be when I was... 11 or 12... I haven't seen her and ...(clears throat), sorry (breathes), and when it comes... (pause)... (clears throat & tears)... to Mothers Day (pause)...(in tears) sorry... I usually... think of her...(in tears) ...

And ... this is ... I think the main... thing that ... made it and ... I used to have problems in school. I don't attend lessons and stuff like that... I skip it and ... I don't go for school ... for one whole day or may be one week I don't go for ...classes and stuff like that 'cause it used to really ... disturb me and I felt ... I was just ... useless ... there was no ... meaning for ... me being in school and stuff like that.

...So ... yea,... that's ... the whole reason why I never attended lessons and ... I used to skip. ... my friends come and tell me, "Oh, we skip lessons, we go to town" ... I usually say "Oh, OK. Yea, we go"... , because... I, I was really disturbed and ... I thought that ... it was just a waste of time me being in school cause ... even though ... I get good marks and stuff like that, ... I didn't take things seriously at school...

5.2.3.2 Lack of Commitment to Study and Poor Time Management

Four participants admitted to having had no commitment to study and lacked the ability to manage their study time. As discussed in the previous section their lack of commitment to study and poor time management was often in reaction to some unresolved issues they had encountered such as the family issues. Lagasopa, from Group B at Site 1 was one typical example of a student who came from a broken family and her father remarried. As an opening speaker she said:

Sometimes I spent so much time playing and I don't spend enough time on my school work. I just play around and doing other things and don't spend time on study. As a result of these I didn't do well in my studies and I'm here. So..., ... I roamed around and get too tired to do my studies, or don't complete my school work, homework or stuff like that. I always thought that... in the morning I'll go back and do them in the classroom...

In the same focus group Saina, who came from a stable home, continued from Lagasopa:

I am someone who loved sports in school. I never thought much about my school work that's why I never put study as my priority. I used to get too involved in sports. Whatever sport, whichever school hosted sports, I was always present I used to do that and never bothered about my studies. By the time I got home I was too tired to and would head straight for bed and sleep. Only in the last minute when we were in class I would rush, rush... That's why I never got good marks and I never continued...

5.2.3.3 Difficulties in Payment of School Fees

As expressed by other participants in the one-on-one interviews, inability of parents to pay school fees was a factor to which one participant, Bepito, in Group A at Site 1 attributed her non-completion of school. Bepito continued the discussion by explaining:

As for me, last year I did my Grade 8. I would have completed but I paid half and the other half was still outstanding. And they said “you people come with school fee” that’s why I stayed back. We then paid half and just imagine, my daddy is not a good man...So I left school and got myself a transfer card...

5.2.3.4 Peer Group Pressure

Two participants from Group B at Site 2 admitted to having performed poorly in their studies having succumbed to peer pressure whilst in school. Of these two, one came from a traditional two parent family whilst the other came from a step family. Peer pressure led to drugs and alcohol use, truancy and subsequent lack of commitment to study. Toa’riku added to the discussion on the influence of peers “... I don’t attend lessons and stuff like that. Like, my friends come and tell me, “Oh, we skip lessons, we go to town”, like I usually say, “Oh, OK. Yea, we go..”

Sinedou continued the discussion by explaining how she was easily influenced by senior peers in school to use drugs and alcohol and could not commit to study. She added:

...my sister went first and her friends had to teach her all that stuff. And when I went she said, “Here, come on, lets...” and then she’ll take us to her room and she’ll say, “...all our friends are sleeping, let’s smoke”...All those times like, I take them as going around, when boys say, “Hey, we go outside and we and smoke” or “go and drink”, I just follow and go...to me it was really nice I really enjoyed myself at high school...and I didn’t realise that that, like, it really affected my learning. Cause every time when there’s homework or assignment I don’t worry about them.

5.2.3.5 Teacher-Related Issues

Four of the nine participants in Group B focus groups at both sites highlighted teachers as causal factors for their poor performance. Teacher-related issues included lack of commitment by teachers as evident in their regular absences from class, teachers who lacked understanding of student learning needs and unethical

behaviour of teachers. Absenteeism, lack of commitment and unprofessional behaviour were a major issue at Site 1. Five participants, Seiyo, Lagasopa, Saina, Bepito and Saiyato who attended different schools in Site 1 reflected on the lack of teacher commitment, absenteeism from class and unprofessional behaviour. Seiyo reported:

When I was there I saw some teachers like that...who sometimes never bothered to attend their classes. And we had to wait and wait...until their periods were over, other teachers came in. So especially in the grade I was in, there was one of my teachers, a Maths teacher. He used to do that and my marks in Maths dropped drastically because the teacher was never faithful.

Lagasopa added by saying:

Yea, like Seyio has said, I too did grade 7 at XX and the same problem existed. The teachers, many of them were never faithful in attending classes and they used to...sometimes they used to come to get their pay in town and would take one to two weeks before they could return. Sometimes, it used to take two weeks, even longer than that. They'd stay in town and never thought of returning immediately to teach and this caused a lot of inconvenience for us, the students.

Saina continued from Seiyo and Lagasopa, also describing her teachers by saying:

...I was a bright student in school...primary school. They sent me to YY but it was too...Our teacher, maths teacher, was never faithful. He used to get on his vehicle, he operated a PMV (Public Motor Vehicle) and would drive it around. And he never explained what we were supposed to do. And when it was time for us to sit tests, he'd come around and give us topics and said, "you study, study, I said". So the bright students would do the test well. Some of us, we used to struggle because he never explained things properly. He only appeared to give tests.

Bepito added to the discussion by talking about how their teacher used to justify why

he used to turn up to teach his class in a drunken state.

...last year our Grade 8 teacher... He used to tell us, "I'll just bring one or two (bottles of beer) and come and teach you so that when you're big-headed I can..." he used to say. And truly he used to get drunk to come and teach us. We girls used to get scared of because he was a man...His behaviour was unacceptable to kids.

Saiyato also added to the discussion of their teachers by saying:

...sometimes our Grade 7 Science teacher used to be on and off class, especially...when it was time for him to take class, he used to give excuses saying that he was involved in something. So when it was his time to teach us he never attended classes.

At Site 2, similar discussion about the teacher-related issues also emerged. Unlike Site 1, only two students had something to say about their teachers. To'ariku and Manasew attributed their poor performance in Mathematics owing to another aspect of unethical behaviour of teachers. Both reported about their fear of their Mathematics teachers for contrasting reasons.

To'ariku reported to the group about her fear of her Mathematics teacher and how she was reluctant to seek academic support from her. She told the group:

Yea,...in Grade 9...I don't attend Maths lessons, cause... I never understood anything that the teacher used to say. And she was...really strict and...when she gave us homework and we didn't complete it...she'll tell us to get out of her class unless we do her homework. So,... most of the time I don't understand it,...I don't do my homework. So in Grade 9, for nearly the whole year I never attended Maths lessons. I used to copy from my friends and ... they used to do my assignments for me. I don't sit for tests ... she said, "if you don't do my homework or complete it, you are not allowed to come for my lesson" ...and when she came in...she'll... "what are you doing in my class? Get out! Get out!". So... we go out of the classroom, carry our book with us. I don't sit tests...and in Grade

10...when it came to sections I couldn't understand, so that's when I started skipping...

Manasew continued the discussion on the unethical behaviour of their teachers by presenting another aspect of teacher behaviour:

OK...As for me...in Grade 10, we had a teacher who was from... And he was a young teacher who wasn't married. He was still single. OK. You know, for me I used to get scared too, because once when I went into the office, I went to ask for a maths book. ... he was sitting on his chair and he was saying, "What do you want? And I said, "I want a maths book". And then he said, "OK. Here, here's the maths book". So... when I went forward to get it... he kind of pulled it back. And...what he did was ... it wasn't right. And... sometimes he kind of you know, winks or what and ... he's kind of stupid... So ... he's made me keep my distance in school ... that was another thing that made me not to go to him in Grade 10.

5.2.3.6 Family-Related Issues.

Some participants attributed their poor performance in Grade 8-10 to family-related issues. Five of the eleven participants reported a range of family-related problems such as divorce of parents, step-families, death of a parent, adoption and wanting to know who their biological fathers or mothers were, psychologically and emotionally unsettling for SLs. These issues impeded their academic achievement. Family-related issues had deep psychological and emotional impact on the participants. Extracts containing family related issues that had psychological and emotional impact are presented in section 5.3.2.1.1.

Additionally, the parents of Lagasopa from Site 1 divorced and her father later remarried. She reported on her difficulties relating to her step-mother:

As for me, my dad left my mother and we live with our step-mother. So this sometimes affected my studies when I was still in school. Sometimes, you know, if you live with your own parents you have the freedom to ask for whatever your needs or so (in tears while talking)...And when we live

with our step-mother it is sometimes difficult for us and we think of these and we don't concentrate in our studies, especially me, I do that...

Kurada, who was a Grade 10 SL continued from what To'ariku said by telling the group how her own parents' divorce affected her high school studies. She disclosed:

... when I was at...doing my Grade 10..., I have a broken family and I was adopted by my big sister. And all that time I was...I was ...disturbed from my lessons and I also had school fees problems...

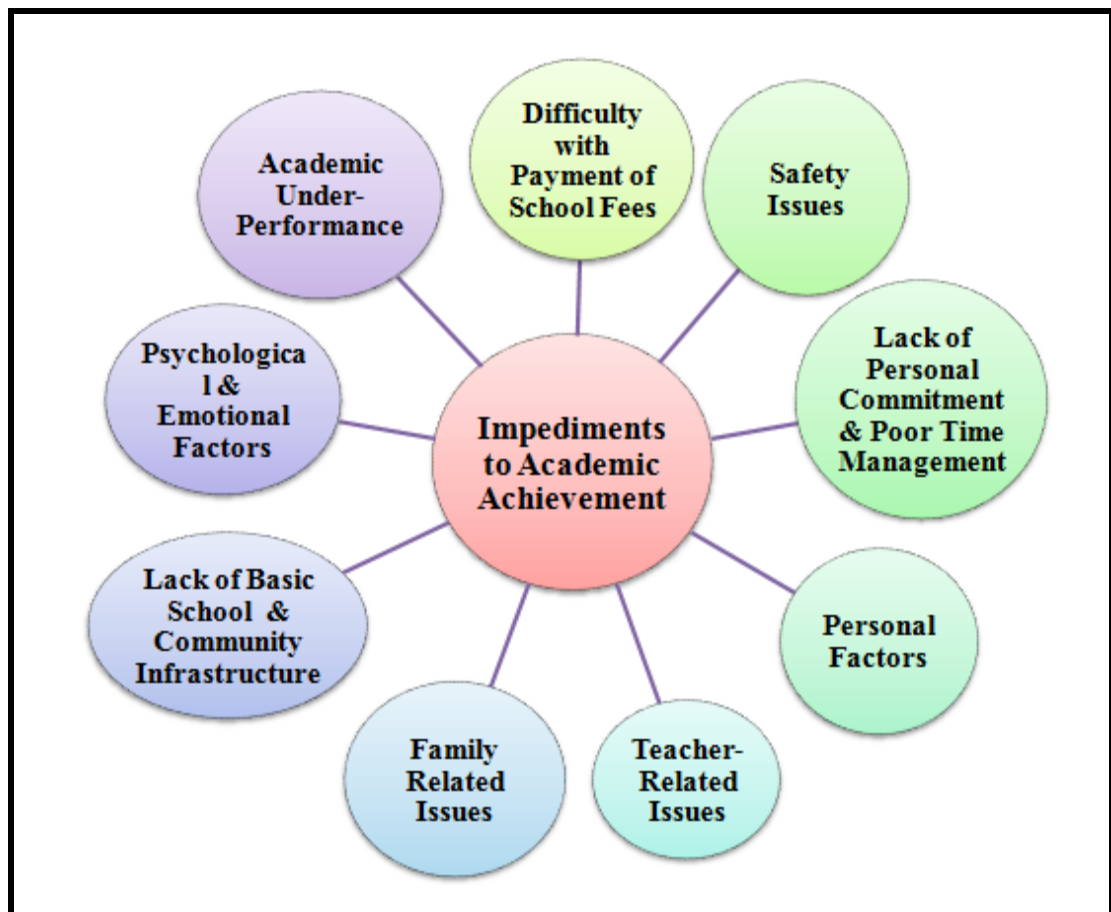
5.2.3.7 Safety Issues

Kurada from Site 2 explained her situation of a near rape as she was on her way to school which caused her much trauma. She told the group:

And then, cause my sister was..., she had an argument with her husband so I left her and I was sleeping at my uncle's... at the...mountain. OK, when I was walking down from the mountain towards the road I encountered ... two boys... One held a bush knife, a small bush knife and the other was... they were all in masks. And one came from the back, held me from the neck and then... because... in the village... I used to be very quiet and.. I don't associate myself with the boys, they reckoned that..., they called me virgin. So...from there, one of them came from my back.... my neck and the other just came in front and he said, "Oh, so you're the virgin, uuh? So... I quickly thought of some... quick thinking came into me and then I threw my leg and... I hit (laughs everyone) hit in the balls (laughs everyone). I kicked him in the balls (everyone laughs)...

Figure 5.1 summarises the findings from the Grade 8, 9 and 10 interviews and focus groups about the key impediments for their academic achievement.

Figure 5.1: Key Impediments From Grade 8, 9 and 10 School Leavers’ Interviews and Focus Groups.



5.3 The Interviews and Focus Groups with Grade 12 Students

The analysis of the interviews and focus groups for Grade 12 students followed a similar process to that of the school leavers. It commenced with the transcribing of all recorded interviews and focus groups. The transcribed and translated discourses were entered into NVivo Version 8.0 for coding into major themes and sub-themes that emerged consistently throughout the interviews. This process resulted in the identification of major themes about key incitements facilitating academic

achievement of Grade 12 students.

The results of the interviews and focus groups are presented separately in the following sub-sections.

5.3.1 Key Findings from Interviews with Grade 12 Students.

Group C participants were Grade 12 students from the two research sites. The students who participated in the interviews were Mere, Yato, Sogone, Waisali, Mele and Mina. They were the cream of their cohort having successfully undergone three selections during their schooling to end up in their final year of secondary school. Analysis of interviews with participants from both sites revealed a number of factors that had contributed positively to their academic success. These comprise nine key factors: personal aspirations, motivational goal orientations, beliefs, commitment to study, capacity to manage time, religious faith and spirituality, influence of good role models and school psychological and emotional environment.

5.3.1.1 Personal Aspirations

One's goal to achieve something in life is often the driving force or motivation for doing something. In interviews, participants described the need to achieve various goals they had, and how they had motivated them to strive for academic success. These goals related to their need for academic success, career goals, goals for their families or communities and goals for life are referred to here as personal aspirations.

Mere from Site 1 commented on her academic goal:

So I really want to set a standard so that they can come after me and then they see, they can either go above my standard and perform better than me or at least come to where I am. So... what I really want to see after my Grade 12 is... I want to set a standard for my brothers to and at least overtake me or come to where I am.

Yato, also from Site 1, talked about being driven by a career goal:

...the first goal is to become a lawyer... and if I cannot reach that goal the easiest I could do is... apply to technical college. After earning a Diploma, I could always go to university to take a degree and after the degree, ..., may be go back to... work... do some work and get my masters and PhD. That's the goal-to become a lawyer.

Waisali and Mina from Site 2 reported having social goals. Waisali said: “*Your parents are educated and...if you don't get this far ... they waste all their effort and money to do everything for you*”. Mina who reported being disowned by both her parents said, “*... And you know, since my parents are... since my mother is putting me down I want to show her something...that I can do in life...*”. Yato, from Site 1 also talked about having a similar goal:

... the main purpose of me achieving these goals, to come, or this far at least, to pay back to my cousin sister. ... she usually put me down and she said “she's not going to go to Grade 12 and even tertiary institution...”. That's the main purpose of proving her wrong.

5.3.1.2 Belief in Self

Three participants from Group C attributed their academic success to their strong belief in themselves and their capabilities to perform well in school and their resilience when confronted with challenging situations. Such faith in themselves and their capabilities was one of the key factors that gave them the determination to succeed in school. Sogone from Site 1 said: “*I... in everything I do, have faith in myself that I can do it... and I can do it better than other people*”. Yato, also from Site 1 said:

...I believe in myself. I've got faith in myself that I could do it and... I'll always do it. If I have ... I've got a low mark with... within a test I believe that the next test I could do it. And my faith and my belief could always be there.

5.3.1.3 Resilience and Determination to Succeed.

Determination to succeed in school despite difficulties encountered throughout their schooling was a feature of the commitment of four participants in Group C. Difficulties included the death of a parent, poor performance in school by older siblings or cousins, degrading comments from relatives, family socio-economic backgrounds and rejection by parents. These situations developed in them the resilience and determination to succeed in the face of adversity.

In Site 1, Yato who felt degraded by her cousin sister's comments about her said:

...After hearing that, I became angry and said "I'm gonna work hard and I'm gonna prove her wrong"...and I started in Grade 8 till Grade 10 and right now I'm up all the way to 12 and I've proved her wrong...That's the main purpose, of proving her wrong.

Mina from Site 2 said, "...even though she puts me down I'll show her that I can do it..." Mwesi, also from Site 2 showed her resilience when confronted with challenges and her pursuit of a strong faith and hope to succeed.

But at times when I'm overwhelmed by worries..., I see them as stepping stone, all the situation, situations that I'm going through and I try to build my... faith or have high hope...that I will be some body else even though the situations that I've go through are tough.

Waisali from Site 2 who had lost one of her parents said:

Just determination really, to become someone... Your parents are educated and ... you don't get this far, it's like they waste all their effort and money to do everything for you...You have to struggle...that's what kept me here, really...in trying...

Sogone from Site 1 had witnessed her older siblings doing poorly in school or getting pregnant whilst in college. She reported that she didn't want to be like them and was determined to do better than them.

...I guess one things that made me come this far is because... in our family we have lots girls and all of the girls in my family they didn't complete their school...they dropped out in grade 5, 6. My big sisters, they... got pregnant in college and stuff like that... and I kept telling myself that I won't end up like them. That's why I guess I try my best ...to do good in school.

5.3.1.4 Commitment to Study and Personal Aspiration.

Closely linked to determination is commitment to study. Although only some specifically commented on working hard and committing to study, in their responses all participants indicated that their success was the result of determination as well as hard work and commitment to their studies. Waisali's comment was typical of this attitude. She said, *"I really want to be someone that's why I.. I continue to work a bit harder in education..."* Mere from Site 1 had this to say:

...I couldn't come this far if, ... it wasn't that I studied... If I didn't then it's like I'm... not doing what I should do as a student. So it's mainly to do with,..., study, relax, study and then good grades so that you can continue on.

5.3.1.5 Time Management.

Management of time was one strategy that Mele from Site 2 claimed to have used and reported success in her studies because of it. She explained,

"... And also like our study habits... We have to manage our time and all that... My mum is...strict about us having social time out and all that ... you know, we have to manage time...."

5.3.1.6 Personal Religious Faith and Spirituality

Whilst all three participants from Site 1 attributed their academic success to their belief in themselves, in Site 2 all three participants went a step further by discussing openly the role of their personal religious faith in contributing to their academic

success. Mele revealed, “... *First of all is to be, you know, prayerful about it everyday. You have to be a Christian, a good... if you can, main prayer, doing anything in prayer, like committing everything to God...*” Waisali linked her academic success to her religious faith. She reported:

Well like, like, lets say, like when I was in Grade 10 I didn't think I would get to do 11... but...it's through prayer, uuh?... So I said “OK, why not I pray and put a bit of faith into it and may be I will get somewhere...and then got to this point where I started seeing the prayers working...

5.3.1.7 Influence of Role Models

Role models for participants in this study came in different forms. They were either bad models that participants in this study wanted to avoid or good role models that participants aimed to emulate. Role models were found in the home, school, in the community or as presented through the media. In this study participants described their role models and how these influenced their academic success. Waisali from Site 2 was very fortunate to have had a very good role models in her home, her parents. She reported:

My mummy is a nurse by profession and I think she has a degree in nursing which she did at the University of Southern Queensland...and my dad... he has a degree or... yea, degree in ...management or something... yea...another thing is like mum, she, like her family is different to my dad's family ... cause not everyone of them made it this far. In my dad's family it's different cause they all did make it this far and they are someone right now...

In describing her role models, Yato reported she had an ambition to be like them in the future.

...By seeing magazines, pictures, TV's, all these media. The way... advertise themselves and also, I just look at them and say, I mean, I dream and say “one day I'm gonna sit in that house, I'm gonna do all those you people are doing”. That's the driving force”

5.3.1.8 Family Relationships and Support.

The majority of participants attributed their academic successes to strong family relationships and excellent support from their parents. According to them, parental and/or guardian support came in the form of encouraging words, advice and payment of their school fees. This allowed their children to focus on their studies. Parents and/or guardians also provided pocket money and all their basic and everyday needs. Mele from Site 1 reflected: “...*the second thing is to have a good relationship with my parents, especially my mum, my dad. I have to have a good relationship with my mum and my family...*” Waisali, wiping her tears, acknowledged her mother’s support: “*So she always encourages me and yea, pushes me...Basically when I’m feeling down trying to drop out...*” Sogone, from Site 1 acknowledged the support of her family by reporting:

So it’s, for me it’s mainly to do with my family. I have a good family that’s why like, I don’t have much to think about or that worries me...I have good parents that they help me...to get this far by paying my education and also I have a proper house and a room for me to sleep. That’s why it’s like, helping me to study.

5.3.1.9 The School Psychological and Emotional Environment

Participants at both research sites recognised the tremendous contribution of their respective schools and the teachers to their academic successes. According to them the school and teachers provided a supporting and safe environment for them to learn. This is evident in the participants’ comments in which they attributed their academic success to their teachers. Mere from Site 2 described the support of her teachers:

“And I think teachers in school, they, they are OK. They give us the support we need... our teachers... give us more support we need because they are there with us most of the time and they see our real potential...how far we can go that’s why they support us a lot, much more

than our parents...

Yato also spoke highly of the support she received from their teachers. She said:

They're excellent... They support us in every means of ways they could. Like they provide us with everything apart from lectures in class, they spend the most of the afternoons lecturing us if we don't understand things or they just don't turn us away if... we came to them...

Mele from Site 2 had this to say about the support provided the teachers running Personal Development in her school:

...At school we have this PD that, PD Department...if we have... family problems or something at home... they give us the support and all the needs that we want to come back for encouragement and all those... the school supports us in that way.

Studying in a safe environment gave students the confidence to focus on school work and the assurance that they were safe. This contributed to their academic success. Yato reported, "... we've got securities... around the school plus... our teachers are... dedicated... teachers. They look after... us students as their own kids and...I'm very grateful for them". However, some participants, especially day students, who commuted to school, were concerned about their safety. Sometimes they had extra work to do after school, they had to stop work and rushed home whilst it was safe. Sogone reported:

So it's like, when I'm walking, I'm always cautious of one coming my way...So, it's, I don't feel any... it's, in my, today in X, I don't feel any more safe to, like if I'm staying back in the classroom and its already past 5, I have to go home...because then I don't know anything might happen on my, on my way home.

5.3.2 Key Findings from Group C- Focus Groups

Group C comprised a total of 14 Grade 12 students from participating secondary schools at the two research sites. Grade 12 students were asked about factors that facilitated their academic achievement. Focus group interviews provided some participants the opportunity for very emotional disclosures as they uncovered issues that had impeded their academic achievement. They were Trita, Sono'e, Zogi, Yaunito, Kapi, and Teniso from Site 1 and Bau'le, Mwesi, Sineina, Milika, Atelini, Ada, Bena and Inedo from Site 2. Analysis of the focus group transcripts revealed eight clearly defined attributions as facilitating academic achievement. These comprised a pursuit of personal goals and aspirations, learning goal orientations, commitment to study, determination to succeed, personal and family religious faith, parental support, family socio-economic status, teacher support, problematic family situations and role models.

5.3.2.1 Personal Goals and Aspirations

Thirteen out of fourteen participants attributed their success to having been motivated by the various goals and aspirations they had aspired to achieve in school and beyond school. These included goals to succeed in life, as well as social responsibility, academic and career goals.

Six of the thirteen participants who had reported having personal goals indicated that they had aspired to succeed in life. They, however, did not specify the areas they wanted to succeed in. Yaunito from Site 1 shared with the group:

And what mot...motivated me to do best in my studies is that uum, like now my parents tell me that life is hard every day. So like when you, when you don't succeed in education then you won't have anything to bring life than to go back to the village and work in the garden. So in, in order to succeed we must school hard...so I try my best, I mean, best to school...

Bau'le from Site 2 shared a similar goal. She said:

...(laughs)the thing that comes into mind is uum, I want to be successful in life...uh I want to get a job at the end of my education. Not at the education but I want to continue on study... and be like successful in life.

Milika, from Site 2 set herself very high goals even though both her parents were well educated and her father was a medical practitioner. She contributed to the discussion by adding:

...Another thing is that education is, is a way of going somewhere and like, I see education as very important to me and I also value myself... and I want to get somewhere. I want to go where my mother couldn't go, I want to go where my father go. I want to do better than my parents... and that's my biggest drive in education.

Ten students identified the influence of goals focused on social responsibility on their success in school. Their goals included a desire to perform well for the sake of maintaining or improving their families' socio-economic status, improving their communities, and correcting the mistakes of former female students from their communities.

Zogi from Site 1 said her goals were to make a difference in her extended family.

Back at home ... I always see my cousins and my brothers. They are not doing well and they're, some of them are drop-outs from grade 8, (clears throat) 10s and 12s and they join the... other guys to do other activities which are not good like smoking of marijuana and stealing and other activities. So I see that it is not good so I think..., when I think of them, ... I say that, I'm thinking that I must do well in my school so I'm not going to, ..., join them like other girls or boys out in the village.

Having come this far in her schooling, Mwesi from Site 2 regarded herself as a privileged girl. She wanted to show that although others from her community had not succeeded in school, she is different and has a goal of taking social responsibility.

She wanted to make a difference in her community. She added to the discussion that:

The reason why I continued my education is not because of, it should because of the support of my parents but it's not the... it's reason why but what I have in mind is that I want to learn from the weaknesses that other female ... students that are going through. When they drop out from school they don't do anything good in the village and too, I've learned from the weaknesses of my bigger cousins who are now out in the villages, who are not successful and they are now out in the village. I want to... show something in the future to learn that as a... a female student I have something, I have a hidden potential that I should show to others.

Academic and career goals were also featured in the responses of the Grade 12 students. Adding to the discussion on what contributed to their academic success Trita, from Site 1 had this to say:

...I normally do is to... I always, for every test or assignment I always set a goal that I must score that... that like not average but above, like, I must try to get a mistake or two, or even I must try to score all of them. So, so that's my goal when I'm studying.

Two participants, Sono'e from Site 1 and Atelini from Site 2 told their focus groups meetings that they set themselves career goals. Sono'e reported that since she was in primary school she had wanted to become a teacher and this motivated her to do well in school. She reported:

...one of the things that enabled me to study hard is..., in Grade 6 I promised myself that I will become a teacher, high school teacher. And I said that I'm going to go through all the education system and then I'm going to work as a teacher...get a profession as a teacher

and I used to think that I must fulfil my promise. That's why I try my best to...go through to UOG⁸

Atelini shared with her focus group that because she didn't know her biological father, she wanted to be in the same profession as him and somehow get to meet him one day. She disclosed:

Yea, for me, myself personally it's a very big challenge because I'm the only one in the family and like that and I don't even know who my daddy is I don't really know his place, or where he's from, but I know his name, his profession but I don't even know his face so I don't know but it's just my own, own interest that because he's a doctor, I want to do something about studying sciences and continue to school till somehow come to meet him somewhere by luck or...

5.3.2.2 Commitment to Study

Eight students attributed their academic success to a commitment to study, self-discipline and determination. In reflecting on her commitment to study, Mwesi from Site 2 reported: *“And the thing that... brought me this far is my commitment to studies...Although there was not enough support from my parents or my guardians but it was through my commitment that I came...”*. Inedo also from Site 2 also added, *“...and my commitment and effort I put in school work has brought me this far”*. Milika, despite coming from a more affluent family wanted to do well in school so that she could do something better for her immediate and extended family. She pointed out:

...and that's my biggest drive in education and how academic wise, like how well I do in school, it's through discipline and commitment and like when I think of my family. And like how they're living now, not just my immediate family but my extended family also, I want to do something

⁸ University of Goroka

better for my family...And so this drives me to work hard in school, to study, and to read and to, and I also I like learning...

Mwesi from Site 2 continued by talking about her self-discipline and determination to succeed despite the problems she encountered. She reported:

When I look back I see the weaknesses that I've gone through. Even my mother was not successful in her education. My father too, was not successful in his education but it's how I put my effort in studies and the weaknesses I see that always make me strong to continue my education...But when I'm overwhelmed by worries...I see them as stepping stone, all the situation, situations that I'm going through and I try to build my...faith or have high hopes...

5.3.2.3 Resilience and Determination to Study in Problematic Family Situations

Whilst the majority of the Group C Focus Group students enjoyed the benefits of having well adjusted and stable families, quite a number of them attributed their academic success to the problematic situations of their families. Some of the participants had lost one of the parents, or came from single-parent families whilst others had parents who had divorced. They reported that their family situations made them strong and gave them the determination to succeed in school.

Waisali, a Grade 12 student in Site 2 lost her father whilst she was in an earlier grade. In the interview she explained:

... I continue to work a bit harder in education, yea, ... And I really wanna be someone that's why I... Just a determination, really, to become someone... You want to be like known to people, uuh? Your parents are educated and...if you don't get this far its like they waste all their effort and money to do everything for you. You have to struggle... That's what kept me here, really...

Atelini from Site 2 came from a single parent home and longed to meet her father one day (refer extract on 5.3.3.1.1).

Mwesi from Site 2 was from a complex polyandrous family. She disclosed:

My big sister has a different father, I have a different father, my brother has a different father, my third born sister has a different father and the second last born and last born share a different father. It was really a big challenge for me...And in the family I'm the only one who has made it to Grade 8... 12 now and everyone is looking upon me. And looking back to the situations I'm going through, they're boosting me up.

5.3.2.4 Personal Religious Faith and Spirituality

As PNG is a Christian country, four participants in Group C had the openness to link their academic success to their own faith in God. Yaunito from Site 1 revealed: “...everything that I do, I used to pray to God and commit my studies to Him...because all things are possible and He's God of knowledge, wisdom and understanding”. Also from Research Site 1, Kapi reflected: “One of the things that has helped me come this far is God. When I put Him first then I do well. I find that I do well in my school work but when I, when I forget about him, I usually drop”.

Similar sentiments about the impact of faith on their academic success were reported by some participants in Site 2. Milika disclosed:

...I had a lot of doubts about whether I would step over but found that as I, ...when times were difficult I could always pray and release... all things that I couldn't share with my parents, the things that I couldn't talk to with, about with my brother, and generally... my family, I could. In my own room, and in my own time I could pray about it and tell God... what I was feeling...and I found that when I pray and believe Him I see things happening in the school... I succeed in, well in things I cannot succeed. God is in control. I see grace every day in my life...

5.3.2.5 The Use of Regulatory Strategies-Teamwork

Teamwork was a learning strategy that Teniso from Site 1 reported using and to which she linked her academic success. She reported:

One thing that makes me do better in my Grade, uum, in my school work is my girlfriends. I used to do my school work with them but when it comes to tests, like, we're, we're not going to share answers together but they're going to do their own, write their own answers and they're going to get their own marks and I'm going to get my own marks. So if I, if I see that they get good grades, good marks that me, then I used to think to myself that they have beaten me so I have, I need to study really extra harder to beat them again so this enables me to study harder.

5.3.2.6 Parental and/or Guardian Support

The majority of the participants at both research sites attributed their academic successes to the support of their parents. According to them, parental support came in varied forms, ranging from support with school work, continued payment of school fees throughout their schooling, other financial support, encouragement, spiritual and emotional support and parents providing good role models. Kapi from Site 1 told her focus group:

... from home (clears throat), I get a lot of support from my parents. ... when I have a lot of homework to do or school work then they give me all the time I need to do it and they don't stop me in the middle of doing work or something like that...about assignments, when I need help then I ask them first and they help me with them.

Milika from Site 2 also pointed out to her focus group meeting about the continuous support from her parents as having contributed her academic success. She explained:

Even though my dad was always there to support... us with school fee and everything, my mum was there to... encourage me, advise me, tell me stuff. She always told me to work hard in school since I'm the only girl in

the family and I'm the eldest.

Ada from Site 2 added by attributing her academic success to her parents.

... like what Atelini has said,... me coming this far has been just because of my parents. Even though we were six in the family, six of us in the family, my dad and mum tried their best to pay our school fees and too, that meant that we had to work hard in school to come this far.

Inedo also from Site 2 attributed her academic success to her parents. She reported:

As for me it's repeating the same as my other friends there. Support from my family, my parents especially, and my commitment and the effort I put in school work has brought me this far... (clears throat). Yea the support I have from my family has been very good... most of my support, I think, from my mum...

5.3.2.7 School and Teacher Support

Participants in Groups C also attributed their success to the tremendous support of their teachers. The participants revealed that their teachers also performed other roles such as counsellors and chaplains and someone to whom students could go to if they needed help or advice. Kapi from Site 1 told the focus group, *“And at school, when I have a problem or anything, when I approach the teachers, then they help me without giving excuses”*. Inedo from Site 2 expressed a similar sentiment about the support provided by the teachers in her school. She reported, *“... school, I have a lot of support... especially advise and encouragement from my PD teacher, also other teachers in the school”*.

5.3.2.8 Role Models

Some students attributed their success in school to their role models. The role models for them were either good or bad and comprised their parents, older siblings, extended family members or role models presented by the media or seen in the community. Some role models inspired students to avoid the mistakes the role models made. Good role models encouraged the participants to nurture positive

attitudes and behaviour to succeed in school. Trita from Site 1 added that having positive role models in her family inspired her to succeed in school.

Uum, as for me my parents..., they are pastors and I have four bigger brothers and I'm the last born of the family. So my bigger brothers, all of them, they went to higher institutions and university...and... for me, they inspired me to... follow them.

Zogi from Site 1 continued the discussion by adding how educated people and workers she came across in the community encouraged her to succeed. She said:

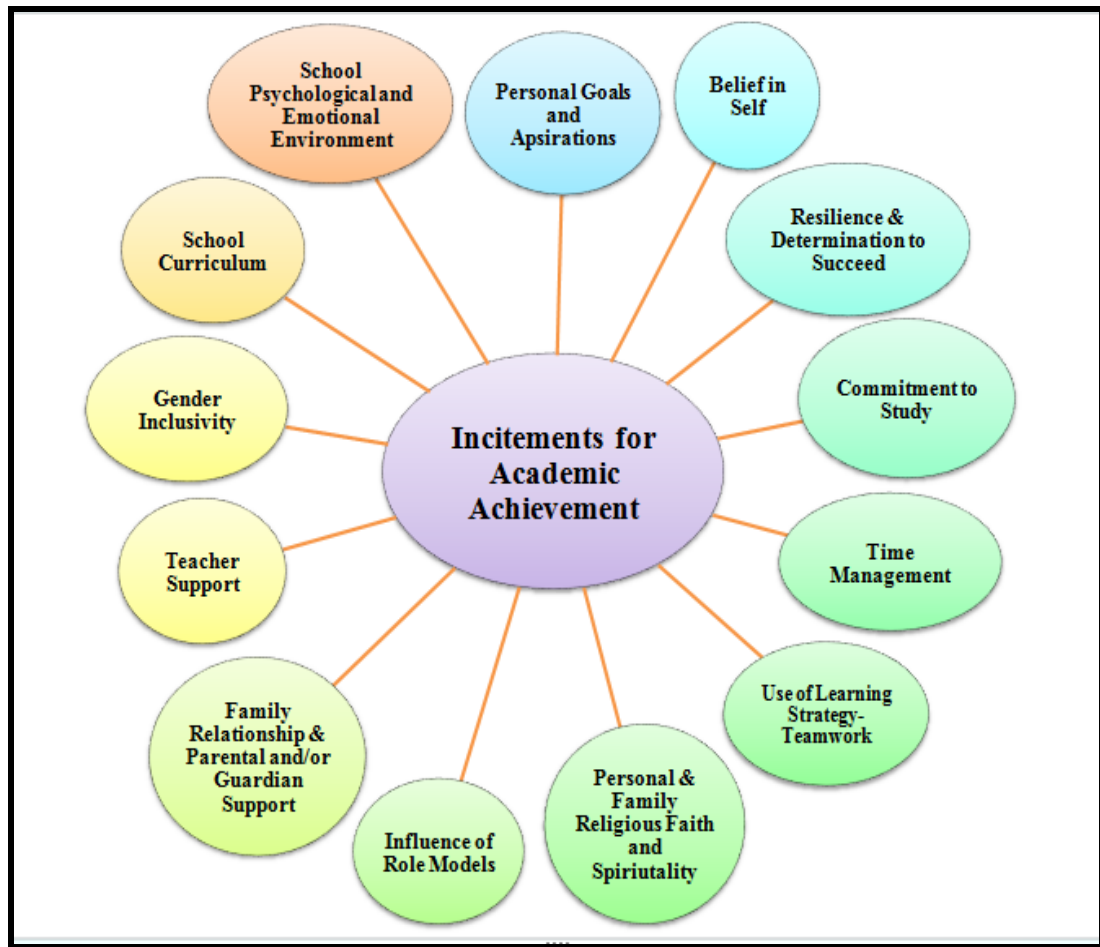
...when I go to town or in the school area, when I see educated people, how they dress and how they move around with their expensive cars and using their money, I always admire it. So I'm thinking that... in my future, I'm going to be like one of them. So my aim and my goal...I'm thinking that I'm going to succeed and be like one of them.

Sineina from Site 2 explained to the group how the need to avoid the mistakes of her older siblings enabled her to succeed in school.

... my brother and my big sister who dropped out of Grade 10 and grade 6 and almost everyday, my parents advise us and talk to us to do better... school work...So that's what makes me to work hard until now and I hope and pray that I will continue my success in the coming future.

Figure 5.1 summarises the findings from the interviews and focus groups with Grade 12 about the key incitements for their academic achievement.

Figure 5.2: Major Incitements for Academic Achievement of Grade 12



5.4 Summary

This chapter has presented the key findings that emerged from the interviews and focus groups. These were presented as impediments to access to and/or completion of progressive secondary grades and academic achievement by Grade 8, 9 and 10 students.

Major impediments to either, non-completion of Grade 8, 9, and 10 and/or progression to higher secondary grades comprised academic under-performance, psychological and emotional distress, lack of commitment to study, poor time management, personal factors, difficulty with payment of school fees, safety

issues, problematic family situations, teacher-related issues and lack of basic school and community infrastructure.

Findings from the Grade 12 students were presented as incitements for academic achievement. These comprised personal goals, belief in self and resilience, resilience and determination to succeed, commitment to study, time management, use of learning strategies-teamwork, personal and religious faith and spirituality, role models, family relationships and parent and/or guardian support, school psychological and emotional environment.

CHAPTER SIX: DISCUSSION

6.0 Overview of the Chapter

This study employed a triangulation mixed methods research approach to examine female students' attributions for academic achievement in secondary schools in Papua New Guinea. It addressed two research questions:

1. What factors inhibit female students from gaining access to and/or completing secondary schooling?
2. To what factors do female students currently undergoing secondary education attribute their academic achievement?

This chapter brings together the key findings of the surveys, the interviews and focus groups in an attempt to “confirm, cross-validate, or corroborate findings” (Creswell, 2003, p.217) within this single study. Hence, the key findings from both quantitative and qualitative analyses as presented in Chapters 4 and 5 are triangulated in four main sections which address each key research question. **Section 6.1** is an introduction to the chapter; **Section 6.2** integrates the findings about the major impediments to access and/or completion of secondary schooling by the school leaver participants at the two research sites; **Section 6.3** reports on the attributions for academic achievement of female students in Grade 12. **Section 6.4** presents the summary of the major findings of this study.

6.1 Introduction

Educational success plays a vital role in determining social and economic well-being in adulthood. Yet, an alarming number of youngsters leave school each year without successfully completing a high school program (DeCivita, Paganib, Vitarob, &

Tremblayb, 2004). In PNG the rate of students leaving school, particularly from secondary schools, without completing the full two cycles of secondary education, is alarming. The enrolment trends for the period from 1999-2005 as shown in Figures 1.4 in Chapter 1 indicate a decline in enrolment of both male and female students at the secondary level of education (Papua New Guinea Department of Education, 1999a, 2000a, 2001a, 2002a, 2003). Steady declines in enrolments are evident between Grades 9 and 12 along with sharp declines during transition from Grade 10 to 11 for both genders. Although both male and female student enrolments experienced both steady and sharp declines, in reality the rate of declines for male students has been higher than female students. However, as female students have continued to be under-represented from their initial secondary enrolments in Grade 9, their under-representation has been obvious throughout secondary schooling. The difference between the enrolment of boys and girls, in this study, was noted by Mele from Site 2, who explained:

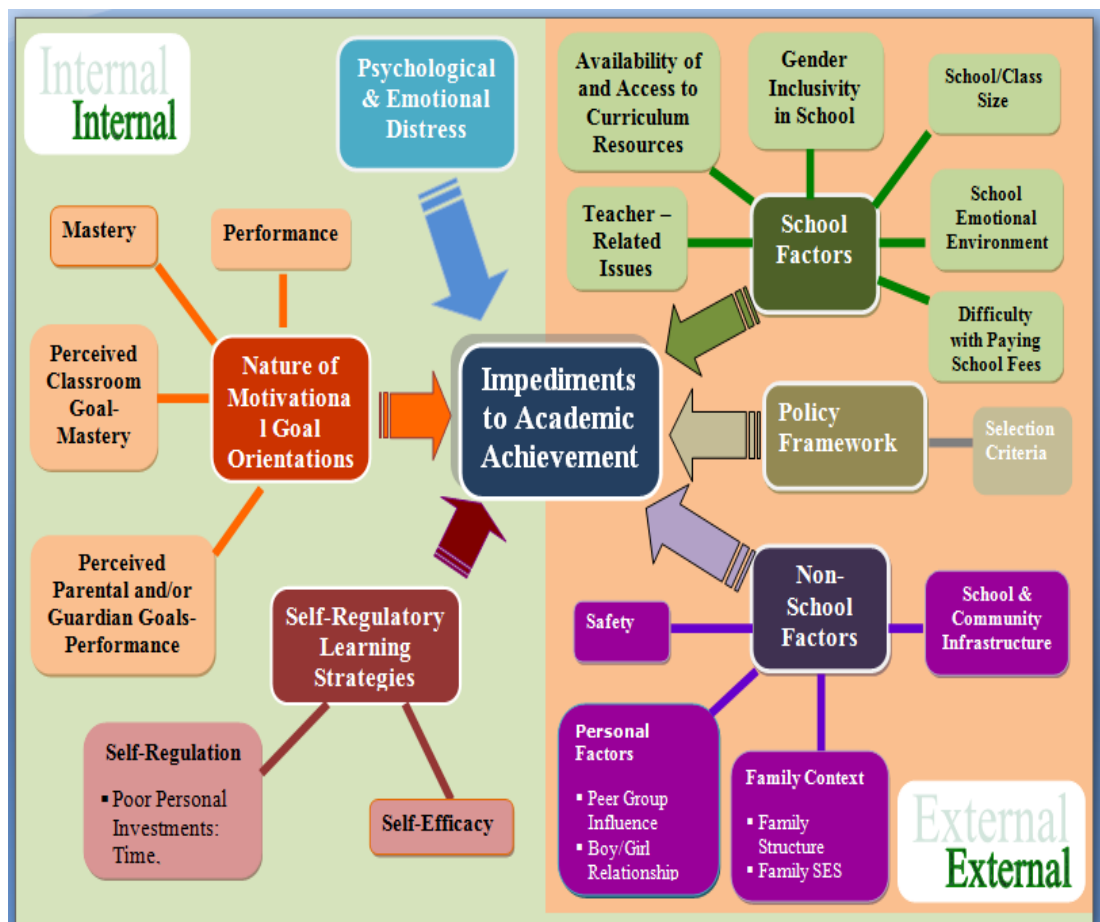
There are not...many female students...and in school...more of the boys... are...academic...than girls”.

As this study employed a triangulation mixed methods design, Chapter 6 presents the findings of the study by integrating and elaborating on the results of the surveys, the interviews and focus group. The findings from these groups are categorised in line with the two locus of control dimensions for success and/or failure or under-performance which exist within the broader domain of the attribution theory of motivation (Ames & Ames, 1984; McInerney & McInerney, 1998; Slavin, 2003; Weiner, 1974, 1979, 1984). In this study they are labelled as “internal” and “external” representing internal and external locus of control.

The internal locus of control is dispositional and assigns causality to factors that are inherent to an individual such as their level of intelligence or motivation which are believed to be responsible for the events or experiences. By contrast, external locus of control is situational and assigns causality to factors external to an individual such as school teachers, parents and criminals (McInerney & McInerney, 1998; Slavin, 2003; Weiner, 1974, 1979; Wolters, 2004). In this study, analyses of the surveys, the interviews and focus groups revealed a total of six major internal and external factors

which have been attributed to impede the academic achievement of school leavers. The discussion first focuses on the inherent and external impediments to access, completion and academic performance by two school leaver groups that were labelled A and B. Group A was the Grade 8 school leavers and Group B was the Grade 9-10 school leavers. These are summarised in Figure 6.1 and discussed separately.

Figure 6.1: Impediments to Academic Achievement of Grades 8, 9 & 10



6.2 Impediments to Academic Achievement of School Leavers- Internal

As presented in Figure 6.1, the findings of this study highlight a number of factors that were inherent to Grade 8, 9 and 10 school leavers that contributed specifically to academic under-performance. These are labelled as (1) The Nature of Motivational Goal Orientation; (2) the Learning Strategies used by the students; and (3) Psychological & Emotional Distress. These impediments contributed specifically to the academic under-performance of the school leavers. These are deliberated upon in the following sections.

6.2.1 Academic Under-Performance

The concept of under-achievement has been explored extensively in the literature in education and has been used in circumstances where a student is found to score below the expected mark in the key areas of learning. Under-achievement often “implies a level of performance that is less than, or beneath that of something else...” (Frederickson, Miller, & Cline, 2008, p. 50). In the context of this study, academic under-performance is the term used to imply performance that is below the set benchmarks in the core subjects studied at school. The benchmarks are set by the provincial education boards in the respective provinces in PNG as major selection criteria for continuation of schooling.

The academic performance of Grades 8 and 9-10 school leavers shown in Figures 4.1 and 4.2 in Chapter 4 was obtained using self-reported subject performance ratings. The subject ratings were: *Not at all good; Not good; Somewhat good; Good; and Very Good*. These ratings, to some extent, are closely aligned to the actual grading system which comprises “*Fail; Upper Pass; Pass; Credit; and Distinction*”, that is used in schools. However as mentioned in Chapter 3, the rating scale was preferred as many participants from Group A and B had left school some years earlier and would not have easily recalled their exact grades.

The self-reported performance in subjects studied in Grade 8 and 9-10 clearly

indicate an under-performance across all subjects, particularly in mathematics, which was consistently rated by the school leavers as a subject with “*not good at all*” (see Figures 4.1 and 4.2). The employment of highly selective school assessment systems comprising the national examinations used by the PNG National Department of Education for selection of students undertaking studies at the progressive secondary school levels placed those who performed below set benchmarks at risk of being pushed out of the system. The benchmarks, which vary between provinces, are often fixed based on the availability of spaces and facilities in the secondary schools and provincial high schools in each province. Hence, some of the school leavers who participated in this study were themselves victims of this process.

The declining enrolment trends presented in Figure 1.4 in Chapter 1 partly attests to the under-performance. Under the existing education system, many school children who fail to meet the minimum entry requirements also lose an opportunity to continue on to progressive secondary levels of schooling, specifically Grade 9 and 11. Coincidentally, the sharp declines that are evident during transition from Grade 8 to 9 and from 10 to 11 occur following the national examinations. For example, Nagi, a Grade 8 school leaver from Site 2 hesitantly revealed why she was not selected to undertake secondary school studies. She explained, “... *I was selected to vocational school...*” Nagi could have avoided the researcher’s question owing to negative connotation attached to under-performance, non-selection or being a school dropout. Instead she quickly pointed out that she was selected to undertake vocational education. Even then she couldn’t take advantage of the opportunity owing to the inability to pay the school fees. In the PNG education system, vocational school pathway is available for students who don’t meet the selection benchmarks for entrance to Grade 9. Academic under-performance has other causal factors as well and in this chapter, these are presented as impediments to academic achievement of school leavers.

As it is, with many children in the PNG national education system under 18 years of age being forced out of the education system through the selection process, it can be considered discriminative and a breach of their rights to education. As stipulated in Article 28 of the “Convention of the Rights of the Child” (United Nations, 1990)

which PNG had ratified, Article 28.1 clearly states:

States Parties recognize the right of the child to education and with a view to achieving this right progressively and on the basis of equal opportunity, they shall, in particular:

- (a) Make primary education compulsory and available free to all;
- (b) Encourage the development of different forms of secondary education, including general and vocational education, make them available and accessible to every child, and take appropriate measures such as the introduction of free education and offering financial assistance in case of need.

In this study academic under-performance was found to have been attributed to three key factors: (1) nature of student's motivational goal orientations; (2) learning strategies; and (3) the psychological and emotional distress.

6.2.1.1 The Nature of Students' Motivational Goal Orientations

The results of this study linked under-performance to the nature of motivational goal orientations that students pursued within their learning environments. Goal orientations are defined as “integrated patterns of motivational beliefs that represent different ways of approaching, engaging in, and responding to achievement-related activities” (Genevieve, Nelson, O'Mara, McInerney, & Dowson, 2006, p.421). Motivational goal orientations have been found to influence the strategies that students employ in a learning environment, their engagement in learning tasks and in turn, their academic achievement (Freeman, 2004; McInerney & McInerney, 1998; Patrick, 2004; Wolters, 2004). These are linked to the underlying goals and aspirations students set for their future.

Authorities on achievement motivation theory have identified three types of motivational goal orientations. These are (1) mastery goals, (2) performance goals and (3) social goals (E. M. Anderman, Noar, Zimmerman, & Donohew, 2004;

Deemer, 2004; Fay, 2001; Patrick, 2004; Wolters, 2004). Each of these has been found to significantly influence academic achievement.

In academic settings, students who adopt mastery goal orientations are said to pursue learning, understanding and mastery of tasks. They are often intrinsically motivated to learn and strongly believe that hard work and effort leads to success. Students who are oriented towards mastery goals often seek to develop their competences and to extend their mastery and understanding. They perceive learning as inherently enjoyable with attention focused on the task. By contrast, students who are focused on performance goals often seek excellence in academic settings. They attribute their academic achievement to their ability and believe their achievement is the result of inherent abilities (McInerney & McInerney, 1998). Competitiveness is also a characteristic of students whose focus is on ability.

The nature of motivational goal orientations employed also depends on the stage of development an individual is in. The participants in this study were adolescents at the time they were in Grades 8, 9, 10 and 12. The period of adolescence is a stage of immense psychological development in which defining and making sense of their identities versus crisis in defining their identities is critical (Bee & Denise, 2002; Berk, 2007; Lerner, 2002). Hence, their motivational goal orientations would also have been influenced by the stage of development at which they were.

As motivational goal orientations have been known to influence students' learning strategies and their engagement in learning tasks, in this study two learning strategies emerged to prominence: self-regulation and self-efficacy. Whilst these were shown to have facilitated academic achievement, a number of participants in this study were also found to have difficulties in utilising them to their advantage.

In a country like PNG, which continues to offer limited formal employment opportunities for a large portion of its population owing to the small size of its economy, formal education becomes a vital commodity. It opens a wide range of opportunities for those who succeed in it and who can afford it. Hence, with a strong emphasis placed on assessment in school, students work hard to succeed in school.

The factor analysis on the two school leaver groups indicated that the motivational goals of students, the perceived goal orientations of their parents and/or guardians, and their classrooms were greatly influenced by the system itself. This pattern of behaviour was also highlighted by authorities in the field (L. H. Anderman & Freeman, 2004; Cooper & Tom, 1984; Fay, 2001; Hsiu-Zo, Zimmer, Senturk, Fisher, Peralta & Chiu, 2000; Patrick, 2004; Wolters, 2004) who pointed out that in achievement-related contexts the perceptions held by students about their educational experiences exert powerful influence on their motivation and in turn, their academic performance.

The results of the factor analysis for each of the two school leaver groups, as presented in Chapter 4, revealed a pursuit of multiple motivational goals comprising personal performance goals, personal mastery goals, perceived classroom mastery goals, and perceived parental/guardian performance goals. The goals represented the existence of multiple underlying reasons that learners in the school leaver groups pursued in their schools. These in turn, dictated the patterns of their behaviour, cognition and engagement in learning tasks (Cooper & Tom, 1984; Deemer, 2004; Fay, 2001; Freeman, 2004; Patrick, 2004; Wolters, 2004). These are discussed in the following sections.

6.2.1.1.1 Personal Performance Goals

The factor analysis of the surveys for both Grade 8 and Grade 9-10 school leaver groups (see Chapter 4) found factor loadings containing clusters of factors involving personal performance goals. When students are oriented towards performance goals in achievement settings, their purpose is to demonstrate their competence or ability. Performance goals focus on abilities and self-worth and are based on out-performing others by attaining high grades with very little effort. They seek to attain positive judgments, or avoid negative judgments of their competence and focus on self (McInerney & McInerney, 1998). Pursuit of performance goals is also “referenced, against the performance of others or against external standards such as marks and grades” (McInerney & McInerney (2006, p.231) and have been linked to either adaptive or maladaptive patterns of learning (Midgley et al., 2000). Continued under-performance despite pursuing performance goals could result in negative

outcomes such as cheating, avoidance strategies and reluctance to cooperate with peers (Freeman, 2004 & McInerney & McInerney, 1998).

Factors loading 1 and 2 resulting from the Grade 8 school leavers' factor analysis (see Table 4.1, Chapter 4) indicated a pursuit of a cluster of factors including performance goals in school. In factor 1 loading, performance goals were focused on performing better than other students as indicated in the strong correlation coefficient in Item 14 *I wanted to do better than other students in the core subjects (.717)*. This indicated the existence of competition in class in order to perform better than other students. Factor 1 loading also included self-regulation and perceived parental goals. As evident in Item 27 *“My parents and/or guardians wanted the school work to be challenging for me” (.668)*, perceiving that their parents and/or guardians wanted school work to be challenging for them, the school leavers in turn pursued performance goals. These goals were pushed through the employment of a self-regulatory learning strategy focusing on problem-solving strategies to find solutions to difficult academic tasks. This indicated that to some extent, the pursuit of performance goals by Grade 8 school leavers was influenced by their perception of their parents' and/or guardians' goals.

In factor 2 loading performance goals focused on improving past performances as indicated in the high correlation coefficient attained on Item 13 of the survey. Performance goals in factor 2 loading attained a weak correlation coefficient with self-efficacy. This confirms Figure 4.1 in Chapter 4 that some of the Grade 8 students had performed poorly across all subjects and needed to improve in order to meet the selection criteria for Grade 9.

Pursuit of such underlying motivational goals could have had negative impact on students if they were at risk of poor or under-performance. Figure 4.1 in Chapter 4 shows below average ratings across all four subjects by some Grade 8 school leavers and is an indication that some students were at high risk of under-performance. In the PNG education system, under-performance across all or some subjects would have negative consequences on their opportunity for continuation onto progressive grades or levels.

Like the Grade 8 school leavers, the Grade 9 and 10 school leavers also indicated being in pursuit of personal performance goals. However, the Grade 9 and 10 school leavers' pursuit of personal performance goals clustered with perceived parental goals and self-regulation as evident in factor 1 loading. In factor 1 loading, the Grade 9 and 10 school leavers pursued performance goals that focused on preference for studying the subjects in which they performed well as opposed to the subjects in which they performed poorly as indicated in Item 15 *I preferred to study the subjects I did well in rather than those that I did poorly in (.814)* (see Table 4.2). They also pursued a goal to improve their past performances as evident on Item 13 *I tried to improve on my past performances (.911)*. Pursuit of performance oriented goals focused on studying subjects in which they performed well indicates an employment of avoidance strategy whereby subjects in which they performed poorly were avoided as they focused on the subjects in which their performance was good (Freeman, 2004; McInerney & McInerney, 1998).

In factor 4 loading the correlation coefficients for personal performance goal which focused on improving past marks was high as shown on Item 13 *I tried my best to improve on my past performances (.911)*. However the correlation coefficient on Item 14, *I wanted to do better than other students in the core subjects (.648)*, which was a performance oriented goal focusing on performing better than other students, yielded a low correlation coefficient. Similar to the Grade 8 school leavers, the Grade 9 school leavers' attempts to improve on their past performances indicated that they could have been at high risk of not having attained the marks required for selection to Grade 11 or it could have indicated a goal to perform even better if they had performed well. However, the low correlation coefficients on Item 44 *I had a good understanding of my core subjects (.621)*; and Item 43 *I found it easy to learn new things in my subjects (.615)* indicates that they were under-performing.

In the PNG education system, access to Grade 11 demands excellent performance in both the Grades 9 and 10 school internal assessment and the national examinations. Their focus only on subjects in which they did well could have had detrimental effects on the other subjects and this could have jeopardised their opportunities for selection to Grade 11. They needed to perform well across all four core subjects. Access to upper secondary school level is highly competitive and under-

performance in any of the core subjects would place students at risk of missing out on Grade 11 selections. However, a pursuit of performance goals with such underlying reasons could have had negative implications for those who were under-performing. In situations of under-performance following much effort put into learning tasks, there is a risk of a student experiencing a state of learned helplessness. Learned helplessness is described by Tileston (2003) as, “a state of passivity and loss of persistence resulting from individuals' perceptions, over a period of time, that they cannot control outcomes of events nor can their efforts lead to attainment of goals” (p.68).

A comparison between the three groups indicated a significant difference of $p < .01$ on the one-way ANOVA test on the participants' ratings for academic achievement between Grade 9 and 10 school leavers and Grade 12 students in their mean scores on personal performance goals in Item 15 *I prefer(ed) to study the core subjects that I do(did) well in rather than those I did(do) poorly*. Item 15 showed personal goals oriented towards performance goals focused on preference to study the subjects in which they performed well and those that they performed poorly in. Whereas performance goal oriented towards studying the subjects in which their performance was good was important for the Grade 9 and 10 school leavers, it was not important to the Grade 12 students. This indicated a difference in the underlying reasons for pursuing personal performance goals. As mentioned earlier, some Grade 9 and 10 students could have been at high risk of academic under-performance compared to the Grade 12 students whose academic performance was high. As successful students, academic under-performance was not an issue for Grade 12 students

The T-test indicated that there was also a significant difference [$t(56.83) = 3.48$; $p = .00$] found in the mean scores between participants from Site 1 and Site 2. A comparison between the participants at the two research sites found that participants at Site 2 had a higher mean score ($\chi = 4.76$, $SD = .57$) compared to participants at Site 1 whose mean score was ($\chi = 4.00$, $SD = 1.31$) on the performance goal focused on performing better than other students. This indicates competition and implies that more participants in Site 1 were at risk of under-performance compared to the participants in Site 2. Hence, there may be a need for schools in Site 2 to encourage

mastery goals focused activities in their classrooms.

6.2.1.1.2 Personal Mastery Goals

Although some Grade 9 and 10 school leavers were in pursuit of performance goals, many also indicated employing mastery goals focused on doing academic tasks because they liked learning and academic tasks really made them think. This is evident in the high correlation coefficients in Items 11 and 12 in factor 3 loading. Item 11 was, *My reason for doing the tasks given in my subjects was because I liked learning (.828)* and Item 12 was, *I liked the work given in my core subjects because they really made me think (.817)*. These show that Grade 9 and 10 school leavers pursued mastery goals.

When students are in pursuit of mastery goals they are focused on mastery of a given task. This involves a focus on acquiring new skills, a willingness to take risks, to attempt challenging tasks and to gain understanding of the learning materials. Pursuit of mastery-oriented goals focused on doing academic tasks because they liked learning indicates that some Grade 9 and 10 school leavers were able to gain satisfaction from the intrinsic qualities such as interest in the academic tasks and this enabled them to evaluate success in terms of personal improvement (McInerney & McInerney, 1998, 2006). Pursuit of mastery goals should have facilitated the academic achievement of Grade 9 and 10 participants as confirmed by their performance ratings presented in Figure 4.2. This showed above average performance across all subjects, however as they were school leavers there may have been other factors that had impeded their academic performance. Some of these are discussed later in this chapter.

With personal mastery goals, a significant difference of $p < .03$ on the one-way ANOVA test on participants' rating on academic achievement was found to exist between Grade 8 school leavers and Grade 12 students on Item 11: *My reason for doing the tasks given in my core subjects was because I liked learning*. This related to the personal mastery goal orientation focused on the reasons for doing given tasks. Whereas Grade 8 school leavers were found to be mastery goal oriented and did academic tasks because they enjoyed learning, the Grade 12 students were not really

motivated by mastery goals. As explained earlier in this chapter, Grade 12 students attributed their academic achievement to self-regulation.

A comparison of participants at the two research sites using the t-test indicated no statistically significant difference between the participants at the two sites in the mastery goal orientation.

6.2.1.1.3 Perceived Parental and/or Guardian Goals

The factor analysis for both Grade 8, 9 and 10 school leaver surveys found factor loadings containing perceived parental and/or guardian goals as one of the key factors influencing academic performance. This indicates that school leavers' personal goal orientations were influenced by their understanding of their parents and/or guardian goals and wishes.

Factor 2 and 3 loadings from the Grade 8 school leavers' factor analysis shows perceived parental goals as one of the key factors that had influenced their academic performance (see Table 4.1). As shown in Item 29 in factor 2 loading *My parents and/or guardians would have liked it if I had shown I got better grades than others* (.895), Grade 8 school leavers perceived their parents' and/or guardians' goals and wishes as orientated towards attaining better grades than others. They perceived their parents did not want school work to be challenging for them. In factor 3 loading Grade 8 school leavers perceived that their parents' and/or guardians' goals were for them to gain good results to continue onto tertiary studies. Both these indicate that the school leavers may have felt being under pressure from parents and/or guardians to live up to the perceived parents' and/or guardians' goals and expectations.

Factor 1 loading of the Grade 9 and 10 school leavers' factor analysis shows that they perceived their parents' and/or guardians wanted school work to be challenging for them. If Grade 9 and 10 school leavers perceived their parents and/or guardians as wanting their school work to be challenging, it indicated that like the Grade 8 school leavers, the Grade 9-10 school leavers were also under pressure from their parents and/or guardians to perform.

In a context where family income is very small for the majority and schooling is not

free, education is an investment that many parents and/or guardians make. Children progress through the grades gaining greater insights and awareness of the sacrifices made by their parents and/or guardians. The notion of pursuing performance goals focused on gaining high grades or performing better than other students in return for parents' and/or guardians' educational investments was highlighted in an earlier study as an issue that was slowly disappearing (Gannicot & Avalos (1994). However, in this study it emerged as a salient issue indicating a strong sense of obligation to parents and/or guardians. Hence, in sacrificing their limited family income to invest in their children's education, many parents/guardians had hoped for high grades from their children and eventually, good jobs.

A pursuit of perceived parental and/or guardian goals focused on attaining good grades indicates that students were pressured into employing motivational strategies that attempted to fulfil the academic standards their parents and/or guardians had for them. It appeared that the school leavers were not in control of their own learning. Such high external expectations would have had negative implications for students' academic achievement. As the educational status of most parents was low as shown on Figure 4.1 and 4.2, it would have been difficult to understand that mastery of knowledge and skills results in successful educational outcomes.

With perceived parental goals, a significant difference of $p < .04$ on the one-way ANOVA test on participants' rating of academic achievement was found to exist between Grade 8 school leavers and the Grade 9 and 10 school leavers, and a difference of $p < .05$ between Grade 9 and 10 school leavers and the Grade 12 students on Item 30. Item 30 was *My parents/guardians want(ed) me to gain good results to continue onto tertiary education*. This related to parental and/or guardian wishes for the participants to gain good results. The one-way ANOVA test indicates that whereas the Grade 9 and 10 school leavers and the Grade 12 students perceived their parents wanted good results from them, the Grade 8 school leavers did not have a similar perception. This implies that students were under some pressure from parents and/or guardians to gain better grades so they could continue onto tertiary education.

An independent samples t-test however, indicated a statistically significant difference of $t(75.33)=-2.26, p=.03$) between participants at the two research sites in their perceived parents and/or guardian goals focusing on parents and/or guardians wanting the work to be challenging for their children. Participants in Site 2 attained a higher mean score ($\chi=4.67, SD=.91$) compared to the mean score ($\chi=4.14, SD=1.22$) of participants in Site 1.

6.2.1.1.4 Perceived Classroom Goals

The factor analysis only for Grade 8 school leavers showed that factor loading 2 contained perceived classroom goals which focused on mastery goal as one of the key factors influencing academic achievement. This is evident in Item 20 which was, *In my class it was important to understand the work, not just memorise it (.791)*. A high correlation coefficient of .791 indicates that their classroom ethos and teacher practices promoted a need for students to master subject skills and knowledge. This greatly influenced their personal goals which in turn were oriented towards perceived classroom mastery goals.

The one-way ANOVA test on the rating for academic achievement indicated statistically significant differences between all three groups on Item 20: *In my class it is important to understand the work, not just memorise it* as well as Item 21: *In my class you are (were) allowed to make mistakes so long as you are (were) learning*. Both items focused on the perception of the classroom as promoting mastery oriented goals. The differences in mean scores on item 20 were significant at $p=<.02$ between Grade 8 and Grade 9 and 10 school leavers and the difference between Grade 8 and Grade 12 was significant at $p=<.00$. On Item 21 Grade 8 and 12 differed significantly at $p=<.00$. These differences indicate that the Grade 8 and 12 differed significantly in their perception of goals promoted in the classrooms and there were also significant differences between Grade 8, 9 and 12 participants in their perception of classroom goals. The T-test, however, indicated no difference between the the two research sites.

6.2.1.2 Self-Regulatory Learning Strategies

The findings of this study also linked under-performance to the self-regulatory learning strategies employed by the school leavers in their learning contexts. Two key learning strategies found in this study were self-regulation (Schunk, 1994; Zimmerman, 2002), and self-efficacy (Bandura, 1977). Personal investment in learning, a concept related to self-regulation, was also attributed to as a key factor (Cottrell, 2003).

6.2.1.2.1 Self-Regulation

Self-regulation is not a mental capability or an academic performance skill but a process of self-direction whereby mental abilities are transformed into academic skills. Self-regulated students learn by doing things for themselves in a proactive manner rather than in response to teaching (Schunk, 1994; Zimmerman, 2002). Self-regulated learners are characterised by three attributes; self-observation, self-judgment and self-reaction. They observe their own performance in a given task; they assess how well they have performed against a given benchmark and plan their next course of action. In academic settings self-regulation involves skills such as valuing learning and its anticipated outcome goal setting, planning and managing time, holding positive beliefs about their capabilities (self-efficacy), attending and concentrating, organising, memorising, hard work and commitment, utilising effective social skills, focusing on positive outcomes of their effort and identifying reasons for success and/or failure (Schunk, 1994; Zimmerman, 2002). (Zimmerman, 2002) Self-regulatory processes have been found to have high correlations with academic achievements and that self-regulation processes are teachable and lead to heightened levels of student motivation and achievement. However, very few teachers or schools prepare students to take control over their learning.

In the context of self-regulation, school leavers in this study indicated that they were directed towards deep cognition and problem solving as indicated in factor loading 1 in both Grade 8 and Grade 9 and 10 factor analyses. In the Grade 8 factor analysis, this was evident in the high correlation coefficient on Items 41 *When I had difficulty solving a problem in a core subject, I enjoyed trying different ways to identify the*

one that worked (.703) and Item 37 *Even if they took up more time, I liked the subjects that made me think deeply (.829)*. Item 41 on the Grade 9 school leaver's factor analysis yielded a correlation coefficient of *.841* (see Tables 4.1 and 4.2).

The one-way ANOVA test on the academic performance, however indicated no significant difference between the three groups of participants, but the T-test did indicate a significant difference in two aspects of self-regulation between participants at the two sites. The first aspect of self-regulation related to deep processing of thought as indicated on Item 37. Participants in Site 2 had a higher mean score ($\chi=4.36$) compared to participants in Site 1 ($\chi=3.84$). This indicated that a higher percentage of participants in Site 2 preferred the subjects that gave them opportunity to challenge their thoughts and utilise deep processing of thoughts. The second aspect of self-regulation in which the participants at the two research sites differed significantly was enjoyment in utilisation of problem-solving strategies in learning as indicated on Item 41. Participants in Site 2 also had a higher mean score ($\chi=4.36$) than the participants in Site 1 ($\chi=3.74$). This indicated that participants in Site 2 reported themselves as enjoying the use of different problem solving strategies in their learning. It implies that participants in Site 2 were slightly more self-regulated than participants in Site 1. This may have been most likely owing to greater support and encouragement from their parents who were more educated than the parents in Site 1.

The factor analysis indicated a difference between Grade 8 and 9 and 10 correlation coefficient on Item 11 *My reason for doing the core subjects was because I liked learning* which was a mastery goal that combined with self-regulation. The Grade 8 school leavers had a low correlation coefficient on Item 11 and high correlation coefficient of *.703* on Item 41. This indicated that they utilised deep cognition and problem-solving techniques without being in pursuit of mastery goals. The discrepancy between the underlying motivational goals and the self-regulatory learning strategies implies that there were other push factors that resulted in the Grade 8 school leavers having a sense of self-regulation without mastery goals. Without having set themselves motivational goals, they could not have possibly been in pursuit of self-regulation. The explanation appears to lie in Item 14 *I wanted to do better than other students in the core subjects (.717)* which reveals that Grade 8

school leavers were in pursuit of performance goals orientated towards competing with peers. Thus perceiving that the education system itself promoted progress based on high academic performance as promoted by the assessment system itself, the Grade 8 school leavers in turn, ensured they pursued performance goals to get through the system. Hence, to achieve their performance goals, they employed self-regulating strategies.

Unlike the Grade 8 school leavers, the Grade 9 and 10 school leavers were experienced in undergoing the selection process from primary school to lower secondary. Their experience had taught them the value of effort in academic tasks. They were aware that in order for them to progress to achieve their goals and progress onto the next level of secondary schooling, they needed to work hard in school. The high correlation coefficient on Items 11 and 41 indicates that they employed self-regulation in order to achieve their mastery goals. Being mastery goal-oriented, the Grade 9-10 school leavers utilised problem-solving strategies. These strategies were dependent on the perception that effort results in success and failure can be overcome by utilising better learning strategies. Effective learning strategies include deeper processing strategies such as elaboration, meta-cognitive, self-regulatory strategies (Freeman, 2004; McInerney & McInerney, 2006; Patrick, 2004; Wolters, 2004). However, despite being self-regulated and mastery goal-oriented, they became school leavers. One possible explanation for this dilemma may be the nature of personal investments they made as presented in the following sections.

6.2.1.2.2 The Nature of Personal Investments in Learning

The analysis of the interviews and focus groups found divergent nature of 'personal investments' in learning by school leavers and Grade 12 students in this study. The business language of 'personal investments' (Cottrell, 2003) has been adopted for use in reference to an individual's contribution to and utilisation of available 'assets' to achieve maximum benefits rather than the self-regulatory concept of self-judgment (Schunk, 1994). In the context of this study, the valuable assets that students possessed were time, commitment and attitude. All three assets were available to both school leavers and Grade 12 students and were characteristics of self-regulation. Whereas the school leaver participants reported having lacked commitment to

study, not spending enough time and a negative attitude towards schooling, the Grade 12 participants reported a high level of commitment, spending quality time on study and positive attitude to schooling. Hence, the nature of students' investment in each asset immensely influenced their academic achievement.

6.2.1.2.2.1 Poor Time Management and Lack of Commitment to Study

The discourses in Chapter 5 indicate that Grade 9 and 10 school leavers lacked commitment to study and the ability to manage their study time. In this chapter, time management is referred to as the management of a range of skills, techniques and goals for study success. It involves organising, setting priorities, scheduling and monitoring progress. In an academic context, a student who is committed to study often ensures that time available in school and at home is managed properly for maximum benefit and success in school.

The discourses also indicate a lack of the second asset, commitment to study. Commitment refers to the sacrifices an individual student makes to set aside time for study. For example, in the Grade 9 and 10 school leavers' focus group, Lagasopa said

Sometimes I spent so much time playing and I don't spend enough time on my school work. I just play around and doing other things and don't spend time on study. As a result of these I didn't do well in my studies and I'm here. So, ... I roamed around and get too tired to do my studies, or don't complete my school work, homework or stuff like that. I always thought that... in the morning I'll go back and do them in the classroom...

Saina in the same added

I am someone who loved sports in school. I never thought much about my school work that's why I never put study as my priority. I used to get too involved in sports. Whatever sport, whichever school hosted sports, I was always present I used to do that and never bothered about my studies. By the time I got home I was too tired to and would head straight for bed and

*sleep. Only in the last minute when we were in class I would rush, rush...
That's why I never got good marks and I never continued...*

Both Lagasopa's and Saina's experiences were that of poor management of time and lack of commitment to study. For Lagasopa, it is inferred that poor time management and lack of commitment to study were in reaction to the psychologically and emotionally distressing situation she was in. The divorce of her parents and the remarriage of her father and being in a blended family contributed to the lack of developing emotional connections. Lagasopa could not accept her step-mother as equal to her own mother. She explained further that as a result of the problems she has at home, she lost focus and had difficulty managing her time and lacked the commitment to study. The excerpt from Lagasopa indicates that she tried to occupy herself with activities that often removed her focus from situations in her family. In the interview Lagasopa acknowledged that her under-performance which resulted in discontinuation of secondary schooling was the result of her poor investment in time and commitment to study. Lack of time management and commitment to study resulted in procrastination of academic activities. Saina, although having come from an intact family, had difficulty prioritising her study commitment and social life. So, much of her time was spent on a hobby which, at present, does not provide a career path for many sporting talents in PNG. Hence, both Lagasopa and Saina had problems with self-regulatory motivation and failed to utilise their key assets wisely.

6.2.1.2.2.2 Negative Attitude Towards School

Aiken (2002) explains that attitudes cannot be observed direct but are inferred from behaviour. According to Gagné and Briggs (1974, as cited in Aiken, 2002, p. 3) attitude is "an internal state which affects an individual's choice of action towards some object, person or event" and is a "learned cognitive, affective, and behavioural predisposition to respond positively or negatively to certain objects, situations, institutions, concepts, or persons". In this study, attitude is viewed as a student's cognitive, affective and behavioural predisposition to respond positively or negatively to school or learning. In this study, Toki's experience provides some insight into the effects of a negative attitude on academic achievement. Toki

explained:

And because my mummy did not tell me who my father was I didn't take my school, school work seriously and I just had to play up in the school and that's why I had to come out..., I mean dropped out in Grade 10... My father... he only made my mummy pregnant and then he left her...and when I asked her who my father was she didn't want to tell me. She waited, she told me she was gonna ... if I finished she would tell me who my father was but she didn't tell me...That's why I had to just give up from school.

Toki reported about how her search for truth about her paternal identity affected her general attitude to school. This resulted in her dropping out of school. The fate of Toki indicates the deep psychological and emotional distress she was in without knowing her full identity and her subsequent reactions to school and learning. As a teenager, this information was important to her for making any future decision. With information not forthcoming, Toki responded negatively to the situations she encountered and this impacted on her academic achievement.

6.2.1.2.3 Self-Efficacy

The factor analysis for the Grade 9-10 school leavers found self-efficacy to be problematic and an impediment to academic performance. The theorist, Albert Bandura (1977) defined self-efficacy as an individual's belief about personal capabilities to exercise control over one's personal level of functioning and over events that have a potential effect on one's life. Self-efficacy beliefs also influence how individuals feel, think, motivate and behave. A student's efficacy beliefs have considerable influence on self-regulatory learning, personal aspirations and level of motivation and academic achievement.

Some Grade 9-10 school leavers indicated that they had a high sense of self-efficacy beliefs about understanding of the content taught in the core subjects and their capability to master the skills and knowledge taught in these subjects. This is evident in item 34 *I could understand the key points that were taught in the core subjects* (.848) and item 35 *I could master the skills and new ideas taught in the core*

subjects (.903) (see Table 4.2). However, their self-efficacy beliefs in understanding their teachers, subject content and their performance in tests were problematic as shown in items 36, 43, 44, 45. Item 36 was: *I understood the teachers in my core subjects (.570)*; Item 43: *I found it easy to learn new things in school (.615)*; Item 44: *I had good understanding of my subjects (.621)*; Item 45 was: *I usually did well on test in my core subjects (.594)*. These items yielded low correlation coefficient indicating low self-efficacy by some. Such a low perception of their capabilities would have impeded their motivation to learn and in turn, their academic achievement. It also indicates that some of them were at high risk of under-performance and were aware that they could not continue to Grade 11 with such poor results.

The one-way ANOVA test on the ratings for academic achievement scale indicated significant differences ($p < .01$) between the mean scores of Grade 8 school leavers and Grade 9 and 10 school leavers. There was also a significant difference ($p < .00$) between Grade 8 school leavers and Grade 12 students in their perceptions of personal capacities (self-efficacy) to perform well in their learning environments. This indicates that the three groups differed in their ratings on achievement scale.

An independent samples t-test found a significant difference ($t(83.64) = .592, p = .03$) in the mean scores for Site 1 ($\bar{x} = 3.19, SD = 1.30$) and Site 2 ($\bar{x} = 3.78, SD = 1.15$). The magnitude of the difference in the means however, was small ($\eta^2 = .057$), indicating that the participants at Site 2 felt slightly more self-efficacious than the participants in Site 1.

6.2.1.3 Psychologically and Emotionally Distressing Issues

The school leavers reported a number of significant events in their lives that had potential psychological and emotional consequences. In this study psychologically distressing situations are referred to as situations that distort or hinder an individual's cognition and emotionally distressing situations are those that hinder or threaten the emotional well being of an individual. These situations come in different forms and in this study, they occurred as a result of events that threatened their own and their teachers' safety such as election related violence, criminal activities and exposure to

and threats from criminals encountered between home and school. Psychological and emotional distress also occurred as a result of searching for paternal or maternal identities, adoption, family-related conflicts and unethical behaviour of teachers. Although the sources of psychological and emotional distress are external, the impacts on students are often internal. The sources of psychological and emotional distress will be discussed in detail in this chapter.

As learning requires effective cognition, psychologically and emotionally distressing situations can impact a student's motivation, learning and academic achievement. In their attempt to deal with issues some school leavers resorted to a number of maladaptive behaviours such as lack of personal commitment to study, poor management of study time and became easily influenced by peers. Consequently, their academic performance was poor.

6.3 Impediments to Academic Achievement of School Leavers- External

Academic achievement is a cumulative outcome of numerous influencing factors including family, community and school experiences. The findings of this study indicated that a number of other factors were identified as impediments to academic achievement. These are categorised under three key external impediments labelled as (1) Policy Framework; (2) School Factors; and (3) Non-School Factors. External attributions are situational and external to an individual (Weiner, 1979). External impediments impacted on the school leavers' performance, access to and completion of the full cycle of primary and secondary schooling.

6.3.1 Policy Framework

The current policy framework that requires the use of selection benchmarks by provinces commonly referred to as 'cut-off marks' to determine high school selections has been in place owing to limited availability of resources such as student, teachers and school facilities. This system has continued to push large numbers of students out of school from Grade 8 and 10 as illustrated in Figure 1.4 in

Chapter 1. However, from the perspective of human rights, specifically the Convention on the Rights of the Child to which PNG is a signatory, Article 28b states

Encourage the development of different forms of secondary education, including general and vocational education, make them available and accessible to every child, and take appropriate measures such as the introduction of free education and offering financial assistance in case of need...

Within this context most school leavers particularly from Grade 8 and 10 are under 18 when the system forces them out of school. Consequently, the policy and the practice of pushing students out whilst they have their right to education may be considered a breach of their rights.

6.3.2 School Factors

The nature of the school context contributes significantly to the academic achievement of students. This comprises the size, infrastructure, ethos, values, routines, and the language that are used and promoted by the school and those who are part of the school. Six key areas of the school context identified as contributing significantly to academic achievement in this study comprised the (1) parental and/or guardian difficulty with payment of school fees, (2) teacher-related issues, (3) availability of and access to curriculum resources, (4) gender inclusivity, (5) school and/or class size and, (6) school psychological-emotional environment. Three of these areas were also highlighted in previous studies into female and participation in school by Flaherty (1998), Roakeina (1998), UNICEF (2003) and Yeoman (1987).

6.3.2.1 Parental and/or Guardian Difficulty with Payment of School Fees

Education in PNG is neither free nor compulsory and every student is required to pay the schools fees set by their Provincial Education Boards (PEB) upon enrolment in school. Inability of parents to pay very high school fees and educational costs at

secondary schools has been highlighted in previous studies as one of the reasons for many female students dropping out of school (Flaherty, 1998; Yeoman, 1987). The majority of the school leavers in this study highlighted the difficulty in paying school fees as a key factor for leaving school as evident in the factor analysis, interviews, and focus groups.

In a country which has a small economic base and the average annual household income is very low, paying for social services such as education can be difficult. In a study by Human Rights Watch (2006) on human rights issues in PNG, school fees and school related costs were found to be high compared to the average annual income. It reported that in 2004-2005 caps on school fees ranged from 100 kina (US\$31.65) through grade 2 to 1,200 kina (US\$379.75) for grade 11 and 12 day students.

In 2009 the school fee caps set by the National Education Board (NEB) are as follows: Grades 9-10 at K825 (US\$441.00) for day students and K1200 (US\$642.00) for boarding students. Grade 11-12 at K900 (US\$482.00) for day students and K1400.00 (US\$743.00) (The National Online, 2009). The Provincial Education Boards (PEB) are expected to adhere to these caps when setting school fee in their respective provinces. In addition to these, parents have additional expenses for items such as stationery, school uniforms, and allowances for lunch and transport. To raise such amounts of money to pay children's school fees is often difficult for many families who survive on a subsistence economy and those in urban settlements whose income per day is very small.

As indicated by the Human Rights Watch (2006), many families cannot afford the high costs of educating their children. This is indicated by the per capita gross national income for PNG which, in 2003, was US\$510. When average income per family is very low, it places a considerable burden on many parents and/or guardians despite government subsidies provided to assist them.

Aspiring politicians have made promises to offer free education if they get elected. However, this is one area that needs the commitment of the government, not just individuals as it is a costly exercise. The Education Department alone cannot deal with the issue of free and compulsory education. The question is whether the

government is ready to make a huge commitment to offer free education. Under existing policy frameworks of the PNG DoE, the government subsidises the cost of education but presumably the subsidy is not enough. Difficulty and uncertainties about payment of school fees often creates unnecessary anxiety on the children and this can affect their performance in school.

Such circumstances promote preferential treatment of sons over daughters. Although this attitude is slowly changing, in developing countries such as the Melanesian countries including PNG, perceiving that costs of educating daughters are much higher than the expected benefits, they rationally prefer to make higher educational investments in their sons (Gannocot & Avalos, 1994 and Tawaiyole, 2005).

6.3.2.2 Teacher-Related Issues

One of the most important aspects of human capital influencing the academic achievement of students is the availability of quality teachers with whom students spend much of their waking time. Teachers are entrusted with the mammoth responsibility of imparting knowledge to students and providing care and support in school. Several issues related to teachers were identified as impediments to the academic achievement of school leavers. First, the unethical conduct of some teachers in secondary schools was revealed as a problem area. This was found to be in the form of lack of commitment to teaching, frequent and prolonged absences from classes and engagement in private business when they should have been teaching. Lack of professional commitment of teachers was highlighted as an issue in the eighties and at the start of this millennium (Roakeina, 1988; UNICEF, 2003) and was found to persist in this study. Lack of attendance by some teachers to their profession and frequent absenteeism from classes was reported as a major concern by a significant number of participants from Site 1 and was an issue that had negatively impacted academic achievement.

Second, earlier studies and reports of teacher-related issues highlighted the problem of sexual relations by male teachers with female students (Roakeina, 1988). In this study the school leavers reported experiencing several forms of sexual harassment from male teachers which comprised requesting sexual favours and sexually

suggestive behaviours towards female students. The school leavers who were sexually harassed indicated being intimidated and shamed and consequently this affected them psychologically and emotionally. Such irresponsible behaviours prevented female students from seeking academic assistance from their male teachers. This subsequently inhibited their learning and their academic achievement.

Teachers' unethical behaviour has come under scrutiny particularly from the PNG media. Cases of male teachers allegedly kidnapping, raping and having intimate relationships with students in schools have been reported ("Girl raped by teacher", 2007; Gumuno, 2007). The Post Courier report entitled "Relationships affect girls" (2008) highlighted that "many similar cases apparently have remained suppressed by schools, school authorities, provincial education authorities and the community" and these go unreported by people in positions of authority for fear of stigmatisation and repercussions.

6.3.2.3 Availability of Curriculum Resources and Materials

Previous studies (Roakeina, 1988; UNICEF, 2003) found resistance to formal western education and loss of motivation in learning certain subjects which lacked relevant curriculum. In this study, the curriculum itself was not found to be a major concern; however, the school leavers were concerned about the availability of and access to textbooks for students, stationery, resources for teachers as well as the availability of teachers as a form of resource.

The results of the factor analysis indicated limited supply and access to available curriculum resources as one of the key factors that impeded the academic achievement of school leavers. The factor loading 1 for Grade 8 on Part C of the survey as shown in Figure 4.3, indicated high coefficients on Item 55 *My school gave equal access to resources such as textbooks, computers, etc, to both boys and girls* (.747); Item 57: *My subjects had enough resources such textbooks and computers.* (.793); Item 58: *My subjects provided up to date variety of resources.* (.814); Item 59: *My core subjects were well resourced with teachers.* (.747); Item 62: *The school offered a wide range of curriculum for me to choose what I thought would prepare me for the future.* (.704). High correlation coefficient on these items indicate that

Grade 8 SLs strongly perceived that their schools provided the relevant learning resources to which students had access and were satisfied with a range of resources and curriculum subjects available in their classrooms. However their problem was the availability of and access to these resources outside the school hours. This was indicated by a low correlation coefficient on Item 60: *I had access to appropriate facilities and services such as a study table to study after school hours. (.667).*

The high correlation coefficient in factor 1 loading is indicative of the level of work and support primary schools throughout PNG received in the early 2003-2004 period in curriculum materials and learning resources such as text books under Curriculum Reform and Implementation Project (CRIP). This was then and continues to be sponsored by the Australian government under AusAID.

In contrast, Grade 9-10 school leavers gave a negative picture of the availability and access to learning resources. Whereas the correlation coefficients in the factor analysis for some of the items addressing the availability of and access to curriculum resources and materials were high for Grade 8 school leavers, they yielded far lower correlation coefficients for the Grade 9 school leavers. The low correlation coefficients are as follows for Item 55: *My school gave equal access to resources such as textbooks, computers, etc, to both boys and girls (.651)*; Item 56: *My school textbooks featured both male and female examples (.531)*; Item 57: *My subjects had enough resources such textbooks and computers (.612)*. Low correlation coefficients indicate dissatisfaction with the availability of and access to curriculum resources by Grade 9-10 school leavers.

For effective learning and academic success, students need to have access to a range of educational resources including qualified teachers. The one-way ANOVA test on achievement scale indicated a significant difference between the mean scores of the Grade 8 school leavers and Grade 12 students relating to the availability of qualified teachers to teach the subjects studied by them as indicated in Item 59. Whereas, Grade 8 leavers were concerned about availability of qualified teachers to teach various subjects, the Grade 12 students were not concerned. Earlier discussion in this chapter indicated that Grade 12 students were generally satisfied with the teachers they had available.

The school leavers sample for this study was drawn from the 10 year period between 1998 and 2007. During this period the educational reformation process was in progress at the primary school level. According to the Department of Education Annual Report (2004) the reform of primary schooling resulted in rapid expansion of schools and increased enrolment. This resulted in follow up push for expansion in the secondary level of education with lower secondary school immediately becoming inundated with increasing class sizes. This had implications for curriculum resources & materials, teachers and infrastructure. With limited curriculum and materials, many students in schools had to share with other students the limited curriculum resources and materials available. This could have been the reason for the negative perception of the school curriculum resources and materials by school leavers.

6.3.2.4 Gender Inclusivity

Gender is the process of social construction through which our sense of ourselves as gendered beings emerges. The socialisation process and its effects influence how boys and girls differ in their engagement in various activities (Lopez, 2003). This socialisation process is often enhanced by the environment such as school, family and community (Lee, 1997). Hence, in this study gender inclusivity refers to the process of ensuring that a sex-equitable approach to teaching, assessment and participation in school is provided for both male and female students. Gender inclusivity in a learning environment is evident in the use of gender inclusive language, gender equitable examples and illustrations in curriculum materials, equal opportunities for accessing curriculum resources and materials and promotion of gender inclusive values and interests which address the needs of both boys and girls.

Many indigenous PNG cultures have traditionally promoted male dominance and the status of women has been generally low. Consequently, in contemporary PNG society gender inequality is evident in many facets of life comprising politics, employment, economics and education. In many of these areas females are only just making breakthroughs. In education, the PNG DoE has made an attempt to provide a gender equitable education for all, however this needs to be fully realised throughout the entire education system. As shown in Figures 1.4 in Chapter 1, an under-

representation of female students has been evident at the secondary school level despite the expansion in the primary and secondary levels of education.

Many of the school leavers in this study had grown up in homes observing and experiencing differences in the way their parents or the community treated them, perceived them and the roles assigned to females compared to males. One of the areas of disparity they might have observed in their homes could have been the educational levels of their parents, literacy and occupational status. As shown in Figures 4.10 and 4.12 in Chapter 4, many of the school leavers indicated their mothers or female guardians as having had no formal education or having had below Grade 10 education. Additionally a high percentage of their mothers were unemployed.

Some Grade 9 and 10 school leavers felt that their parents did not provide gender equitable opportunities to access formal schooling, as shown by the lower correlation coefficient on Item 49 *My parents/guardians gave their children equal opportunity to go to school (.673)* in factor loading 2 of the factor analysis (see Table 4.1). The low educational status of parents and/or guardians could have resulted in their lack of appreciation for their daughters' education.

In the context of this study, gender inclusivity specifically focuses on the equitable availability of and access to learning resources such as teachers and textbooks, interactions, role models in schools and in textbooks, and gender inclusive school ethos and practices. These areas were highlighted as key factors that had influenced academic achievement of female students in secondary schools in this study.

Figures 4.5 and 4.6 in Chapter 4 show gender disparity between the models in schools that is, teachers, in some subjects. Gender differences were evident amongst subject teachers of Grade 8 school leavers, with male teachers teaching mathematics and female teachers teaching all other subjects. School leavers in Grades 9 and 10 indicated having had male teachers in mathematics and science and more female teachers in English. Students in Grade 12 reported major disparities in gender balance amongst their teachers with engineering-type sciences and history taught predominantly by male teachers and female teachers in the other sciences and the

non-science subjects.

The Grades 8, 9 and 10 school leavers indicated that they were taught by both male and female teachers. However, Grade 9-10 school leavers in particular, indicated having been taught by male teachers in mathematics, science or technology. They also indicated that their schools and classroom were not gender inclusive. Their rating of the school ethos indicated that their schools did not promote gender inclusive environments as evident in the low correlation coefficient on factor 4 on Item 51: *My school promoted equal treatment of boys and girls (.544)*. Grade 9 and 10 school leavers also indicated that their teachers did not promote gender inclusive practices whereby female students were not encouraged to participate in class. This was evident in the low correlation coefficient on the factor 4 loading on Item 52: *My teachers encouraged girls to participate in class (.593)*”.

A low correlation coefficient on Item 55: *My school gave equal access to resources such as textbooks, computers, etc, to both boys and girls (.651)*, indicates an inequality in students’ access to learning resources. Male students, being physically stronger and culturally dominant, could have been more assertive in accessing available resources. Grade 9 and 10 school leavers also pointed out through the factor analysis that even textbooks used in schools were not gender inclusive as they did not provide equal representation of male and female role models and examples as indicated by a low correlation coefficient in Item 56: *My school textbooks featured both male and female examples (.531)* in factor 1 loading.

The one-way ANOVA test on the achievement scale indicated significant differences in mean scores of Items 51 and 52. These items were both focused on gender inclusivity. Item 51 which concerned the equal treatment of boys and girls in class had a significant difference of $p < .05$ between Grade 8 school leavers and Grade 12 students and a significant difference of $p < .02$ between Grade 9, 10 and Grade 12 participants. Item 52 which focused on the encouragement of girls’ participation in class had a significant difference of $p < .00$ between Grade 9, 10 and Grade 12 participants.

A T-test comparing the achievement ratings of participants at the two sites indicated a small but significant difference ($t(55.49)=2.10, p=.0$), between the participants

at the two research sites in their mean scores on gender inclusivity focusing on gender balance between their male and female teachers. The participants in Site 1 had a higher mean score ($\chi=4.88$) compared to the participants in Site 2 ($\chi=4.47$) thereby indicating that participants in Site 1 perceived that there was gender equity amongst their teachers compared to participants in Site 2. As Site 1 was in a location where the societies are male dominated, it was important to have a gender balance in their teachers. In the PNG schools gender inclusivity in schools is imperative for delivering immediate professional role models for female students.

6.3.2.5 School and Class Size

Researchers who examined the impact of school size in western contexts on a number of variables including achievement, safety and violence have found that large secondary schools tend to offer a wide range of subjects, programs and services to choose from and larger numbers of students with whom to develop friendships (Barnett, et.al., 2002; Mudore, 2000; Speolhofer, Benton, & Schagen, 2004). Because they provide a wide range of subjects, large schools tend to have the benefit of specialised teachers to teach different subjects. They often have huge athletics programs, budgets, often get more media coverage and the tuition is often less or subsidised by the government.

In the context of this study it is however, important to put into perspective the context of large schools. The period 1993 onwards was the period when the participants in this study were in secondary schools and it was a period during which the education system in PNG was undergoing considerable change. The reform process saw a rapid expansion of the education system. This expansion created new challenges as highlighted in the Department of Education Annual Report (2004, p. 4):

While access to education has been improved significantly, the quality of that education becomes a concern as the school population increases and the system struggles to plan for, fund and administer those increases. There is considerable pressure in areas such as infrastructure and teacher numbers, teacher training, materials development and distribution, and the capacity of

all levels of the system to monitor and administer the education reform, as well as greater community and parental demand for access to education.

The pressure felt by the entire education system was a real experience for many secondary schools in the country. As the primary school sector expanded, rather than enjoying specialised teachers, shortage in specialised teachers became apparent, classrooms experienced overcrowding with insufficient learning resources and infrastructure to accommodate additional students in school. Overcrowding in classrooms had implications for teacher practices by limiting opportunities for use of gender inclusive practices and activities. In such situations female students could have been easily overlooked in class as more attention was given to male students. This could have impacted on female students' academic achievement.

Specific to this study about the school size was the socialisation aspect. In this study school leavers in Grade 9 acknowledged that they were from large schools as confirmed by the high correlation coefficient on Item 65: *My school was very large* (.747) and Item 63: *My class was overcrowded with students* (.770). However, as highlighted by Mudore (2000) the downside of being in large schools was the difficulty in getting to know other students and for teachers to interact with students at a personal level. In this study, this was evident in the low correlation coefficient on Item 66: *It was easy to get to know other students in my school* $r=.633$. Networking with others opens opportunities for socialisation in school as well as opportunities for teamwork in class. The more manageable the size of a class, the more the teacher is able to attend to individual learning needs. As the school leavers in this study were in large schools, they often found it difficult to bond and interact with other students.

The one-way ANOVA test on the ratings on achievement confirmed the differences between the school leavers and Grade 12 students in the aspects of school size itself and the potential for socialisation. Generally Grade 8 school leavers came from smaller schools compared to Grade 9-10 school leavers and Grade 12 students who were often from larger schools. In this study, because Grade 9 and 10 school leavers and Grade 12 students were from large urban schools, it was not easy for them to get to know other students. This was confirmed by the significant difference of $p<.03$ between the Grade 8 and 9 mean scores on Item 65. There was also a significant

difference of $\rho < .00$ in the mean scores between Grade 8 and 12 and a significant difference of $\rho < .02$ in the mean scores between Grade 9 school leavers and Grade 12 students on the same item. Hence, the participants in the three groups differed significantly in their perception of the size of their classes.

Item 66 asked for participants' perception of how easy it was to get to know other students. Ability to get to know other students makes it easy to establish social network in school. The one-way ANOVA test indicated a significant difference of $\rho < .01$ in the mean score between Grade 8 school leavers and Grade 12 students in their perception of how easy it was to get to know other students in school.

A comparison conducted using the independent T-test between the participants at the two research sites indicated a significant difference of $t(85.36) = -.68, p = .03$ between the mean scores for their school size. The mean score for Site 1 was higher ($\chi = 4.26$) than Site 2 ($\chi = 3.67$). This indicates that the participants in Site 1 came from larger schools compared to participants in Site 2.

The t-test also indicated differences in the mean scores of the participants at the two sites relating to the students' opportunity to establish social networks in their schools. The participants in Site 2 had a higher mean score of $\chi = 3.80$ compared to the mean score for Site 1 which was $\chi = 3.12$. The differences indicate that participants in Site 1 most likely came from larger schools compared to participants from Site 2. Having come from larger schools, it was quite difficult for students from Site 1 to get to know other students compared to participants from Site 2 who most likely came from smaller schools.

The size of a school is critical in the PNG context as it impacts on the availability of curriculum resources, teachers and school emotional and psychological environment. As Bracy (2001), Cutshall (2003) and Mudore (2000) pointed out, smaller schools are able to provide a warm atmosphere where students feel a sense of belonging, of being valued and support is easily accessed.

6.3.2.6 School Psychological-Emotional Environment

A school as a whole exerts powerful influence on the psychological-emotional environment and the academic goals that students adopt. As discussed earlier, these goals can be mastery, performance and social focused, or a combination of these. A school's psychological-emotional environment entails perceptions about the utilisation of techniques and strategies that create a safe and secure environment for learning to occur. According to Antidote (2004), a British educational organisation that promotes emotionally literate society, an ideal learning environment should foster an atmosphere of equality and mutual respect, an atmosphere where students feel valued and accepted, and a nurturing and supporting environment where students can easily access support when they have personal and academic problems. A sense of being valued comes from a sense of inclusion in school and it develops from students being provided with opportunities to identify distinctive roles that they can play which, in turn, leads to them developing a sense of being valued by the school.

A creation of a sense of safety in school involves having a sound mind to think, communicate and behave. A safe environment has support systems in place to assist students with personal and academic concerns as well as physical safety. Acceptance in school involves being provided the opportunities to understand oneself better and to develop the potential and opportunity to be heard. As schools provide environments where students feel they are capable, heard, accepted, safe and included, learning becomes easier, enjoyable, stimulating and positive relationships can be developed. Using the principles of Maslow's Hierarchy of Needs, schools have an obligation to provide safe and nurturing environments which enable students to fulfil their own unique potential and with a strong foundation for self-actualization to occur in their future (McInerney & McInerney, 2006). Students' perception of the aspects of their school environment in turn, influences the achievement motivational goals they adopt.

The one-way ANOVA test on the achievement rating focused on various aspects of school psychological-emotional environment as indicated in Items 67, 68 and 69. Item 67 *My school made feel a valuable member of the school*, focused on whether students felt valued by their schools. The one-way ANOVA test indicated a

significant difference of $\rho < .01$ between the school leaver participants from Grade 9-10 (Group B) and the Grade 12 students (Group C). This difference correlates with the difference found in the school and class size which indicated that the smaller the school was, the easier it was to interact with teachers and to socialise with other students. Item 68 *When I had personal and academic concerns in school, I had someone to talk to*, focused on support services provided by the school. It had a significant difference of $\rho < .00$ between the school leaver participants in Grade 9-10 and the Grade 12 students. The difference confirms the trend in awareness of the support services provided in school as shown in Figure 4.8 in Chapter 4. It indicates the increasing levels of awareness of the need for support services provided by schools as students progressed through the higher grades. Item 69 *I felt safe in school*, concerned the safety in school. The one-way ANOVA test indicated significant difference of $\rho < .03$ between Grade 8 school leavers and Grade 12 students. In the interviews and focus groups, Grade 12 students indicated that they felt safer in school than the Grade 8 school leavers. Generally, school leavers reported about sexual harassment in the form of male teachers asking for sexual favours from female students and/or sexually motivated approaches by male teachers towards female students. These would have threatened their emotional health as well as their physical safety. This has been discussed in depth under teacher-related issues.

The independent samples t-test was conducted to compare the school emotional environment for research site 1 and 2. This indicated a significant difference in the scores for Site 1 ($\chi = 3.51$, $SD = 1.56$) and Site 2 ($\chi = 4.44$, $SD = .84$); $t(63.76) = -.93$, $p = .00$ on Item 67 but the magnitude of the difference in the means was moderate (*eta squared* = .122). It indicated that participants in Site 2 felt their school made them feel as valuable members of the school more than participants in Site 1. This difference somewhat correlates with the findings about the difference in the school size. As the participants from Site 2 schools were from schools with smaller enrolments, it was easier for them to socialise and interact with teachers and other students and this made them feel more valued than the participants from Site 1 who came from large schools.

6.3.3 Non-School Factors

Non-school factors exist external to the school and its environment and can present as impediments to academic achievement. In this study non-school factors comprised four key areas that were presented as impediments to the academic achievements of school leavers. These were (1) safety, (2) family dynamics, (3) personal factors and, (4) school and community infrastructure.

6.3.3.1 Safety Issues

Concerns about safety issues and traumatic events experienced in school and/or between home and school were raised in the interviews and focus groups and were identified as impediments to the academic achievement of school leavers. However, in the factor analysis contrasting results about safety issues were identified. Whilst the results of the factor analysis for Grade 8 school leavers showed that they felt safe in school and between home and school, in the interviews and focus group concerns about safety were expressed. The Grade 8 school leavers' results of the factor analysis on Grade 8 Items 69 and 70 yielded high correlation coefficients. Items 69: *I felt safe in school (.923)* and Item 70: *I felt safe between home and school (.733)*. It indicates that this group of Grade 8 school leavers felt safe in school and between home and school.

In contrast, the results of the factor analysis for Grade 9-10 school leavers on the same items (Items 69 & 70) were contradictory. The correlation coefficient on Item 69 was low (.353) on factor loading 4, indicating that Grade 9-10 school leavers felt unsafe in school. However, the correlation coefficient for item 70 in factor loading 3 was more positive (.789) indicating that they felt safe between home and school. In the interviews and focus groups some of the school leavers reported that the issue of safety was a major setback for them. Safety issues for them ranged from violence in school to sexual abuse in school and between school and home.

Threat to female safety between home and school and within school has been a concern highlighted by several researchers and the media over two decades (Robins, 2005; Webster, 2004a; Yeoman, 1987). It is an issue that has not been adequately addressed and consequently, female students have been exploited and abused

within the school environment and between home and school. Amongst the perpetrators and sources of threat to physical, psychological and emotional safety have been teachers. Cases of rape by teachers and intimate relationships with students in school have been reported (Post Courier, 2007; 2008). Kidnappings and rapes by men in the community of girls between home and school have also been reported by the PNG media (The National, 2007). In situations of threat to safety, if the situation on the road was assessed unsafe and/or if there was no male relative available to accompany them to school, students missed out on classes, sometimes for prolonged periods, hence affecting their learning.

Cases of students' murdering their teachers are quite uncommon in PNG but one such case was reported in a focus group in Site 1. Such acts of violence against teachers have potential traumatic impact on students if they have witnessed violent acts or have known relatives of the victims. Violent environments are both psychologically and emotionally unsafe and distressing for students and can have a negative impact on learning. In a setting where no formal counselling service is available to all students, especially at the primary school level, the aftermath of traumatic events such as the murder of a teacher, psychological and emotional distress can be overwhelming.

6.3.3.2 Family Dynamics

Aspects of the family dynamics of students have been found to exert powerful influence on the academic achievement of students. Coleman (1990) in his book entitled "Foundations of Social Theory" theorised components of family influence, three of which are economic, social and human capital and each was linked to academic achievement.

Economic capital is referred to as the financial resources and assets that are available to families. The financial resources and assets a family has contribute significantly to the educational resources and opportunities that children access. These include the type of schools that children attend and the educational resources and assets parents provide for children to use at home. Parents' occupational status contributes significantly to the economic capital of a family. In this study it was evident that

families with no economic capital found it difficult to afford the educational costs for their children compared to families that were economically better off.

Human capital refers to parental and teachers' provision of knowledge resources required for creating a positive learning environment for their children. The quality of teachers in terms of ethics, pedagogical knowledge and practice positively influences the academic achievement of children. However, as discussed earlier, a good number of school leavers in this study highlighted problematic issues in respect of the quality of teachers. These include a lack of commitment as evident in regular absenteeism of many teachers.

Parental education is also a vital aspect of human capital for providing knowledge resources and for ensuring that children have a supportive learning environment. Well educated parents often know what resources are needed to promote learning at home and in school and are often actively involved in their children's education. A mother's level of education in particular, has been found to correlate strongly with the academic achievement of children (Moore & Schmidt, 2004). In this study it was found that the majority of the parents of early school leavers had a low level of education or had never had formal education compared to a majority of parents of Grade 12 students who were more highly educated.

Family social capital refers to the relationships that are created within families. Social capital, in the form of the family relationships within a given family structure, contributes to psychological and emotional stability within a family and transfers into the academic achievement of children in that family. In this study two aspects of family situations were found to be major impediments to academic achievement. These were family type and the socio-economic status of the family.

6.3.3.3 Family Type

The influence of family type on academic achievement of students is well documented. A number of studies (Deana, 2006; Jeynes, 1999b; Kim, 2008) have found that the nature of the family students come from influences the academic achievement. Kim (2008) for example, pointed out that the erosion of family stability in the USA has impact on the academic achievement of adolescent children and

this tends to continue into adulthood. They highlight that as family type changed, the academic achievement of children brought up in single parent homes and blended families has often been less conducive to school achievement. Research by these authors has shown that achievement of children from these types of families has been lower than children from stable and intact families.

Parental involvement in children's education also varies by family type. Family type has been found to inhibit the academic achievement of school leavers in this study. Family types comprise families under marital dissolution and step-households, families with children born out of wedlock, families with adopted children and polygamous families.

In this study a significant number of school leavers reported coming from any of these family types: dissolved families, step-families, families with children born out of wedlock, adoptive families and polygamous families. They also described how being in these family situations have inhibited their progress in school. For example, the practice of adoption is widespread in PNG cultures where parents willingly adopt out their children to immediate or extended family members. Polygamous families are also quite common in PNG and in this study participants who came from this type of families reported having difficulties at home and in school.

6.3.3.3.1 Marital Dissolution, Step-households and Academic Achievement

Marital dissolution and subsequent step-households have increased considerably in western countries but very little is known about the impact of divorce and step-households on academic achievement of children caught in it (Deana, 2006). In the PNG context, observations suggest an escalation of divorce and step-households, however very little information is currently available on marital dissolution, the subsequent step-households and the influence on academic achievement of secondary school students. It was not the intention of this study to delve into this area, however in this study it was found to have been one of the significant impediments to academic achievement. The effects of marital dissolution were not physical but

psychological and emotional and the depth of the effects was evident in the emotional disclosures as presented in Chapter 5.

From the interviews and focus groups with some school leavers from dissolved families and step-households, particularly households to which fathers had brought in a step-mother, two major difficulties were found. Children had difficulty accepting the dissolution and seeing one of the parents leave home and when a step-mother was brought in to the family, creating relationship with the 'new comer' to the household. As relationships are built on trust, developing trust in a woman who is not their mother can be daunting for girls. Lagasopa, a Grade 9-10 school leaver from Site 1 was an example of a child who came from a step-family. She disclosed how she had difficulty accepting her step-mother. She said

As for me, my dad left my mother and we live with our step-mother. So this sometimes affected my studies when I was still in school. Sometimes, you know, if you live with your own parents you have the freedom to ask for whatever your needs or so (in tears while talking)...And when we live with our step-mother it is sometimes difficult for us and we think of these and we don't concentrate in our studies, especially me, I do that...

In reacting to the situation in her home she admitted to being involved in maladaptive behaviours as evident in her inability to manage her time and commit to study. Consequently, she did not attain the appropriate marks for continuation to Grade 11.

Kurada from Site 2 was also from a broken family. She explained that the situation in her family disrupted her studies and resulted in difficulty in payment of her school fees. Kurada said:

... when I was at...doing my Grade 10..., I have a broken family and I was adopted by my big sister. And all that time I was...I was ...disturbed from my lessons and I also had school fees problems...

The nature of a child's response to parent's divorce depends on a number of factors comprising "strength of ego; age; gender; relationship with parents; extended family support; communication and understanding of the divorce; perceived support at school, at church and within the community" (Wright & Stegelin, 2003, p.165). In Lagasopa's situation, as a teenager she reacted negatively to her parents' divorce and the remarriage of her father. This indicates that as a teenage child, she was in a position to compare the benefits of having her own mother against a stepmother. For Kurada, having older siblings in her family was an advantage for her as one of her older siblings took care of her when their parents divorced. Unfortunately, with both of these cases there was no indication of professional support in school or by the church or community.

6.3.3.3.2 Children Born Out-of-Wedlock, Adopted Children and Academic Achievement

Research into the experiences of children born out-of-wedlock and adopted children in PNG have been difficult to find. Hence it is not known what impact children's knowledge about their status as adopted children have on their academic achievement. However, two out of a number of children who were born out-of-wedlock and/or adopted, Toki and Seiyo, in this study did not provide a positive outlook on the impact on their achievement of adoption and children born out of wedlock. Toki who was born out of wedlock described her experience as follows:

And because my mummy did not tell me who my father was I didn't take my school, school work seriously and I just had to play up in the school and that's why I had to come out in, I mean dropped out in Grade 10... My father, my father... he was, he only made my mummy pregnant and then he left her...and when I asked her who my father was she didn't want to tell me. She waited, she told me she was gonna... if I finished she would tell me who my father was but she didn't tell me...That's why I had to just give up from school...

Seiyo who was adopted very early in her life described her experience as an adopted as follows:

...(Pause) Yea, with me it's like this ... (tears whilst talking). This is how I spoiled my education, when I was in school I did well but one problem that affected my studies was a family problem.

When you, like the other sister said, when you live with your own parents you are free to talk to them about your problems in school, whatever you need, or bus fare or whatever. The small things, you know we girls need all kinds of small things, too.

As for me I was adopted and for a long time I never knew that I was living with my adopted parents. So whenever I talked to them about some things I needed in school, they used to tell me, they used to tell me we don't have it. So they used to tell me, "you go see those people, they are your parents, uuh? And they never told me that they were my parents but just told me "you go to them". And when I went to there they would tell me, "you stay with your people". And I used to get confused about where I really belonged. All these used to make me worried and wonder, "Oh why did they leave me in school and they can't meet my needs". So this is one problem that developed in me and affected my education.

The two discourses provide some insight into the challenges confronting children born out-of-wedlock and who are adopted. They indicate that their issues are complex and can be psychologically and emotionally distressing. The discourse also indicates a sense of loss of belongingness, which according to Maslow's Hierarchy of Needs, is a basic human need. They often attributed their academic achievement to the experiences encountered in their families.

6.3.3.3 Polygamy and Academic Achievement

Polygamy is practiced in many cultures across the globe. In PNG it has been commonly practiced in the highlands region and in some coastal regions. A literature search on the impacts of polygamy on academic achievement has provided no

information. However, Toa'riku's case provides some insight into the nature of the problems encountered and the impact on academic achievement. She explained:

... my father got married to three ladies. So the first wife she has four children, the second wife... she has three children, the third wife, she doesn't have any children from him. ... I was... different from all of them because none of them was my mother and... I didn't... I thought that they were ... I thought like they were my real brothers and sisters but they weren't ... I had a different mother and I've never ... (clears throat), never seen her ... they never told me that I was ... different from them... until ...may be when I was... 11 or 12... I haven't seen her and ...(clears throat), sorry (breathes), and when it comes... (pause)... (clears throat & tears)... to Mothers Day (pause)...(in tears) sorry... I usually... think of her...(in tears) ...

And ... this is ... I think the main... thing that ... made it and ... I used to have problems in school. I don't attend lessons and stuff like that... I skip it and ... I don't go for school ... for one whole day or may be one week I don't go for ...classes and stuff like that 'cause it used to really ... disturb me and I felt ... I was just ... useless ... there was no ... meaning for ... me being in school and stuff like that.

To'ariku's case highlights problems resulting from her lack of a sense of belongingness without a biological mother. As a child without a mother she found it psychologically and emotionally difficult and challenging to have meaningful interactions with members of her family.

To'ariku and others from dissolved, step families and adoptive families indicate a need for schools to provide appropriate student support. It also indicates a need for teachers to employ practices that cater for the emotional needs of their students. This would ensure that students from unstable backgrounds are not disadvantaged in school.

The experiences in their families described by Toki, Seiyo, Toa'riku and other school leavers in this study are quite common in PNG where many children are born out-of

wedlock, are traditionally adopted by extended family members, or grow up in polygamous families. However, the extent of the emotional and psychological distress experienced by children in these types of families in PNG is not fully known. The discourses in Chapter 5 indicate a strong relationship between the changing family structure comprising the traditional two-parent families and academic achievement. This information is valuable as it has the potential for providing vital insights for further examination into the experiences and academic achievement of children brought up in changing family structures in PNG.

6.3.3.4 Socio-Economic Status (SES) of Families and Academic Achievement

By western standards which are based on the capitalist mode of production, education is regarded a commodity which is a marketable skill. Those who have more socially valued types of education and the most education generally enjoy better occupational opportunities than those without it (Arrifin, 1992). SES is often measured using a composite index comprising parental education, occupation and income and has been found to correlate positively to academic achievement of students in many parts of the world. A number of studies (Lan & Lanthier, 2003; Niles, 2001; Reynolds & Conaway, 2003) focusing on the relationship between SES and female students' academic achievements, have confirmed a strong correlation. For example, a study by Lan (2003) pointed out that students from low SES and single parent families are at the greatest risk of poor academic achievements and dropping out of school. Reynolds & Conaway (2003) also observed that students from low SES backgrounds are more likely to fail in school than those from the high SES backgrounds.

In contrast, a study involving African American students revealed that those from low SES backgrounds scored significantly higher GPAs than students from high SES backgrounds. One explanation for this finding was that African American parents from high SES backgrounds had difficulty transmitting academic motivation to their children. Consequently they provided inadequate role models for goal setting and problem-solving. On the other hand, parents from low SES situations were described as perceiving academic success as a means of gaining social and economic

mobility. Thus, the high GPAs were achieved through hard work aimed at improving their future (Fisher, 2000).

In this study, the key indicators of SES, parental education, employment status and income, clearly show that many of the parents and/or guardians of school leavers came from low SES backgrounds. With many of their parents and/or guardians uneducated or under-educated, they had difficulty paying school fees. These are described in detail in the following section.

6.3.3.4.1 Parental Education, Employment and Academic Achievement

Parental education is considered to exert a significant influence on the academic achievement of students. It is an aspect of human capital that focuses on the parental provision of knowledge resources that are required for the creation of a supportive learning environment for students in the home. However the provision of knowledge resources cannot be achieved if parents or guardians do not have them. Figure 4.11 and 4.12 in Chapter 4 show the potential of human capital that parents and/or guardians were able to contribute to their children's education. It indicates that the majority of the parents of school leavers had below grade 10 education level or had never had formal education. With very minimal educational level or no formal education, many of them would not have been employed in professional jobs hence their human capital would have been low. If parents and/or guardians themselves had not had a formal education or had a below grade 10 level of education, it would have been difficult to assist their children who were more highly educated than themselves. If their level of education was very low or they had never been to school, their literacy levels would have been very low and they would not have been able to provide the academic support at home, understand the academic needs of their students, even be positive role models for them, or even provide better learning opportunities for their children. By contrast, children whose parents are educated are more likely to assist their children with academic work and influence them positively to perform better. According to Ganzeboom, Triman & Ultee (1991 and Kerkhoff, 1995, as cited in Parcel & Dufur, 2001) a high level of parental education often results in better opportunities for career placement and earnings. These are in

turn, often invested in their children's education, hence enhancing a family's economic capital and their SES.

Moore & Schmit (2004) highlighted that maternal education level has been consistently found to correlate positively to the cognitive development of children and their educational performance. It is well known that the education of a mother has a far reaching influence on her children, family, community and the nation. Bushweller (2004) also asserted that "Investing in girls' education globally increases economic growth and political participation, improves women's health, leads to smaller and more sustainable families, and helps prevent diseases..." (p.17). Well educated girls grow up to become well educated mothers and in turn, become a positive influence in the education and life of their children and families. Hence, education is a catalyst for change.

Female role models in homes and especially in communities in rural areas of PNG was found to have been lacking. Consequently female students have no role model to encourage them to be focused on studies and for parents to develop a sense of confidence to support their daughter's education. Lack of role models often creates unnecessary fear among parents of losing their daughters through education (Webster, 2004b). Without educated role models it becomes difficult for people to understand the potential of females in a male dominated world. It also becomes difficult to comprehend that education is a catalyst for realising the full potential of females and change in their communities.

Figures 4.9 and 4.10 in Chapter 4 indicate a prevalence of very high unemployment amongst the parents and/or guardians of school leavers and the high unemployment rates correlate with low level and/or no formal education and low SES status. The factors have a negative impact on the capacity of many families to afford to send their children to school and to support them when they are in school.

6.3.3.5 School and Community Infrastructure

School infrastructure comprises specialised school buildings and laboratories, electricity supply, libraries, dining halls and access to modern communication technology such as computers. Community infrastructure includes roads and

bridges. Lack of or inadequate funding for basic infrastructure needed by schools and/or communities in remote districts can make it difficult to recruit qualified teachers and to maintain essential services. This, in turn, can impact on students' academic opportunities. Lack of or inadequate provision of such essential school and community infrastructure was an issue raised as an impediment to the performance of students who had attended some remote schools. Ipisa reported:

... There at... High School the road is impassable. The teachers don't really go there...And we often run out of food because of the road...When there's no road, they send us home week-end after week-end and we don't settle down properly for study... And there's no power supply too so there's no night study. We only do our study during the day...All these things made it so I didn't continue onto Grade 11.

This illustrates the lack of basic school and community resources as experienced by students at Ipisa's school and its impact on the students' learning. Lack of infrastructure such as roads and bridges have hampered the recruitment of qualified teachers to some of remote schools like Ipisa's. Even when teachers are able to get to these schools, absenteeism of teachers from classes is evident when they travel long distances to and from the nearest towns where essential services such as banks and shops are available. All of these disruptions result in a loss of valuable teaching and learning time and make it difficult for students to progress in their schooling.

6.3.3.6 Personal Factors

Personal factors such as peer group influence and boy/girl relationships were reported to have impacted on many school leavers' commitment to studies, management of study time and, in turn, academic achievement.

6.3.3.6.1 Peer Pressure, Motivation and Learning

Students in secondary schools are teenagers and one characteristic of teens is the experience of peer influence. According to Dowson & McInerney (2000) and McInerney, Roche, McInerney & Marsh (1997, as cited in McInerney & McInerney, 2006), although peer influence has often been viewed to have negative

consequence on motivation and learning, students believe and perceive it as academically important and supportive. However, in this study peer group influence was reported by a number of Grade 9-10 school leavers in both interviews and focus groups as having had a negative impact on their motivation and learning and consequently their performance in school. Aiyo from Site 1, in an individual interview, reflected on how she underperformed in secondary school as a result of peer pressure. She said: *“Many times peer pressure, or our friends ask us to go out...”*. Toki from Site 2 in an interview also reflected: *“...I was too much of running away from school influenced by my other friends that sometimes I missed special lessons like my science and maths lessons”*. Toa’riku from Site 2, in a focus group told the members *“... I don’t attend lessons and stuff like that. Like my friends come and tell me, “Oh, we skip lessons, we go to town” ... I usually say, “Oh, OK. Yea, we go..”*

Sinedou from Site 2 also admitted that she was easily influenced by older peers in school to take drugs and alcohol. She reported:

...my sister went first and her friends had to teach her all that stuff. And when I went she said, “Here, come on, lets...” and then she’ll take us to her room and she’ll say, “...all our friends are sleeping, let’s smoke”...All those times like, I take them as going around, when boys say, “Hey, we go outside and we and smoke” or “go and drink”, I just follow and go...to me it was really nice I really enjoyed myself at high school...and I didn’t realise that that, like, it really affected my learning. Cause every time when there’s homework or assignment I don’t worry about them.

Each of these discourses suggests that the students who were susceptible to the influence of peers could have been at high risk of under-performing. Others like Toki and Toa’riku who had problems in their families and a quest to find their maternal and paternal identities also fell into the trap of peer influence that in turn, had negative impact on their academic achievement.

6.3.3.6.2 Boy/Girl Relationships

As secondary schools are places for teenagers who are undergoing major hormonal changes, relationships issues between boys and girls is highly expected. In the PNG cultural context, girls are brought up in restrictive environments that often limit open socialisation and interaction with the opposite sex from outside their families. Hence, when female students have greater opportunity for socialisation and interactions with male students it often becomes quite difficult for some of them to keep these interactions and relationships at a socially acceptable level, consequently developing into “boy-girl relationships”, as they are referred to in PNG. Boy-girl relationships were reported as a hindrance to a female student’s academic performance. Toki continued: *“Whatever problems I faced, like one other problem is like, I was making friends...I was involved in boy-girl relationship that’s’ why she (mother) didn’t want me to be a boarder”*. Aiyo from Site 1 reported: *“I’ve seen so many girls who, when in relationship with boys...lose focus on their studies and end up failing some of their subjects or courses... which they are capable of passing”*.

These excerpts indicate that in the PNG context, once girls start having boyfriends their thinking and focus on academic tasks can be distorted and this change in their lives affects their learning.

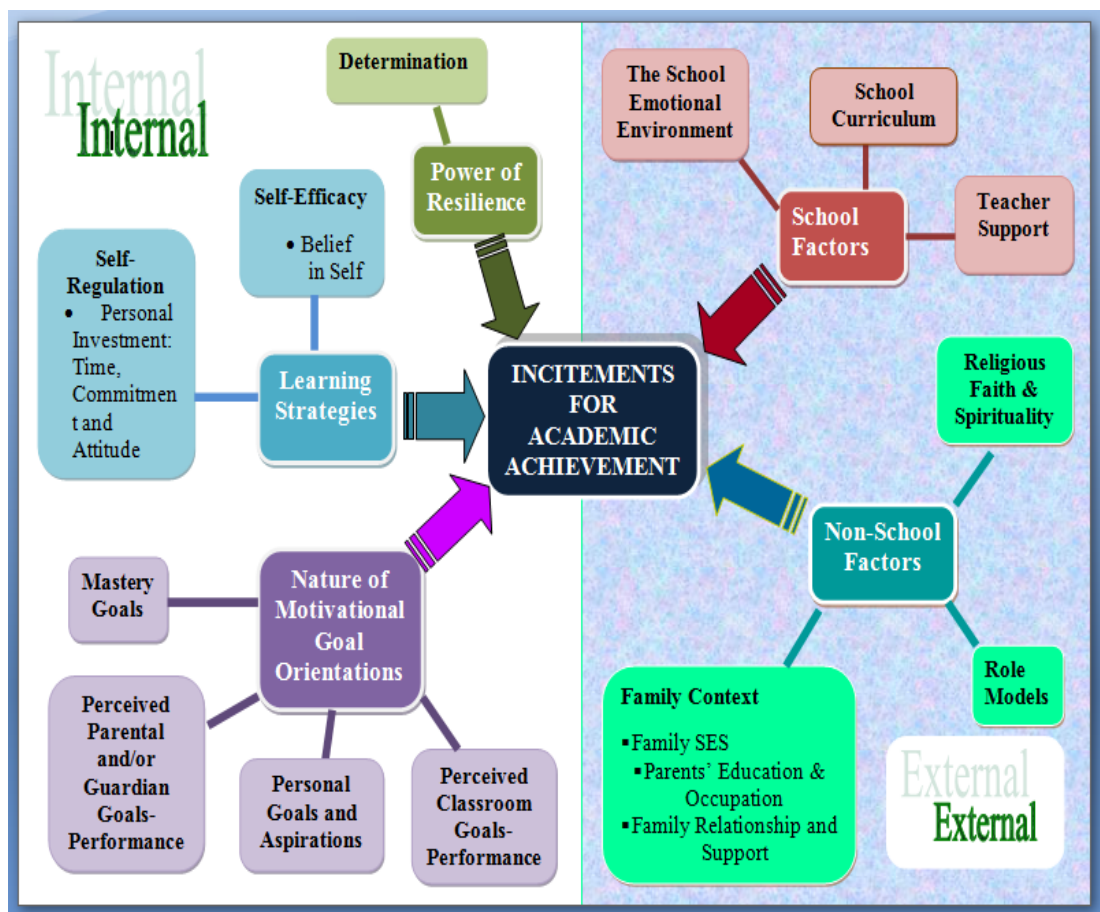
6.4 Incitements for Academic Achievement of Grade 12 Students

The Grade 12 students are the elite and are the best young minds the primary and secondary levels of education produces. They are academically the most successful of their cohorts and as shown in Figures 4-7 in Chapter 2, are a small percentage of their cohort. Their accomplishment in reaching Grade 12 is a culmination of successful selection at the end of primary and lower secondary levels of education through a demanding examination system. They were also a group of students whose parents consistently paid the school fees. The self-reported academic grades attained over two semesters, Grade 11 Semester 2 and Grade 12 Semester 1 as shown in Figures 25 and 26 in Chapter 5 indicate that academically, Grade 12 female

students' performances were reasonably good across all subjects but the most remarkable improvements were reported by the students who studied Mathematics A, Physics and History. These subjects are traditionally taught by male teachers, often male-oriented subjects and generally male students perform well in them. The fact that significant improvement was evident in these subjects implies that Grade 12 students did not have any issue relating to gender, although they themselves were an under-represented group.

The results of this study found three key internal causalities and two external causalities as facilitating the academic achievement of Grade 12 students at the two research sites. The internal causalities are labelled as *Nature of Motivational Goal Orientations*, *Power of Resilience* and *Learning Strategies* and the external causalities are labelled *School Factors* and *Non-School Factors* as shown in Figure 6.2

Figure 6.2: Incitements to Academic Achievement



6.4.1 Incitements for Academic Achievement of Grade 12 Students-Internal

By Grade 12 the pressure experienced by students is enormous as they prepare to sit their examinations in the Higher School Certificate (HSC). The examinations contribute fifty percent of the final grading attained by each student. The other fifty percent is derived from the cumulative internal or school results from Grade 11 and 12 hence, the pursuit of performance oriented goals is a major priority.

The incitements for academic achievement are categorised into three factors labelled *Nature of Motivational Orientations*, *Learning Strategies*, and the *Power of Resilience*. Motivational goal orientations and learning strategies are influenced by the nature of goals and aspirations students pursue in academic settings and the motivational learning goals that students employ to achieve their learning goals and their future aspirations. Resilience is the capacity to develop a set of attitudes that influence their behaviours and skills (Brooks & Goldstein, 2003).

6.4.1.1 The Nature of Motivational Goal Orientations

The authorities on achievement motivation theory (E. M. Anderman et al., 2004; Cooper & Tom, 1984; Deemer, 2004; Fay, 2001; Patrick, 2004; Wolters, 2004), point out that students are motivated to engage in academic tasks in order to achieve their goals. These goals represent various underlying reasons that students pursue in different achievement situations and are considered to direct students' behaviour, cognition and affect during their engagement in academic tasks. The goals may be for mastery of skills and knowledge, to perform better than other students or achieve higher grades, to achieve social goals or social responsibility and, may be, to adhere to perceived parents and/or guardians and classroom expectations.

The result of the factor analysis which was conducted on the Grade 12 students survey yielded a significant correlation coefficient in only two sets of factor loadings. These indicated significant internal causalities facilitating academic achievement of students. Factor 1 loading yielded significant correlation coefficient (.824) between self-regulation, personal mastery goals and self-efficacy. Factor 2 loading

comprised the perceived classroom goals orientated towards performance goals, and personal mastery goals. Factor 2 loading yielded a correlation coefficient of .726. Each of these are presented separately as incitements for academic achievement.

In the interviews and focus groups, personal goals and aspirations were found to be salient and greatly influenced student learning goals.

6.4.1.1.1 Personal Goals and Aspirations

Personal goals and aspirations are the motivational goals and interests that students aspire in school and beyond formal schooling. In the interviews and focus group meetings it was found that the nature of learning goals and the resilient spirit of students was influenced by the underlying personal goals and aspirations they held for themselves. The students discussed the varying personal goals and aspirations for the future that inspired them to perform. Their personal goals and aspirations comprised academic success, career goals, goals for life and social responsibility. The following are some excerpts from interviews and focus group meetings attesting to the varying personal goals and aspirations.

Yato from Site 1 aspired to a professional career and she set herself an ambitious goal. She said:

...the first goal is to become a lawyer...and if I cannot reach that goal the easiest I could do is...apply to technical college. After earning a Diploma, I could always go to university to take a degree and after the degree... may be go back to...work... do some work and get my masters and PhD. That's the goal-to become a lawyer.

The excerpt indicates a careful consideration of options that she thought would enable her to enter a career that she aspires to. In doing so, she had set herself short-term and long-term goals. Apart from her career aspiration, Yato also wanted to prove somebody wrong. She said:

... the main purpose of me achieving these goals, to come, or this far at least, to pay back to my cousin sister. ...she usually put me down and she said

“she’s not going to go to Grade 12 and even tertiary institution...” That’s the main purpose of proving her wrong.

In this excerpt, Yato indicates that an underlying reason for aspiring to an ambitious career goal of becoming a lawyer and further education in the field was because she felt that her ability to progress in school was under-estimated by her cousin. This made her feel intimidated however, rather than being de-motivated she developed a level of resilience against the criticisms.

Sono’e from Site 1 reported that since she was in primary school she had wanted to become a teacher and this motivated her to do well in school. She reported:

...one of the things that enabled me to study hard is... in Grade 6 I promised myself that I will become a teacher, high school teacher. And I said that I’m going to go through all the education system and then I’m going to work as a teacher...get a profession as a teacher and I used to think that I must fulfil my promise. That’s why I try my best to...go through to UOG⁹.

Her goal was to undertake teacher training at the University of Goroka to become a high school teacher was a highly focused goal towards a specific career based on personal interest.

Atelini from Site 2 was born out-of-wedlock and said that because she didn’t know her biological father so she wanted to be in the same profession as him and somehow get to meet him one day. She disclosed:

Yea, for me, myself personally it’s a very big challenge because I’m the only one in the family and like that and I don’t even know who my daddy is. I don’t really know his place, or where he’s from, but I know his name, his profession... I don’t even know his face so I don’t know but it’s just my own, own interest that because he’s a doctor, I want to do something about

⁹ Acronym for University of Goroka.

studying sciences and continue to school till somehow come to meet him somewhere by luck or...

Trita from Site 1 was a student who was driven by the personal aspiration to attain better grades in school. She wanted to perform well in school and had set herself a short-term goal of scoring above average marks in assessment tasks and she described her personal aspirations as:

...I normally do is to ... for every test or assignment I always set a goal that I must score that ...like not average but above... I must try to get a mistake or two, or even I must try to score all of them. So, so that's my goal when I'm studying.

Milika from Site 2 came from a family with highly educated parents who had professional jobs but she set herself life goals to achieve for herself.

... Another thing is that education is... a way of going somewhere and like I see education as very important to me and I also to value myself...and I want to get somewhere. I want to go where my mother couldn't go, I want to go where my father couldn't go... I want to do better than my parents...and that's my biggest drive in education...

With Milika, it was interesting that even though her father was a specialist paediatrician, she aspired to do better than him. She did not specify what exactly she aspired to do in life but her personal aspiration to do better than her father motivated her to succeed in school.

Three students aspired to pursue study in order to enhance the welfare of others in their families and their communities. They saw their own academic achievement as an opportunity towards becoming change agents in their communities. Social concern orientation has been identified as influencing the motivation of students to achieve by enhancing the welfare of their peers (Ford, 1992; Wentzel, 1991a; McInerney, McInerney, Ardington, De Rachewiltz, 1997, as cited in McInerney & McInerney, 2006). However, in the context of this study, rather than a social concern orientation focused on peers, the Grade 12 students were focused on enhancing the welfare of the less fortunate as well as becoming good role models in their

communities. This indicates that having successfully reached the highest level of secondary education, they saw themselves as being in a more privileged position to help others and serve as good role models for their communities. The following three discourses provide examples of a range of goals and aspirations that were oriented towards social concern.

Waisali from Site 2 whose parents were highly educated and graduate from an overseas university said: *“Your parents are educated and...if you don’t get this far ... they waste all their effort and money to do everything for you”*. Having had parents who were highly educated, Waisali aspired to emulate her parents. If she did not achieve the same level of education as her parents, she felt that her parents had wasted their money on her education. For Waisali, it was important to ensure that her parents did not waste their money.

PNG cultures traditionally embraced communal culture and raising children involved an entire community. However, communities in PNG are changing fast and young people are confronted with issues such as drug and alcohol abuse that need attention. Two Grade 12 students who had witnessed the impact of these issues in their communities aspired to succeed in school so that they become could positive role models, particularly, to the younger members in their families and communities. Zogi from Site 1 said her goal was to be different from her extended family members.

...when I go home... I always see my cousins and my brothers. They are not doing well and they’re, some of them are drop-outs from grade 8, (clears throat) 10s and 12s and they join the... other guys to do other activities which are not good like smoking of marijuana and stealing and other activities. So I see that it is not good so I think..., when I think of them, ... I say that ... I must do well in my school so I’m not going to, ..., join them like other girls or boys out in the village.

Having come this far in her schooling, Mwesi from Site 2 regarded herself as a privileged girl. She wanted to show that although others from her community had not succeeded in school, she would be different. She said:

The reason why I continued my education is not because of, it should because of the support of my parents but it's... that I want to learn from the weaknesses that other female ... students that are going through. When they drop out from school they don't do anything good in the village and too, I've learned from the weaknesses of my bigger cousins who are now out in the villages, who are not successful and they are now out in the village. I want to... show something in the future to learn that as a... a female student I have something, I have a hidden potential that I should show to others.

The excerpt from Mwesi indicates as a female, she wanted to show to her cousins the potential she had. Being a girl from a matrilineal culture, she displays one of the roles of a woman leader in her clan or community, a desire to be a good role model. The excerpt also indicates that Mwesi feels that having had the privilege of a full secondary education is an added bonus to her matrilineal cultural role as a woman and she can use her cultural position of power in initiating change in her family and community.

6.4.1.1.2 Mastery Goals

The factor analysis indicated that the Grade 12 students were in pursuit of mastery goal-oriented goals rather than a love of learning itself. This was evident in the low correlation coefficient on Item 11: *My reason for doing the task given in my core subjects is because I like to learn (.681)* on factor loading 1. However, as indicated by the high correlation coefficient on factor 2 loading Item 12: *I like the work given in my core subjects when they really make me think (.713)*, the Grade 12 students were oriented towards work that challenged their thinking. Given that the Grade 12 students were young adults and the cream of the secondary school level in the country, it was in their interests that they were doing academic work simply because they just enjoyed doing it but it was more important that they had work that was challenging, work that would enable them to use higher level of thinking skills and work that was related to their goals and aspirations. Hence their mastery goals were oriented towards higher levels of cognition.

6.4.1.1.3 Perceived Classroom Goals

Perceiving their classrooms as promoting mastery goal oriented goals, the Grade 12 students in turn, pursued mastery goals as indicated by a high correlation coefficient on item 21: *In my class you are allowed to make mistakes so long as you are learning* (.836). This implies that perceiving their classrooms nurtured an environment within which students could enjoy learning without fear of making mistakes, they in turn, pursued mastery goals which were similar to the perceived classroom goals. It also indicates that students' perception of their classroom environment has a powerful influence on students.

6.4.1.1.4 Perceived Parents' and/or Guardians' Goals

Kaplan, Liu & Kaplan, (2001) and Glick & White (2004, as cited in Johnson, McGue, & Iacono, 2008) note that with the emphasis placed on the importance of academic achievement in directing a career path and the eventual economic opportunities that flow from this, many parents have developed clear expectations about their children's eventual educational achievement. This has been used as a mechanism through which many parents and/or guardians may have directly influenced their children's academic achievement. Parents' and/or guardians' goals which focused on performance play a significant part in influencing the nature of the goals that students pursue.

In Grade 12, female students perceived that their parents promoted performance goals orientated towards school work being challenging. This was indicated by a high correlation coefficient on Item 27: *My parents/guardians want school work to be challenging for me* (.740). Thus, from the factor analysis it becomes evident that perceived classroom goals focused on learning without fear of making mistakes and perceived parents' and/or guardians' goals that promoted the need to do challenging work in turn, influenced their pursuit of mastery goals focused on doing work that challenged their thinking. These goals appear to have facilitated their academic achievement.

Like the school leavers, the learning goals of Grade 12 students were also influenced by their perception of their parents' and/or guardian goals. From the investment point of view, students' perceived parental and/or guardian goals as important owing to the need to pay back the educational investments of their parents and/or guardians by doing well in school.

6.4.1.2 Self-Regulatory Learning Strategies

Two major self-regulatory learning strategies were used by Grade 12 students that aided their academic achievement. These were the self-regulation and self-efficacy.

6.4.1.2.1 Self-Regulation

Self-regulation is not a mental capability or an academic performance skill but a process of self-direction whereby mental abilities are transformed into academic skills. Self-regulated students learn by doing things for themselves in a proactive manner rather than covertly in response to teaching (Schunk, 1994; Zimmerman, 2002). In the context of self-regulation, the learners engage in the self-generation of thoughts, feelings and behaviours that are directed towards attainment of set goals. Learners have greater awareness of their strengths and limitations and are guided by their learning goals and task-related learning strategies (Schunk, 1994; Zimmerman, 2002). This was evident for the Grade 12 students in their use of problem-solving strategies and persistence when they encountered difficult learning problems that required deep cognitive processing as well as the personal investments they made in their studies.

Self-regulation involves deliberate attention to events and behaviour. One of the characteristics of self-regulation is self-observation. Self-observation results in motivation and is aided by self-recording of behaviour which is characterised by time, place, and frequency of occurrence (Zimmerman, 1994, 2002). In academic settings, self-regulation in students is characterised by attributes such as paying attention and concentration on instruction, organisation, effective coding and rehearsal of information for long-term storage and effective usage of resources. Self-judgment is also a characteristic of a self-regulated student and this involves making

comparisons with one's pre-set goals and the importance placed on attainment of these goals (Zimmerman, 2002).

The Grade 12 students in this study indicated they prepared in advance for tests showing that if they do not perform well on previous tests they knew what to do next time when they had to do tests. Factor 1 yielded a high correlation coefficient from three items orientated towards self-regulation. These were Item 41 *When I have difficulty solving a problem in a core subject, I enjoy trying different ways to identify the one that works* (.829); Item 39 *I always start preparing for tests in advance* (.804); and Item 37 *Even if they take up more time, I like the subjects that make me think deeply* (.712). By contrast, the other items in the same factor group yielded weaker correlation coefficient. Item 11: *My reason for doing the task given in my core subjects is because I like to learn* (.681); Item 44: *I have a good understanding of my core subjects* (.642); Item 40: *I use a study method that helps me very well* (.606); and Item 38: *In the core subjects I check over my work to ensure it is right* (.573). These items represented aspects of self-efficacy, mastery goals and self-regulation. Grade 12 students indicated that their success in school was not because they liked to learn, or had excellent understanding of the subject, rather it was because they used self-regulatory learning strategies involving problem-solving, advanced preparation for tests, persistence and deep processing of what they had learned.

High correlation coefficients for self-regulation indicated that Grade 12 students had the capacity to utilise a process of self-direction which transformed their mental abilities into academic skills. They learned by doing things for themselves in a proactive manner rather than passively in response to teaching (Schunk, 1994; Zimmerman, 2002). As self-regulated learners, they were engaged in the self-generation of thoughts, feelings and behaviours that were directed towards attainment of set goals. It indicates that they had a greater awareness of their strengths and limitations and were guided by their learning goals and task-related learning strategies (Schunk, 1994; Zimmerman, 2002).

In academic contexts, this involves the utilisation of self-regulating strategies such as having positive beliefs about personal capabilities, the ability to manage time, the

value of learning and satisfaction with personal efforts (Schunk, (1994). It was clear that their academic behaviours were largely influenced by their need to achieve various learning goals and their personal goals and aspirations. In the interviews and focus groups Grade 12 students described the superior motivation and adaptive learning strategies they had employed and the optimistic views they had for their futures. The discourses from eight of the Grade 12 students also describe the nature of self-regulatory learning strategies they undertook in the form of the personal investments they made and how these facilitated academic achievement.

6.4.1.2.2 The Nature of Personal Investments in Time, Commitment and Teamwork

The notion of personal investments (Cottrell, 2003) has been described in sub-section 6.2.1.1.2 of this chapter. Whereas the school leavers made poor investments in time, commitment to study and attitude towards school, Grade 12 students embraced them as well as using a teamwork strategy to their advantage. In the context of this study, the valuable assets that Grade 12 students possessed were time, commitment to study and teamwork and these characterised self-regulation. For Grade 12 students, the personal investments they made facilitated their academic achievement.

6.4.1.2.2.1 Time Management

In an interview, Mele from Site 2 reflected on how managing her time had enabled her to succeed in her studies. She stated:

“And also like our study habits... We have to manage our time and all that... managing our time, time management, study and... My mum is... strict about us having social time out and all that ... you know, we have to manage time, time management, ...”

This excerpt indicates that personal investment in one of the valuable assets that is available to all students, with time, and how it was managed, resulted in a maximum benefit. For Mele and her parents, time was a valuable asset for academic success and her parents who were well educated valued education and provided constant

reminders about the need for her to manage her time.

6.4.1.2.2.2 Commitment to Study

In the interviews, commitment to study was another self-regulating investment in learning made by some Grade 12 students. Waisali from Site 2 attributed her success to hard work and commitment to study. She reflected: *“I really want to be someone that’s why I... I continue to work a bit harder in education...”* Mere from Site 1 illustrated how her own investment in making a commitment to study and rewarding herself with time for relaxing facilitated her academic achievement. She said:

...I couldn’t come this far if ... it wasn’t that I studied... If I didn’t then,... I’m... not doing what I should do as a student. So it’s mainly to do with... study, relax, study and then good grades so that you can continue on...

In reflecting on her commitment to study, Mwesi from Site 2 reported: *“And the thing that...brought me this far is my commitment to studies...Although there was not enough support from my parents or my guardians but it was through my commitment that I came...”* Inedo also from Site 2 also commented, *“...and my commitment and effort I put in school work has brought me this far”*. Milika from Site 2 was from a family with a higher SES. In a focus group meeting she reported about her commitment to study so that she could do something better for her family. She disclosed:

...and that’s my biggest drive in education and how academic wise... how well I do in school, it’s through discipline and commitment and ...when I think of my family and... how they’re living now, not just my immediate family but my extended family also, I want to do something better for my family...And so this drives me to work hard in school, to study, and to read and to, and I also I like learning...

The excerpts from Waisali, Mere, Mwesi, Inedo and Milika indicate that their successful academic achievement was a result of personal commitment to study and a pledge to commit themselves to studying and ensuring that they completed whatever learning tasks they were given. It indicates that they adhered to two

fundamental conditions for commitment. First, the possession of a sound set of beliefs. They had belief in themselves and they believed in their success. Second, they faithfully and persistently strove to put their beliefs into action.

6.4.1.2.2.3 Teamwork as a Learning Strategy

In the focus group Teniso from Site 1 added that using teamwork as a learning strategy facilitated her academic achievement. She reflected:

One thing that makes me do better in my Grade... in my school work is my girlfriends. I used to do my school work with them but when it comes to tests... we're, we're not going to share answers together but they're going to do their own, write their own answers and they're going to get their own marks and I'm going to get my own marks. So... if I see that they get good grades, good marks than me, then I used to think to myself that they have beaten me so I have, I need to study really extra harder to beat them again so this enables me to study harder.

The team strategy used by Teniso indicates that she used her fellow students as a positive circle of influence and a measuring stick to measure her success in assessment tasks. She used a study team to boost her motivation and achievement.

The excerpts from Mele, Mere, Mwesi, Inedo, Milika, Waisali and Teniso indicate that having set themselves clear personal goals and aspirations they then pursued the appropriate motivational goal orientations and learning strategies with viable personal investments to achieve the desired academic outcome. The excerpts also indicate attempts to utilise a balanced strategy combining their commitment to study with time for relaxation in order to succeed in school.

6.4.1.3 Self-Efficacy

Self-efficacy is an individual's belief about personal capabilities to exercise control over one's personal level of functioning and over events that have a potential effect on one's life. Self-efficacy beliefs also influence how individuals feel, think, motivate and behave themselves (Bandura (1977)). Students' efficacy beliefs have

considerable influence on self-regulatory learning, personal goals and aspirations and level of motivation and academic achievement. Furthermore, students whose level of self-efficacy is high have a tendency to set themselves higher goals and stronger commitments for engagement in specific activities. A strong sense of self-efficacy in school enhances student accomplishments and self-efficacious students approach difficult tasks as challenges they need to master rather than avoid. Students with a high sense of self-efficacy also set themselves challenging personal goals and ensure they have a strong commitment to achieve them in the face of failure (Bong, 1998, 2000; Kim & Park, 2000; Lodewyk & Winnie, 2005; Pajares, 2002; Schunk, 1996).

The results of the factor analysis revealed that self-efficacy was one of the causal factors that facilitated the academic achievement of Grade 12 students. Having reached the final school grade, Grade 12 students expressed having had a high sense of positive belief in their capabilities and in turn, high self-concept. This was an indication of a strong sense of self-efficacy. Self-efficacy is an evaluative aspect of self-regulation. In academic settings, students' beliefs about their progress lead to a sense of accomplishment, which in turn, enhances self-concept and motivation (Schunk, 1994; Zimmerman, 1994, 2002). Evaluation of personal performance progressively leads to self-monitoring (Schunk, 1994).

In an interview, Sogone from Site 1 reflected on her belief in herself: *"I, like in everything I do, have faith in myself that I can do it... and I can do it better than other people"*. In her reflection, Sogone points out the strong belief or faith she had in her ability to perform better than other students. Yato, also from Site 1 reflected:

...I believe in myself. I've got faith in myself that I could do it and...I'll always do it. If I have ... I mean, if I've got a low mark with ... within a test, I believe that the next test I could do it. And my faith and my belief could always be there. I do it because I believe in myself that I could do it 100%.

Yato's discourse also indicates the strong belief she had in herself and her ability to bounce back in situations when she attains low marks. Mina from Site 2 also said, *"...even though she puts me down I'll show her that I can do it..."* Mina showed that no matter what her mother said, she had such a strong faith in herself that she had the

ability and the power to succeed in her studies.

Mina had encountered her own points of vulnerability but she had a high sense of self-efficacy. Her high sense of self-efficacy coupled with her power of resilience in turn, produced hope for success. She disclosed:

I said then “... I’m.. gonna go out from grade 12”...I said and “...I’m having high hopes of success. I can do it...If my friends are doing it then I can do it too. I can go there that far...”

Each of these excerpts indicates a high sense of efficacy amongst some of the Grade 12 students. The excerpts also demonstrate an element of self-evaluation of their performance comparing past and current progress and that this helped in determining a course of action to undertake in the future.

6.4.1.4 The Power of Resilience

Results of the analysis of the interviews and focus group meetings of school leavers and Grade 12 students’ responses showed that in some cases, both groups experienced similar family and social situations. However, whilst school leavers appeared to have become more susceptible and vulnerable to negative impacts on their academic performance, the Grade 12 students appeared to be more resilient during difficult situations. In this study these situations are referred to as “points of vulnerability”. In this study vulnerability is defined as a phenomenon in which an individual becomes most susceptible to poor academic achievement. Points of vulnerability in this study were evident in the form of parental separations and/or divorce and the subsequent creation of step families, loss of a parent, the challenge of being adopted children, search for paternal or maternal identities and rejection from parents.

Although some school leavers and Grade 12 students encountered similar impeding situations and being in points of vulnerability, a major difference between the school leavers and the Grade 12 students was the divergence of reactions to those points of vulnerability. The problems experienced by some school leavers were overwhelming and they easily succumbed to negative attitudes, lack of commitment and loss of

determination that in turn, impacted negatively on their achievement. By contrast, Grade 12 students were more resilient during points of vulnerability. The power of resilience facilitated their academic achievement. Resilience is an inherent coping mechanism which enables an individual to continue to succeed despite facing psychologically and emotionally challenging situations (Brooks & Goldstein, 2003). It is in the face of these situations that the levels of individuals' resilience and their utilisation of self-regulatory learning strategies comprising hard work, persistence and determination, and self-efficacy beliefs are tested.

Grade 12 students were modest in describing the power of resilience in them using words like “determination” and “hard work”. Mwesi from Site 2 for example, came from a very unstable family comprising a complex polyandrous step-family, was raised by her grandparents who had died whilst she was in school and had to move between her mother and aunt. In the focus group meeting she added how, during these difficult times she tapped into her resilient spirit that motivated her to work hard, persist and to remain determined to succeed. She disclosed:

The thing that really drives me in education... The situations...my family...my (clears throat)... The situation my family has gone through.....is still going through.... In the family there are five of us.....we are all half sisters and brothers..... my brother has a different father, my third born sister and the second last born brother and last born sister share a different father. It was really a big challenge for me. ... when I was five years old my parents divorced, and my father and mother, I didn't know who my father was and my mother was. I was adopted by my grandmother... When I was in grade 4 my grand mum passed away and I had to go back to my...mother...but when I returned to my mother I was shy to be in that family. I didn't feel free to be in that family cause all through this time I was with my grandparents and my grandparents were the ones who provided everything for me. And after three years I, I had to leave my mum and live with my aunt and I've been going from hand to hand. After one year I had to return to mum. Things were not right because of the mistreatment by our step-father....

When I look back I see the weaknesses that I've gone through. Even my

mother was not successful in her education; my father too was not successful in his education. But it's how I put my effort in studies and the weaknesses I see that always make me strong to continue in my education. And there are most students who fail because of these problems. But at times when I'm overwhelmed by worries..., I see them as stepping stone, all the situation, situations that I'm going through and I try to build my... faith or have high hope ...that I will be somebody else even though the situations that I go through are tough...But I know that I will be successful and I'm determined about my future. That's all.

The above excerpt indicates Mwesi's power of resilience to succeed during difficult circumstances and that this gave her the faith, hope and determination to get somewhere. It suggests that the resilience in her enabled her to develop a positive view of these challenging situations. As she said, she perceived them as "stepping stones" for success and this gave her the determination to succeed in life. Without a stable family to provide encouragement, it appears that Mwesi's source of resilience could have been the support from caring friends she may have had at school and the people who continued to pay her school fees to ensure that she completed her education. Support from her friends could have enabled her to realise the abilities and potential she had. As she said "... but I know that I will be successful and I'm determined about my future" indicates that her situation enabled her to develop the confidence in herself, her abilities and the determination to succeed in the future.

Waisali lost her father whilst she was in an earlier grade. She commented:

... I continue to work a bit harder in education, yea, ... And I really wanna be someone that's why I... Just a determination, really, to become someone... You want to be like known to people, uuh? Your parents are educated and...if you don't get this far its like they waste all their effort and money to do everything for you. You have to struggle... That's what kept me here, really...

The loss of a parent is a devastating experience for a child but Waisali had successfully got through to her final secondary grade. She was determined to succeed in life. Waisali's comment illustrates a resilient spirit she had despite the difficulties she encountered. She persevered to achieve her aspiration to become someone

educated like her parents and to pursue a professional job like them. She was also mindful of the investments her parents had made for her to get an education. Her source of resilience was encouragement from family and setting realistic goals for herself-goals to be like her parents. When faced with the loss of her parent, she was determined not to give up and she worked her way through. In her disclosure she talked about how her family's as well as her personal faith and spiritual life had contributed to her academic success.

Early in the life of Mina, her parents divorced and in her teens, she was disowned by both her parents and was often psychologically and emotionally abused by both parents. She encountered the most difficult and complex of situations discussed in this study, denouncement of paternity by her father, loss of love, care and support, school fee problems and the constant attempts to lower her self-concept and self-esteem. However, by tapping into her inner resources and her power of resilience, Mina performed well in school and tried her best to maintain her relationship with both parents. In the interview she disclosed:

...And then I also had problems, family problems too. My father wrote to me telling me that I'm not his child...And then he told me that I have to take his name out. I won't use his name as his surname and I have to look for my father, my real father and he told me that whenever I need help or I'm in trouble or I face any problem I must not go to him...I'll have to go to someone, find the father who can help me...or even my school fee because his small brother paid my school fee...and he told me in the letter that he's gonna tell his small brother and he'll stop him from paying my school fee... OK I was really hurt when I read that. I cried and cried for four periods...

...And when I went to the village, uum my mother always told me if I like do anything during the holidays, "I don't think you made it because through your actions I can tell that you are not like, you are not that kind of person who is clever enough to achieve what you are aiming for". That's what she usually tell me... And I always keep quiet. I don't talk to her, like I don't talk with her...and if I am a, I mean, I am a human being and someone who uses her head or brain then I'll see this problem as stepping stone...in my

life...and then I'll have to strive hard. I'll have to look at the problem and strive hard...

As a resilient child, Mina used her experiences to work hard and this interview provided an opportunity for her disclosure. The source of her resilience was not her family but her friends, her confidence in her abilities, her ability to use problem-solving skills, her ability to manage strong feelings and her personal religious faith and spirituality as she explained throughout.

The excerpts from Mwesi, Waisali and Mina indicate that when confronted with very difficult situations that bring them to the lowest points of vulnerability, resilient students tap into inner resources-faith, hope and determination. Faith is the belief they have in their capabilities. Hope is the positive perception of their future. Determination drives their faith and hope into action. All these result in success.

6.4.2 Incitements for Academic Achievement-External

The results of the factor analysis and analysis of interviews and focus groups found a total of five external incitements for academic achievement and these were categorised as school factors and non-school factors.

6.4.2.1 School Factors

The results of the factor analysis for Grade 12 students showed two factor loadings of school factors that facilitated academic achievement. Factor 1 comprised 3 items labelled “*School Curriculum and Resources; and School Psychological and Emotional Environment*”. Factor 2 loading comprised 1 item labelled “*Availability of and Access to Curriculum Resources*”. Each of these are discussed separately as follows.

Factor 1 loading, as shown in Table 10 in Chapter 5, comprises Item 68: *When I had personal and academic concerns in school, I had someone to talk to (.838)*; Item 62: *The school offered a wide range of curriculum for me to choose what I thought would prepare me for the future (.832)*; and Item 61: *The curriculum prepared*

me well for what I am now (.828). Factor loading 2 comprised Item 58: *My core subjects provide up-to-date variety of resources (.913)* and Item 57: *My core subjects have enough amounts of resources such as textbooks and computers (.797)*.

6.4.2.1.1 The School Curriculum and Resources

School curriculum and resources refers to the range of subjects available for students, the teachers and the availability of and access to resources to support learning. The results of the factor analysis on Part C of the Grade 12 students show a high correlation coefficient indicating curriculum and resources as one of the key incitements for academic achievement. Item 62: *The school offers a wide range of curriculum for me to choose what I think will prepare me for the future (.832)*; Item 61: *The curriculum prepares me well for what I want to do in the future (.826)*; and Item 58 *My core subjects provide up-to-date variety of resources (.913)*.

High correlation coefficients on Items 62 and 61 and 58 indicated that the students thrived because their schools offered a wide range of subjects, giving them a choice of subjects to choose from and up-to-date and varied curriculum resources. Consequently Grade 12 students felt that they had a good preparation for what they wanted to do in the future. Whilst Grade 12 students' perception of the school curriculum as shown on Items 62 and 61 was positive, during the final stages of writing this thesis, the community raised concerns about authenticity of the current secondary curriculum in equipping students with "appropriate skills, knowledge and attitude" (Evara, 2009). The community was concerned that the current PNG secondary school curriculum was not adequately equipping and preparing students with the relevant skills, knowledge and attitude for the real world.

In factor 2 loading, a high correlation coefficient on Item 57: *My core subjects have enough amounts of resources such as textbooks and computers (.797)* indicates that Grade 12 students' academic performance was facilitated by the availability of and access to up-to-date curriculum resources in their schools. Through these items, Grade 12 students attribute their academic success to the availability of and access to curriculum resources in the various subjects they chose to study in school. Differences between the groups and the sites have been discussed in an earlier

section.

6.4.2.1.2 The School Emotional Environment

In factor loading 1 of the Grade 12 factor analysis, Item 68: *When I have personal and academic concerns in school, I have someone in who to confide (.838)* indicates that their schools' provision of support service assisted Grade 12 students to succeed in school. This was supported by the students' rating of their awareness of the provision of support service in school as shown on Figure 4.8 in Chapter 4. Given that some of the students faced really difficult situations as discussed in this chapter, they needed to talk to somebody about the issues that affected them. Their awareness and utilisation of the support service in school boosted their levels of resilience. The level of confidence the Grade 12 students had in the emotional environment of the school was also evident in what two students expressed about their teachers. Mele from Site 2 also had this to say about the support provided the teachers running Personal Development (PD) in her school:

...At school we have this PD that, PD Department...if we have... family problems or something at home... they give us the support and all the needs that we want to come back for encouragement and all those... the school supports us in that way.

In PNG the school counselling service is currently provided as a voluntary service by teachers who have received some training in that field. The service is only available to students who have the counselling service provided in their schools for psychological and emotional support. Unlike the small number of school leavers who were aware of the student support service in school as indicated in 4.8, more Grade 12 students were aware of this service and utilised it. Differences between the groups and research sites have been discussed in an earlier section.

6.4.2.1.3 Teacher Support

From the interviews and focus group meetings, Grade 12 students felt that they received excellent support from teachers. This was highlighted by the students as

indicated in the following discourses. Yato from Site 1 was happy with the support she received from her teachers and said:

They're excellent... They support us in every means of ways they could. Like they provide us with everything apart from lectures in class, they spend the most of the afternoons lecturing us if we don't understand things or they just don't turn us away if... we came to them...

Mere from Site 2 described the support of her teachers:

And I think teachers in school, they, they are OK. They give us the support we need... our teachers... give us more support we need because they are there with us most of the time and they see our real potential...how far we can go that's why they support us a lot, much more than our parents...

These all indicate that as female students, the Grade 12 students were satisfied with the level of support they received from their teachers in their respective schools. The nature of support they received facilitated their academic achievement. This was in contrast to the school leavers who highlighted a number of issues including the unprofessional behaviour of teachers.

6.4.2.2 Non-School Factors

The interviews and the focus group meetings revealed three major non-school factors that facilitated academic achievement of Grade 12 students. These include the family context, the personal religious faith and spirituality and the role models.

6.4.2.2.1 Family Contexts

It is generally accepted that the family context of a child is one of the most powerful influences on a child's academic motivation to learn and achievement. The influence of a family can be positive and supportive, or destructive and obstructive. In this study the family context comprised several inter-related factors that had facilitated the academic achievement of Grade 12 students. These are related to the socio-economic status (SES) of their families comprising parental education, occupation

and support; as well as their family structure and functioning; and family relationships and support.

6.4.2.2.2 Socio-Economic Status (SES) of Families

Generally, the Grade 12 students came from higher SES backgrounds as evident in the SES indicators of parental education and employment status.

6.4.2.2.2.1 Parents' and/or Guardians' Educational Level and Employment Status

Parents and/or guardians level of education which is an important aspect of family SES has been associated with academic success. Parents serve as role models and their educational achievement in turn serves as a motivation for their children. Parental education has also been found to highly correlate with gifted female daughters' mathematics scores (Abu-Hilal, 2001; Connley, 2005; Niles, 2001; Reynolds & Conaway, 2003). Parental education is reflected in financial gains which in turn, provide greater opportunities for the child. Students from privileged families are three times more likely to take advanced mathematics than students from underprivileged backgrounds (Reynolds & Conaway, 2003). A report of a longitudinal study spanning thirty years in Australia highlighted that young Australians whose parents are in professional occupations tend to perform better than those whose parents are labourers. These students are more likely to continue onto and complete Grade 12 and usually go onto higher education and upon completion, become successful career people in their area of employment. Their parents often start them off in good suburban schools where they have better prospects of achieving top academic results and good jobs (Connley, 2005).

Maternal education level, in particular, has been found to correlate positively with children's cognitive development and has a substantial influence on a child's educational outcome greater than the influence of the father (Abu-Hilal, 2001; Moore & Schmidt, 2004). Bushweller (2004) also asserted that educational investments in girls is beneficial to their families and communities. In this study, quite a high percentage of Grade 12 students reported their mothers and/or female

guardians as employed and having had a college or university education. By contrast, the majority of mothers or guardians of school leavers were either under-educated or had never been to school as discussed earlier in this chapter.

Studies by Flaherty (1998) showed that women and girls from the highlands of PNG, including Site 1, were more disadvantaged educationally compared to many other coastal and island provinces including Site 2. Whilst education continues to be a major problem for women and their daughters in the highlands region, interestingly, the descriptive analysis revealed that higher percentages of mothers and/or guardians of Grade 12 female students from Site 1 had a college or university education compared to mothers or female guardians from Site 2. This is an indication of an emerging change in demographics of the population at the two sites. In Site 1 it indicates that despite having predominantly male-oriented communities there, a change has started to emerge as a result of the previous generation's investments in their daughters' education which is now becoming evident in Grade 12 students who have highly educated mothers.

In Site 1, a high percentage of highly educated mothers of Grade 12 students was also reflected in the participation by a higher percentage of female students in the traditionally male oriented subjects of Maths A and Physics. Grade 12 students in Site 1 who studied Maths A and Physics reported performing better than Grade 12 students in Site 2. This finding supports the results of the study by Reynolds and Conaway (2003) which showed that parental education correlates highly with the mathematics scores of gifted daughters.

Parental education transpires into economic capital which in turn, enables parents and/or guardians to provide greater opportunities to their children. It is also advantageous in providing academic support for their children at home. Students from privileged families with educated parents are three times more likely to take advanced mathematics than students from underprivileged backgrounds, more likely to complete Grade 12 and undertake tertiary studies.

The ability of parents and or guardians to pay educational costs such as the school fees was one of the causal factors for completion of schooling and/or access to progressive secondary grades or levels. It was apparent from this study that some

of the school leavers failed to complete their schooling or to access progressive grades as a result of difficulties in paying for the cost of education. By contrast, female students who had enrolled in Grade 12 had not only met the academic requirements but also had parents and/or guardians who were able to afford the costs associated with their children's education.

6.4.2.2.2 Family Relationship, Parental and/or Guardian Support and Academic Achievement

Parental relationship and support has been one area of study that has received attention from a number of researchers studying factors affecting the academic achievement of students in various locations in the world. A growing body of evidence from these studies indicates that parental involvement and support correlates positively with academic achievement.

A study by Young (2000) involving students from the secondary schools in USA found that parental involvement in their children's education contributes positively towards academic success. Parents reported being involved in a number of ways such as supporting the development of their children, building and strengthening relations with schools and their children and being role models for their children. These findings were later echoed by Mahler & Zehm (2000) who brought in the African American perspectives when they also highlighted that students from all ethnic and socio-economic levels perform well when they see their parents involved in their schooling, be it at home, or at school. Even in the United Arab Emirates (UAE) parental involvement was identified as having a strong influence on the development and academic achievement of children (Abu-Hilal, 2001). In Sri Lanka Grade 9 and 10 students attributed their academic success to parental support (Niles, 2001).

Participants in this study attributed their academic achievement to the support of their families. Parents and/or guardian support involved payment of educational costs such as school fees, stationery and school uniforms and the provision of encouragement and academic assistance at home.

As highlighted earlier in this chapter, Grade 12 students attributed their academic successes to strong family relationships and excellent support from their parents.

Their parents and/or guardians supported them through encouraging words, advice, payment of school fees, providing weekly allowances and other daily needs. This enabled them to focus on their studies. Mele from Site 1 reflected: “...*the second thing is to have a good relationship with my parents, especially my mum, my dad. I have to have a good relationship with my mum and my family...*” Waisali, wiping her tears, acknowledged her mother’s support: “*So she always encourages me and yea, pushes me...Basically when I’m feeling down trying to drop out.*”. Sogone, from Site 1 also acknowledged the support of her family:

So it’s, for me it’s mainly to do with my family. I have a good family that’s why like, I don’t have much to think about or that worries me...I have good parents that they help me...to get this far by paying my education and also I have a proper house and a room for me to sleep. That’s why it’s like, helping me to study.

In this study the SES indicators such as the educational levels of parents and employment status resulted in excellent parent and/or guardian support and in turn contributed to high academic achievement. However, the results of the ANOVA test on external factors revealed a significant difference between the three groups in terms of parent and/or guardian support. There were significant differences in the mean scores between the three groups related to two aspects of parent and/or guardian support. Item 46 *I felt settled because my parents ensured that my school fees were paid on time* had a significant difference of $p < .02$ between Grade 8 school leavers and Grade 12 students. The difference between Grade 9 school leavers and Grade 12 students on the same was significant at $p = .05$. Item 47 *I felt encouraged when my parents/guardians ensured I had necessary resources to support my learning* had a significant difference of $p < .00$ between Grade 8 school leavers and Grade 12 students and between Grade 9 and 10 school leavers at $p < .01$. Earlier discussion in this chapter indicated that parents and/or guardian support was an issue for the two groups of school leavers. In contrast, Grade 12 described the support they received from their parents and/or guardians as excellent. The results of the T-test indicated no significant difference between the participants at the two research sites.

6.4.2.3 Religious Faith and Spirituality

Papua New Guinea is a predominantly Christian country with 96% of the population allied to some Christian denomination and religious and spiritual devotion to God. The majority of students in this study came from families who had a connectedness to religious and spiritual faith which appears to have laid the foundation for their resilience. As explained in Chapter 6, religious faith involves an individual's commitment to a certain worldview that includes a reference to a transcendent authority or being (Hardy, 1998). This faith connects to a religion which is not necessarily an institution. Additionally, spirituality is a lifestyle that integrates an understanding of meaning with daily existence. This spirituality may or may not be linked to a specific religion and may not involve a notion of God (Hardy, 1998). Religious faith and spirituality is at the core of one's lifestyle, radiates and influences life values, principles and behaviour. The participants in this study had their religious faith and spirituality affiliated to Christianity. Their faith, in turn, influenced their learning strategies and the power to be resilient during points of vulnerability.

Personal religious faith and spirituality was placed as an external factor in the survey to identify if there was any influence from parents or family in this factor, however, in the interviews it emerged as a more personalised causal attribute to academic achievement. The Grade 12 students openly expressed personal ownership of their faith and spirituality and made strong links between it and their academic achievement. Their religious faith and spirituality was more than just a belief in themselves or assessment of their capabilities and/or dependent on parents; rather it was something they highlighted as personal and which they actively practised. It was perceived to influence their academic behaviour and achievement. Some of the Grade 12 students who were identified as resilient were the same individuals who also attributed their academic achievement to their religious faith and spirituality. The following discourses illustrate the depth of religious faith and spirituality and the links students made to their success in school.

Yaunito from Site 1 revealed: *"...everything that I do, I used to pray to God and commit my studies to Him...because all things are possible and he's God of knowledge, wisdom and understanding"*. Also from Research Site 1, Kapi

reflected: “*One of the things that has helped me come this far is God. When I put him first then I do well. I find that I do well in my school work but when I, when I forget about Him, I usually drop*”. Similar sentiments about the impact of faith and spirituality on their academic success were reported by some participants in Site 2. Milika disclosed:

...I had a lot of doubts about whether I would step over but found that as I, when, when times were difficult I could always pray and release like, all things that I couldn't share with my parents, the things that I couldn't talk to with, about with my brother, and generally like my family, I could. In my own room, and in my own time I could pray about it and tell God like, what I was feeling...and I found that when I pray and believe Him I see things happening in the school... I succeed in ... things I cannot succeed. God is in control. I see grace every day in my life...

Mele revealed, “*... First of all is to be, you know, prayerful about it everyday. You have to be a Christian, a good... if you can, main prayer, doing anything in prayer, like committing everything to God...*”. Waisali linked her personal religious faith to her academic success. She reported

Well like, ... when I was in Grade 10 I didn't think I would get to do 11... but...it's through prayer, uuh?... So I said “OK, why not I pray and put a bit of faith into it and may be I will get somewhere...and then got to this point where I started seeing the prayers working...

These excerpts indicate the place of faith and spirituality in the lives of the Grade 12 students and the influence it had on their personal investments in learning. It appears that their religious faith and spirituality became a significant source of resilience during challenging situations. Similar findings in the United States highlighted that students from Black and Hispanic backgrounds who had a religious commitment performed better than those who were less religiously committed (Jeynes, 1999a).

The ANOVA test indicated significant difference ($p < .00$) between the Grade 8 school leavers and Grade 12 students and $p < .02$ between Grade 9-10 school leavers and Grade 12 students about the influence of their religious faith and spirituality on

their academic achievement. This is indicated in item 77 *My religious faith has contributed positively to my achievement in school*. The ANOVA test confirms the attributions by many Grade 12 students in the interviews and focus groups that their personal and family religious faith and spirituality contributed positively to their academic achievement. The T-test indicated no difference between the participants at the two sites.

6.4.2.4 Role Models

From both interviews and focus groups, role models were found to have had a major influence on some of the Grade 12 students' quest for academic excellence. The role models represented either good or bad models and were either from within their own families or from their extended families and some were those promoted by the media and in those they saw in the community.

The nature of their role models either inspired them to emulate these models or to avoid those that were considered bad role models. Good role models instilled in the Grade 12 students the positive values, attitudes and behaviour that they themselves wanted to nurture. Some participants from both sites attributed their academic achievement to the influence of role models.

Waisali had good role models in her home, her parents, who instilled positive values towards education. She reported:

My mummy is a nurse by profession and I think she has a degree in nursing which she did at the University of Southern Queensland...and my dad... he has a degree or... yea, degree in ...management or something... yea...another thing is like mum, she, like her family is different to my dad's family ... cause not everyone of them made it this far. In my dad's family it's different cause they all did make it this far and they are someone right now...

Trita from Site 1 also had positive role models within her family who inspired her to succeed in school.

... as for me my parents..., they are pastors and I have four bigger brothers and I'm the last born of the family. So my bigger brothers, all of them,

they went to higher institutions and university...and... for me, they inspired me to... follow them.

By contrast, Sineina from Site 2 expressed how she was inspired to avoid the mistakes of her older siblings. She said

...my parents advised me a lot and they didn't want me to be like...the other, my brother and my big sister who dropped out of Grade 10 and grade 6 and almost every day, my parents advise us and talk to us to do better, you know, school work...So that's what makes me to work hard until now and I hope and pray that I will continue my success in the coming future.

Yato from Site 1 found her role models in through the media. She said:

...By seeing magazines, pictures, TV's, all these media. The way... advertise themselves and also, I just look at them and say, I mean, I dream and say "one day I'm gonna sit in that house, I'm gonna do all those you people are doing". That's the driving force.

Zogi from Site 1 reported being inspired by the educated people and workers she had seen and wanted to be like them. She explained:

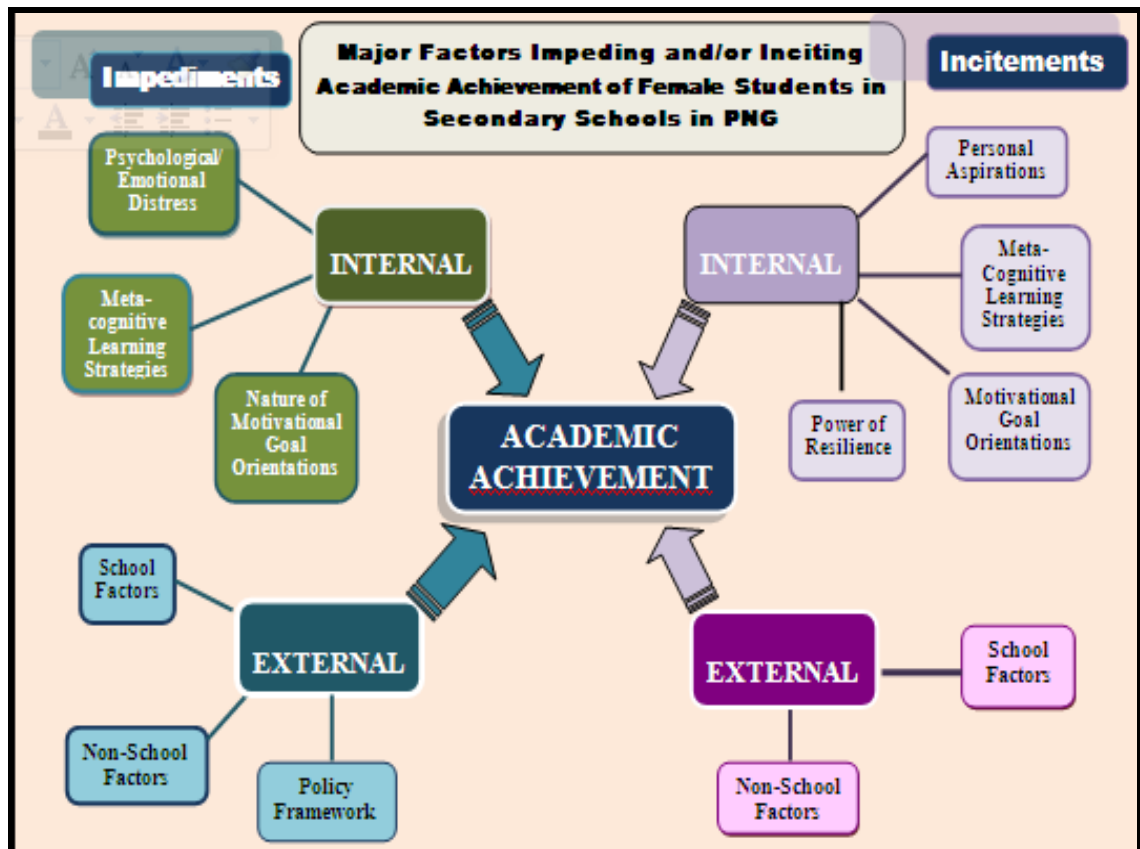
...when I go to town or in the school area, when I see educated people, how they dress and how they move around with their expensive cars and using their money, I always admire it. So I'm thinking that... in my future, I'm going to be like one of them. So my aim and my goal...I'm thinking that I'm going to succeed and be like one of them.

These excerpts indicate the powerful influence of role models to young female students. The Grade 12 girls were privileged to attend schools in Site 1 and 2 which are located in two urban centres of PNG. However, in rural areas of PNG, it is often difficult to find professional women who would serve as role models for female students in rural schools, except their own teachers.

6.5 Summary of the Major Findings of this Study

The findings of this study in response to the key questions have indicated that the academic achievement of female students in secondary schools in PNG are inhibited and/or facilitated by a number of major impediments and/or incitements. These have been presented separately along two broad categories of internal and external attributions. The summary is presented in Figure 6.3.

Figure 6.3: Summary of Key Impediments and Incitements for Achievement of Female Students in Secondary Schools in PNG



Three internal attributions emerged as key impediments to female students' academic achievement in secondary schools in PNG. These were: (1) the nature of motivational goal orientations students pursued in academic settings, (2) employment

of ineffective learning strategies, and (3) psychological and/or emotional distresses they encountered whilst in school. Although some school leavers claimed to have pursued mastery goals and felt self-regulated and efficacious, generally there was a pursuit of performance goals and the presence of ineffective self-regulatory learning strategies. This resulted in them making poor investments in learning such as lack of commitment to study, negative attitudes towards school and poor time management.

Encounters or experiences which were external in nature, but whose impact on school leavers were psychological and emotional also emerged as impediments to access, completion and academic achievement in secondary schools. Family context and the type of family some school leavers came from was an impediment to their academic achievement. Many of the school leavers could not benefit much in terms of academic support from parents and/or guardians having come from family backgrounds where parents were poorly educated. Others came from family backgrounds that became the source of psychological and/or emotional distress. The type of family some school leavers came from created psychological and emotional distress for school leavers which in turn affected their academic achievement. For example having been born out of wedlock, they had the trouble of searching for paternal or maternal identities. Finding out they were adopted resulted in a lot of unanswered questions about their identity. Coming from polygamous families and step families created a lot of emotional problems for them which in turn, affected their school work.

Four school factors were identified as impediments to academic achievement and these comprised difficulty with payment of school fees, teacher-related issues, problematic school contexts, and school emotional environment. The majority of the school leavers reported difficulty with payment of school fees as an impediment to their academic achievement. Non payment of school fees resulted in non-continuation or completion of schooling and created much anxiety amongst school leavers who were affected. Some teachers were seen as impediments to the progress and academic achievement of school leavers. Unprofessional behaviour of teachers as well as lack of commitment to work as marked by poor attendance prevented female students from seeking academic support from teachers. School leavers also reported that some school contexts lacked gender inclusivity and did not foster an

atmosphere where students felt valued, accepted, respected and safe in school. This was attributed to overcrowding and lack of or insufficient curriculum materials and resources.

Four non-school factors were found to be impediments to the academic achievement of female students. Impediments comprised problematic family factors, problematic personal factors, safety between home and school and lack of school and community infrastructure. Problematic family types such as step-families, polygamous families and adoptive families were identified a source of psychological and/or emotional distress which were attributed to by some school leavers, as impediment to academic achievement.

Personal factors impeding academic achievement comprised boy/girl relations and peer pressure. These distracted the school leavers from focusing on their studies and in turn, prevented them from doing well in school. Some school leavers, particularly those from remote schools, also attributed their academic achievement to lack of basic infrastructure in their schools such as library and community infrastructure such as good roads and electricity.

Non-school factors also included the policy driven systems, particularly the selection system used by the provinces to select students to continue onto progressive grades. Imposition of selection criteria for continuation to progressive secondary levels is a major impediment to the opportunity for female students to complete secondary education.

The major incitements for academic achievements found in this study were also categorised as internal and external attributions. As Grade 12 students represented the female students who were academically successful, these attributions were collected from them through the survey, interviews and focus groups. Three key internal attributions were identified as incitements for academic achievement of female students. These were the nature of their motivational goal orientations, utilisation of self-regulatory learning strategies and the power of resilience.

The Grade 12 students were similar to the school leavers in their pursuit of perceived parental performance goals as well as mastery goals and perceived classroom goals. Hence they were engaged in academic tasks because they wanted to acquire knowledge and skills, to attain good results to please their parents and/or guardians and to meet the requirements to continue their education. Unlike the school leavers, the Grade 12 students embraced strong personal goals and aspirations for their future that motivated them to strive for success in school.

Grade 12 students were also highly self-regulated and efficacious. This was evident in their excellent personal investments in three key areas: time management, commitment to study and employment of teamwork. They believed in their capabilities and these became a source of motivation to them. Possession of a high level of self-efficacy was a reason for inner strength despite some of them experiencing similar problematic situations as the school leavers. Their belief in their personal capabilities enabled them to be resilient during their points of vulnerability.

The external attributions that emerged as helping to facilitate academic achievement of female students were further categorised as school and non-school factors. The school factors consisted of the school psychological environment, school curriculum, teacher support and gender inclusivity. Unlike the school leavers, the Grade 12 students attributed their academic achievement to a warm and supporting school psychological environment. They received excellent support from teachers who assisted them when they had personal and academic concerns. They also identified that their school curriculum was relevant and their schools were gender inclusive.

Grade 12 students came from higher SES backgrounds and their parents and/or guardians were able consistently to pay for their school fees and other educational needs. The majority of the parents and/or guardians of Grade 12 students were highly educated and were employed. This gave the students the stability of mind to focus on their studies.

The non-school factors that facilitated Grade 12 students' academic achievement included a good supportive family relationship. Support from family came in the form of consistent payment of school fees, providing for basic needs and school-related needs. A significant number of Grade 12 students also attributed their

success to their family's and their own personal faith and spirituality. Their daily devotion to their religious faith also became a source of resilience. Grade 12 students also attributed their academic successes to the motivation they got from observing both good and bad role models. Good role models inspired in them a quest for success whereas bad role models presented behaviour they wanted to avoid.

CHAPTER SEVEN: CONCLUSIONS, RECOMMENDATIONS, LIMITATIONS AND FURTHER STUDY

7.0 Overview of the Chapter

Chapter 7 draws conclusions based on the findings presented in Chapter 5 and 6. Implications of the study are then presented with the recommendations, limitations and further study opportunities. The chapter is organised into four sections. **Section 7.1** is the introduction. **Section 7.2** presents the conclusions drawn from the results of the study, **Section 7.3** provides recommendations to address the issues that have been highlighted. **Section 7.4** discusses the limitations of the study and opportunities for further study.

7.1 Introduction

A review of literature into earlier studies in girls' education in PNG had highlighted issues including the socio-cultural and socio-economic factors as impediments to female participation in education. The literature review however, did not find a study in PNG that has specifically examined the area of academic achievement of female students and the factors impeding and/or facilitating it. Hence, the purpose of this study was to examine the attributions of the Grade 8, 9 and 10 school leavers and Grade 12 students about factors that had impeded and/or facilitated their academic achievement.

A mixed methods research design using a survey, an interview and a focus group schedule for school leavers and Grade 12 students was employed to collect the data containing the attributions for academic achievement. The results were presented in Chapters 4, 5 and 6.

7.2 Conclusions from the Study

Based on the results of both quantitative and qualitative analysis, two general conclusions are drawn. The first conclusion is that the academic achievement of school leavers and Grade 12 female students can be attributed to both internal and external attributions. Internal attributions comprise the psychological and emotional factors which influence the nature of motivational goal orientations, the personal goals and aspirations students pursue, regulatory learning strategies and the capacity to deal with psychological and emotional distress. The external causalities are related to school system driven policies and can involve school and non-school factors.

This study used three groups of participants comprising two groups of school leavers and one group of Grade 12 students at the two research sites, hence the second conclusion is that both school leavers and Grade 12 students at the two research sites encountered some similar experiences and/or challenges but employed divergent thinking and strategies to address their challenges and experiences. Whilst the school leavers often viewed their experiences as impediments, the Grade 12 students valued them as incitements for academic achievement. From these general conclusions, more specific conclusions are drawn and are presented as follows:

- (1) The nature of students' underlying motivational goal orientations exerts a powerful influence on learning and in turn, academic achievement. Motivational goal orientations of students comprise their personal goals and aspirations, perceived classroom goals, perceived parents and/or guardian goals, performance and mastery goals. This study found that personal goals and aspirations, the nature of perceived parental and/or guardian and classroom goals subsequently influenced students' personal goals at the two sites. Perceiving parental and/or guardian learning goals as orientated towards performance, divergent motivational goals were

pursued. School leavers were found to have pursued performance goals oriented towards performing better than other students and studying subjects in which they performed well. This may have been the cause of their academic under-performance as students who utilise performance goals use surface level strategies such as memorisation and rote learning (McInerney & McInerney, 1998, 2006). In contrast, Grade 12 students perceived their parents'/guardian wishes as being performance goal oriented but focused on ensuring that their school work was challenging. Hence, they pursued mastery goals and self-regulatory learning strategies which resulted in their academic success. The Grade 12 students at the two sites were found to have set themselves personal goals and aspirations which influenced their motivational goals and their self-regulatory learning strategies and in turn, their academic achievement.

- (2) The self-regulatory learning strategies employed by students influence their academic achievement. Students who are highly self-regulated and are organised have high levels of self-efficacy and make excellent investments in their learning assets including time management, commitment to study and a positive attitude towards school. This study has found that female students at the two sites who made poor investments in their self-regulatory learning strategies by resorting to negative learning strategies such as poor time management, lack of commitment, and a negative attitude to school were more likely to under-perform compared to students who made excellent investments in the same assets. The Grade 12 female students at the two sites were found to have used excellent personal investments in their learning strategies and as a result, succeeded in school. Excellent personal investments comprised good time management, commitment to study, positive attitude towards school and effective learning strategies such as teamwork.
- (3) Students have different capacities to handle difficult and challenging situations. Many of these situations impact on the emotional and psychological well-being of students. In this study some school leavers and Grade 12 students were found to have encountered similar

emotional/psychological distresses however, a major difference between them was in the strategies they employed in addressing these difficult situations. The study found that whilst the impact of emotionally and psychologically distressing situations on school leavers at the two sites was negative, the Grade 12 students tapped into available support services in school, their inner resources of strength comprising self-efficacy and their power of resilience. Consequently, they succeeded in their studies. The Grade 12 students who were resilient were also found to have embraced strong family and personal religious faith and spirituality.

- (4) The stability of a student's family background influences her psychological, emotional health and functioning and consequently, her academic achievement. Parents in a stable family are able to provide a high level of support to their children compared to parents in an unstable family. However, in some situations students from unstable and psychologically and emotionally distressing home environments have been able to develop resilience and to turn these difficulties into opportunities for personal growth and development. In this study it was found that some family situations created psychologically and emotionally unstable and distressing environments for their children and these had negative impacts on their children's school work. Unstable family situations comprised divorced and step-families, single parent families, polygamous families, and adoptive families. Some school leavers from these types of backgrounds indicated having had major problems in school and consequently their school work suffered. In contrast, some Grade 12 students who came from similar types of backgrounds were found to be highly resilient, had a high level of self-efficacy, developed and tapped into strong personal religious faith and spirituality. A positive perspective on emotionally and psychologically challenging home situations developed resilience and a positive outlook on these situations and in turn, their academic success.
- (5) A psychological-emotional environment of a school also influences the academic achievement of students. A school that makes students feel

included, makes them feel valued and respected, and a school that provides support services that can be easily accessed when students have personal and academic concerns promotes the mental health of students as well as their academic achievement. Students' perception of the socio-emotional environment develops from a sense of inclusion and the opportunities students have of participating in various school activities and school leadership. In this study participants had contrasting perspectives about their school environments. Whereas some school leavers felt that their schools did not value them, were not inclusive and when they had personal and academic concerns there was no one in school to provide the support they needed; the Grade 12 students felt valued by their schools and had support when they needed it.

- (6) The selection system in PNG and factors such as the availability of resources and facilities in secondary schools appears to have been one of the major impediments to female students' progression to secondary levels of schooling. This study confirms the trend shown in Figure 1.4 in Chapter 1 which indicates that the majority of the Grade 8 and 10 school leavers were not selected to continue their secondary schooling. Consequently, they were pushed out of the school system. The Grade 9 school leavers left school for other reasons. The female students who continued onto Grade 9 and 11 were selected based on their high academic performance. Also the disparity of approximately 17% between the male and female students' enrolment during transition from Grade 8 to Grade 9 and 6% during transition from Grade 10 Grade 11 seems to have operated in favour of male students over female students.
- (7) The current education policy framework under which education is not universal or provided free appears to be one of the major impediments to the nature of motivational goal orientations for learning pursued by secondary school students. Students perceive that when parents work hard to raise money to pay school fees, they expect high academic performance from their children. This in turn, influences students to pursue motivational goals similar to those of their parents and/or

guardians. Pursuit of goals similar to observed motivational goals of others have had a varied influence on the learners in this study. School leavers who are at risk of under-performance tended to pursue performance goals oriented towards competition. In contrast, the female students in Grade 12 were influenced by their perception of parental/guardian goals oriented towards performance goals focused on wanting school work to be challenging. This in turn, resulted in their pursuit of strong mastery oriented goals and the use of self-regulatory learning strategies that promote academic achievement.

- (8) The socio-economic status of families can influence the academic achievement of students. The higher the socio-economic status of a family as indicated by the higher educational and employment status of parents and/or guardians, the more human and economic capital they are likely to utilise to support their children. The lower the socio-economic status of a family, the less human and economic capital parents and/or guardians are likely to access and provide for their children (Lan & Lanthier, 2003; Niles, 2001; Reynolds & Conaway, 2003). In this study the majority of the school leavers at the two sites who reported their parents and/or guardians as having had no formal education or had lower levels of education, also reported they could not access higher grades or complete their grades because of difficulty with payment of school fees. In contrast, most Grade 12 students' families at both sites had a higher socio-economic status and were able to access support and resources that consequently enhanced their academic achievement.
- (9) Safety of children, particularly girls, travelling between home and school and in school has continued to be one of the major impediments to girls' education in PNG. Safe travel between home and school and the provision of a safe learning environment creates a psychologically and emotionally conducive learning environment for learning to occur. Sexual harassment by teachers, whether verbal or physical, and sexually suggestive behaviour creates unnecessary fear and shame and prevents the victims from consulting their teachers when they have academic

concerns. Continued sexual harassment can cause psychological and/or emotional harm, lowers confidence and can be detrimental to the victim's academic achievement. Some school leavers in this study reported feeling unsafe in school owing to being sexually harassed by their male teachers. Whether sexual harassment was verbal, physical or through sexually suggestive behaviour, in this study the participants indicated that it created fear and shame. Consequently, it prevented the victims from consulting their teachers when they had academic concerns.

- (10) School curriculum resources and materials such as computers and textbooks available to and/or accessible by students, the range of subjects that students can choose to study, the availability of qualified teachers and the role models featured in curriculum materials all influence academic achievement. However, some Grade 10 school leavers felt that their teachers were not gender inclusive in giving them equal access to curriculum resources and materials such as computers and textbooks and were not provided equal opportunities for participation in class. They also felt that the textbooks they used were not gender inclusive in the role models they featured in them.
- (11) The size of a school or class can influence the emotional environment of a school, teacher practices and gender inclusivity. The more manageable the size of a class, the more accessible the curriculum resources and materials are to students. The smaller the class size, the easier it is for gender inclusive teacher practices and the easier it becomes for students to develop social networks. As found in this study, the larger the schools were, the more difficult it was for students to establish social networks in school and for gender inclusive practices to be applied.
- (12) Teachers are a form of human capital and knowledge resource that can assist in creating a facilitative learning environment for students. The quality of teachers in the areas of ethical behaviour, pedagogical knowledge and practice, positively influences the academic achievement of students. Teachers' lack of commitment to work and prolonged

absences from classes, as found in this study, can impede student academic achievement. The poor professional conduct of teachers in the form of verbal and suggestive sexual harassment is detrimental to the psychological well-being of female students. It creates unnecessary fear and shame and betrays the trust of students, parents and community. In this study, many school leavers attributed their under-performance to their teacher's lack of commitment to work, prolonged absences and sexual harassment. In contrast, the success in school of the Grade 12 students was attributed to the excellent support of teachers.

- (13) Personal factors such as peer pressure and boy/girl relationships have a significant influence on student academic achievement. Students tend to become disengaged and involve in these activities when they're at risk of under-performance or continued discipline problems in school. Students who succeed in school make good investments in their learning which in turn, facilitates their academic achievement. In this study it was found that school leavers who were negatively influenced by their peers and/or who engaged in boy/girl relationships invested very little time in learning. In contrast, the Grade 12 students made excellent investments in their learning.
- (14) The moral values instilled in families through their religious faith and spiritual practices develop firm foundations for later student success in school. As indicated by the Grade 12 female students, the values are quite established for some by the time they reach secondary schooling and they integrate them into their personal learning strategies as these give them a sense of direction, focus and translated into control over their general and academic behaviour. Their religious faith and spirituality became the source of resilience throughout difficult times in their lives. The results for Grade 12 students at both sites showed that a significant number of them who attributed their academic success to their religious faith and spirituality were the same students who were resilient during difficult and challenging times.

- (15) Basic school infrastructure such as library and buildings and community infrastructure such as roads and bridges in the location of schools, is essential for effective school operation and student learning. Lack of essential infrastructure can have detrimental effects on the academic achievement of students if teachers, school curriculum materials and resources and other essential services of a school cannot be easily accessed. This study found that lack of basic infrastructure in some rural schools prevented qualified teachers from going to rural schools and if they did go these schools, had frequent absences were absent from school for days when they had to get into towns for government services. This consequently limited the learning opportunities of students.

7.3 Recommendations from the Study

From the 15 specific conclusions that are drawn from the triangulation of findings of this study, nine recommendations to address the issues raised are provided in the following section. The recommendations are presented as short-term and long-term solutions to both internal and external problems.

7.3.1 Recommendations for Short-Term Solutions

In the short-term, the following recommendations are provided to address the major internal and external attributions for academic achievement.

7.3.2.1 Recommendation 1: Establishment of a Teacher Development Centre Pilot Project at the University of Goroka

As indicated in conclusions 1 and 2 the nature of motivational goal orientations and self-regulatory learning strategies employed by students exert powerful influence on their academic achievement. This indicates a need for schools to improve and/or develop teacher pedagogies that can better equip teachers and benefit their

students. This is critical in the light of the introduction of Outcome-Based Education (OBE) recently introduced at both primary and secondary levels of education in PNG; the general change evident in today's PNG children and the challenges children encounter. The OBE requires a collaborative culture to develop teacher pedagogies and performance of students. Hence, teachers need to be exposed to ongoing professional development in order to adapt to changing current practices that are suitable and beneficial to students.

Although secondary schools in PNG currently run School-Based In-Service sessions and Provincial In-Service (PIS) weeks, these need to be improved, developed and aligned to school-wide pursuits to promote both teacher and student learning. However the effectiveness of educational transformations such as this “depends on teachers’ individual and collective capacity and its link with school-wide capacity for promoting pupil’s learning” (Stoll, Bolam, McMahon, Wallace & Thomas (2006, p.221). It is with this perspective in mind that a Teacher Development Centre Pilot Project within the Faculty of Education at the University of Goroka (UOG) is recommended as a short-term measure in addressing professional development of teachers in PNG secondary schools. The Teacher Development Centre Pilot Project at the UOG will nurture a culture of collaboration and will focus on results through supportive and shared leadership, shared values and vision, collective learning and application of learning, supportive conditions and shared personal practice (DuFour, 2004; Morrissey, 2000). It inculcates a performance and development culture through collaboration and removes fragmentation promoted by the culture of departmentalisation evident in many secondary schools.

The University of Goroka, as the PNG's premier Teacher Education institution is an ideal location for the Teacher Development Centre Pilot Project as it trains early childhood educators and primary and secondary school teachers undergoing in-service training. Hence, the potential participants representing all regions of the country are available on site. Pilot work can be conducted with these students in addition to their studies and upon completion of their studies and return to their respective schools, a follow-up can be conducted to assess their implementation of teacher pedagogies learned.

A critical way (although this is only one of a number of possibilities) of facilitating such on-going professional development is by way of nurturing the concept of Professional Learning Communities (PLC). The concept of a PLC does not have a set definition that is accepted globally; however, it is generally suggested by authorities that it involves a group of people who share and critically examine their practice in a “progressive, reflective, collaborative, inclusive, learning oriented, growth promoting way” (Mitchell & Sackney, 2000, as cited in Stoll et al., 2006, p. 223), with the support of the school administrator. According to DuFour (2004), a professional learning community should have, as a core mission of formal education, a need to ensure that students learning is not just taught. This implies a “shift from the focus of teaching to a focus on learning” (p.1) and it promotes a culture of performance and development. This approach would in turn, embed a culture of collaboration within the Teacher Development Centre and therefore in the wider school community.

7.3.1.2 Recommendation 2: Establishment of Papua New Guinea Girls in Mathematics and Sciences (PNGGIMS)

Conclusions 1 and 2 also infer that if female students’ motivational goal orientations which are driven by underlying goals and aspirations and focused on mastery goals and self-regulatory learning strategies can be employed, academic achievement is facilitated. However, opportunities need to be created to bring together female students for academic enrichment purposes, to give them exposure to available opportunities in various fields of study, develop personal goals and aspirations and meet role models from various fields of study and employment. Analysis of the Grade 10 HSC examination results has revealed that female students have only performed better than male students in English and not the other three subjects. Even in the Grade 12 HEC examinations, although the national mean scores indicate that female students are performing slightly better than male students, the mean scores of female students in secondary schools in many provinces are below those of male students.

Two of the lower secondary school subject areas that female students have been found to be under-performing in the national examinations in PNG have been the

mathematics and sciences. These are also the areas where women in PNG are currently under-represented. Therefore, it is particularly useful in PNG to develop young female scientists hence, it is recommended that an establishment of Papua New Guinea Girls in Mathematics and Sciences (PNGGIMS) be effected to capture and promote a general interest in mathematics and science oriented fields. This will also provide support to female students who are interested in mathematics and sciences. Opportunities for other female scientists in the community to give motivational talks and conduct scientific demonstrations can be created.

Projects similar to GIMS include GoWest which is “Go Women in Engineering, Science and Technology” which is a project at the University of Southern Queensland, Australia. Go West supports female students and professionals in the discipline areas of Science (including Maths), Engineering and Technology (SET) where females are traditionally under-represented (University of Southern Queensland)

7.3.1.3 Recommendation 3: Development of Sexual Harassment Policy

Whilst the Teaching Services Commission (TSC) which is the employer of teachers working in schools in the National Education System in PNG, has a Code of Ethics for teachers, these are often not widely promoted or understood by all teachers, particularly new graduates. The Code of Ethics clearly describes the appropriate professional conduct required of teachers. However, as a result of ignorance or deliberate breach of the code of ethics, far too many teachers engage in unprofessional conduct such as the harassment of female students in schools. With a need to ensure that teachers adhere to the TSC’s Code of Ethics and that children know their rights, it is recommended that a sexual harassment policy be developed for schools. Unlike the code of ethics for teachers which is only available to teachers, the sexual harassment policy should be widely circulated to teachers, students, parents and the community. This should specifically highlight what behaviour constitutes sexual harassment and strategies in place to address incidences of sexual harassment.

7.3.1.4 Recommendation 4: Broaden the Scope of Checks on Teacher Performance in Schools

This study has found that the professional standards and conduct of some teachers is poor. As indicated in conclusions 9 and 12, sexual harassment of female students by teachers makes some female students feel unsafe in school. This is coupled with prolonged absences from school and lack of commitment by some teachers which often results in academic under-performance. Behaviour of this nature needs to be addressed and stopped and teachers with low moral standards and poor performance need to be reported to relevant authorities in schools and the TSC so that they can be dealt with accordingly.

Currently the PNG education system has school standards officers located in the provinces. These standard officers make regular visits to schools under their inspectorates purposely to check on a number of areas of school operation. These include performance appraisal for graduate teachers for registration purposes, teacher performance appraisals for promotion, financial management checks for the schools and checks on the conditions of facilities to ensure that the schools and the teachers are performing at a set standard. These checks often exclude character checks from stakeholders such as students, parents and community leaders. To ensure a well rounded check on the professional standards and practices of teachers, it is recommended that the scope inspection undertaken by standards officers in the provinces be broadened to provide a broader source of evaluation of teacher's performance in schools. The views of students and parents need to be included as these are necessary for transparency and cross-checking purposes.

7.3.1.5 Recommendation 5: A Need to Teach Professionalism and Ethics by Teacher Education Institutions

Currently the major provider of teacher education in PNG, the University of Goroka, offers a course on Teachers Code of Ethics as stipulated in the Teaching Services Code of Ethics. This course is taught to the under-graduate in-service students as

well as the post graduate level but not to the undergraduate pre-service students. As a course like is vital for all teacher trainees to undertake, it is recommended that the course be also offered to the under-graduate pre-service students at the University of Goroka as well as other teacher education institutions such as the Teachers Colleges.

7.3.1.6 Recommendation 6: Promote Gender Inclusivity in Practice and Access to School Curriculum Resources and Materials

The PNG NDoE currently has a gender desk but there is still more that can be done to promote gender inclusive environments in the school system. The aspirations of the gender desk need to translate into gender inclusive practices in the classrooms and the curriculum resources and materials used in schools. As indicated in conclusion 10, not all students see their teachers as gender inclusive in providing gender equal opportunities for participation in class, gender equal treatment of students, and gender inclusive role models in curriculum materials.

Gender inclusive opportunities or activities are culturally less evident in many PNG communities where there is a demarcation of roles and responsibilities. Even if teachers and curriculum writers have been exposed to the concept, it is difficult for the concept to become internalised and put into effective practice. Hence, one possible strategy to develop greater understanding about the importance of gender inclusivity in educational settings is through more education and awareness and should be part of the pre-service teacher training too. Hence it is recommended that gender inclusive awareness and education be promoted in all educational institutions.

7.3.2 Recommendations for Long-Term Solutions

In the long-term, the following recommendations are provided to address the major internal and external factors of concern.

7.3.2.1 Recommendation 1: Training and Employment of School Professional-Counsellors, Guidance Officers and Chaplains.

The needs and issues confronting adolescents in primary and secondary schools have drastically changed in the 21st century and schools need to provide support programs, services and teaching strategies that are relevant to current situations. The expected increase as a result of the implementation of Education For All (EFA) as of 2010 in PNG will most likely increase the number of students with varying problems particularly of academic and social-emotional nature compared to the current students. Hence, it is recommended that the NDoE, provincial education authorities and secondary schools collaborate to consider seriously and urgently investing in training and employing qualified professionals to provide guidance and counselling and chaplaincy services in school. Even if there are no positions created under the Teaching Service Commission, schools through their respective boards or provincial education boards in the respective provinces need to use other strategies such as using community organisation and the churches to make the necessary support service available.

The availability of qualified professionals in schools, particularly secondary schools is consistent with the PNG's Philosophy of Education which calls for integral human development (IHD). This entails the development of the whole child, that is, emotional/psychological, spiritual, physical, and intellectual development. Within the context of IHD and its aims, schools need to have other qualified professionals such as counsellors, guidance officers and chaplains assisting apart from teachers and administrators.

The key role of a school counsellor is to provide support and advocate for the overall success of students. They perform their roles effectively when they work in collaboration with school principals, teachers, special education teachers and other school professionals for the purpose of better serving students (Teens and Toddlers, n.d).. Other school professionals include guidance officers and chaplains. The role of

a guidance officer is to provide motivational support through numerous activities that develop good citizenship values in students by developing student leadership potentials, advising on subject selections, offering career and life advice in collaboration with the school principal and the community.

With 96% of the PNG population being Christian, the majority of the students are allied to various Christian denominations. Hence, an effective chaplaincy services can be used to develop and promote the spiritual well-being and moral values of students. Chaplaincy services in all church run schools and most public schools already exist in partnership with member churches and/or inter-denominational groups such as the Scripture Union¹⁰, however this needs to be properly co-ordinated so that there is no conflict between the roles of chaplains with other schools professionals. A chaplaincy service in the PNG context is also essential for home and school collaborations in tapping into the existing contemporary village culture which is also centred around the church in providing collaborative student support. Home-school collaborations are appropriate in dealing with emotional or psychological distresses which may result from the nature of the home context. As found in this study, students' personal faith and spirituality which is often developed in the homes can be supported by the chaplains in schools.

Two of the major impediments found in this study-poor investments comprising poor time management, negative attitude towards school and lack of commitment; and personal factors such as boy/girl relationships and peer group pressure, are examples of issues that can be effectively attended to by qualified professionals and not left to teachers.

¹⁰ Scripture Union is an inter-denotational organization that provides spiritual support for students in high schools and secondary schools in PNG.

7.3.2.2 Recommendation 2: A Development of Student Leadership

As indicated in Conclusion 5, students' psychological-emotional perspective of a school environment influences their behaviour and in turn, their academic achievement. As mentioned in Conclusion 5, one of the key factors that contributes to the development of students' psychological-emotional perspectives of their environment is their inclusion and participation in school leadership opportunities. Although, currently there exists in schools a student leadership system under Student Representative Council (SRC), there's a need to relook at this to strengthen and further develop the leadership qualities of student leaders and an opportunity to identify and develop girls with leadership potential and engage them in the school leadership teams. Hence, it is recommended that, as part of the school guidance programme, school leaders in various areas of the school community be identified to undergo leadership training and a proper mentoring program, preferably at the start of a year. This is currently lacking in schools. The school leadership development program being recommended should entail organisation of school leadership development retreats or workshop(s) during the term breaks where student leaders meet and are encouraged through motivational talks and training on their roles as school leaders. As a result, student leaders should be given greater opportunity for participation in school leaders' activities. This in turn, should promote an environment where students feel valued, respected, accepted and have responsibilities and obligations.

7.3.2.3 Recommendation 3: Implementation of Education for All (EFA) to Include Secondary Schools

One of the key impediments found in this study has been the difficulty parents have in paying school fees. As a signatory to the United Nations policy on EFA and the Convention on the Rights of the Child, the PNG government has an obligation to ensure the terms and conditions of these are implemented.

The concept of EFA has been considered throughout the course of this research

project but at the closing of this project, the PNG government's high level meeting, the National Executive Council (NEC), has deliberated on the issue with a view of implementing it in 2010. In the last week of February, 2009, the National Executive Council (NEC) meeting for the PNG government made a decision to provide EFA at the Primary School level (Australian Associated Press, 2009).

Whilst a long awaited decision has been finally made to provide basic education, the government decision on EFA does not include the secondary education level and has not addressed the difficulty faced by secondary school students and parents. It however, has implications for the socio-economic development opportunities for many future Papua New Guinean leaders and continued under-representation of female students in secondary schools. Therefore it is recommended that the EFA be extended to Grade 10. Inclusion of the lower secondary grades in the EFA in PNG will provide a lot of relief to the majority (85%) of the population who live in rural areas on below average income. Inclusion of the lower secondary grades in the EFA will also eliminate the need for selections to continue on to the progressive grades of the lower secondary education. More opportunity can be given to parents to prepare for school fees for the upper secondary school grades for their children. This will ensure that the children's right to education as stipulated in the 'Convention on the Rights of the Child, Article 28 (United Nations, 1990) is adhered to and will eliminate the selections to Grade 9 that exist under the current system. The gender disparity that currently exists should also be minimised. It should also relieve a lot of parents of children in Grade 8 from anxiety over whether their children will be able to go on to upper secondary school.

7.3.2.4 Recommendation 4: Develop ICT Policy to Promote Learning in Schools

This study has found that the availability of and access to curriculum resources and materials has been one of the major impediments to the academic achievement of female students in secondary schools. Consequently, the demand for curriculum resources and materials has increased. Increased class size results in problems in access to curriculum resources and materials and can result in gender biased

practices in class.

Twenty-first century school administrators need to consider alternative solutions to addressing the shortage of curriculum resources and materials and new facilities such as a library. This involves tapping into modern information technology. It is recommended that Information and Communication Technology (ICT) policy be developed at the national level of education so that educational institutions including schools can take advantage of it. This will create a broad range of opportunities to access curriculum resources and material online and address the shortage of up-to-date curriculum resources and materials such as textbooks.

7.3.2.5 Recommendation 5: Development of Basic Community Infrastructure

In many rural parts of PNG, schools are the only government service available, thus basic infrastructure such as roads and bridges which are the responsibility of the provincial governments need to be provided for easy access by students, teachers and other school professionals. In this study, it was reported that many qualified teachers do not often want to teach in rural schools owing to poor road conditions and lack of essential services. If however, they do teach in remote schools, prolonged absences from school are often evident. This contributes to academic under-performance. It is recommended that in the long-term schools, in collaboration with stakeholders such as the local members of parliament, the district administrations and the respective provincial governments, basic community infrastructure such as roads and bridges be built to ensure easy access for school staff and students.

7.4 Limitations of the Study and Recommendations for Future Research

This study has faced two major limitations. First, the scope of this study has limited the reliability and validity of findings. Whilst it may be possible to generalise the findings having participants representing two main societal structures in PNG-the patrilineal and matrilineal societies, and the two geographical locations-the highlands and coastal, a more extensive study is required to establish a more comprehensive picture. However, what this study has done is that it has provided a design approach to be used in future research and used conceptual models in a way it has never been utilised in previous studies.

Second, the researcher acknowledges the limitations that exist in this study relating to the sample size of the participants from which the data was collected and the effect on data analysis procedure. As explained in Chapter 3, the sample size of this study was small owing to the loss of initial data through theft of data storage devices during home break and enter by criminals. This occurred soon after the return from data collection field trip. As a result of this loss, a second set of data was collected. Hence, the results of the data analysis provide somewhat limiting results.

This study has also highlighted key areas for examination in future research. These include a need to broaden the scope of the study by conducting a national research into impediments and incitements for academic achievement, preferably in a number of schools and communities in the provinces. This study should also include male students and male school leavers. There is also a need to conduct a regular document analysis of the national examination results to compare male and female students' academic achievement in primary and secondary schools and to make these public.

Teachers, as channels for academic achievement of students, have been identified in this study as also contributing to many students' academic problems. Hence, there is a need to explore their efficacy beliefs about their pedagogical practices and whether establishing stronger Professional Learning Communities and in-service

opportunities can develop them as teachers. These would both be aimed at improving the academic achievement of students.

School and family environments in PNG exert a powerful influence on the academic achievement of students. There is a need to investigate strategies that enhance psychological-emotional development in both primary and secondary schools. Family types and family breakdowns have been identified as contributing to academic under-performance and/or failure of participants in this study. As there has been no study conducted in PNG into the impacts of common family types, particularly polygamy and adoption on academic achievement as well as family break downs, opportunities for future research also exists in this area.

7.5 Personal Reflections

Although as a researcher I have placed myself behind the scenes of this study in consistent with the underlying socio-cultural values of my own matrilineal and the general PNG patrilineal context in relation to voice, this project has reflected my own beliefs, values and experiences. However, as this study employed a triangulation mixed methods research which gives equal priority to both quantitative and qualitative data collection, analysis and reporting, at this juncture I feel compelled to disclose the underlying beliefs, values, motivations and experiences in the first person voice.

I am deeply rooted in my matrilineal cultural beliefs in two ways. First my personal philosophy embedded in my clan totem, eagle. An eagle is one of the strongest birds and in times of storm it opens its wings to soar above the raging winds and does not grow weary. It also has telescopic eyes to spot its prey far below. The characteristics of my totem motivate me to be strong and perservere in challenging times. It also teaches me to dream and look for opportunities to take advantage in order to succeed in what I do. Second, the essence of my matrilineal culture gives special recognition to women and girls and this influences my belief that, if given greater educational opportunities to be equipped with literacy and numeracy skills and other relevant knowledge and skills, women can play a significant role in improving the socio-economic status of their families, their communities and their nation.

As a researcher, the eagle spirit in me has enabled me to achieve my dream and find answers to my own questions about issues influencing academic achievement of students, particularly girls. As a former high school teacher, I observed too many students leaving school without fully completing their high school education. I also observed a decline in the representation by girls in the progressive high school grades. On joining the university academic team, I also noticed an under-representation of female tertiary students and became aware of very few Papua New Guineans women being successful in their educational pursuits and their careers. This contradicted my personal beliefs about the importance of educating girls, the potentials that girls have, both of which were the beliefs that were implanted in me by my high school principal and my late father many years ago. Hence, I was prompted to gather data from female school leavers and Grade 12 students about their attributions for their own academic success and/or failure. I felt that they were in a better position to tell me exactly what affected their schooling and/or what assisted them in their schooling. These are important to me as a teacher educator.

As a teacher educator I have a dream that the knowledge that I have gained through this research will in turn, assist me in developing my own students become better educators in primary, high school and tertiary institutions. It has been my dream to contribute positively to the development of my country, particularly to girls' schooling, hence, despite the loss of half my research data and other problems I encountered during my doctoral studies, I have persevered.

Finally, I conclude with a famous quotation that I have referred to elsewhere in this thesis which is also the basis for my research interest in the field.

Educate a girl, you educate a family

Educate a family, you educate a nation (Anonymous)

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APPENDIX A: GROUP A & B SURVEY- ENGLISH VERSION

(Females who were not selected to undertake secondary education and those who dropped out of secondary school)

Aims of the Study

This study seeks to examine females' perspectives about

- (a) factors inhibiting them from gaining access to secondary education,
- (b) completing secondary education and
- (c) the factors to which they attribute their levels of academic successes and or failures in secondary schools.

Expected Outcomes

This study should assist in

- (a) improving academic achievement of females.
- (b) improving completion rate for females in secondary schools.

IMPORTANT NOTES

1. This Survey Questionnaire is in three main parts:

Part A comprises personal details and the details of your school.

Part B asks for situations that are within your control which you consider to have affected your learning.

Part C asks you for **situations** that are outside your control which you consider to have affected your learning.

2. For confidentiality, you are not to disclose your name anywhere on this paper.

3. Read each situation carefully before attempting it. If you are not sure, do ask.

PART A: PERSONAL DETAILS

Complete the following personal details.

1. Name of your last school _____

2. How well do you think you performed in the following school subjects? In the following rate your performance out of 5 by ticking the appropriate box beside each subject.

English	1	2	3	4	5
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	NOT AT ALL GOOD		AVERAGE		VERY GOOD

Maths	1	2	3	4	5
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	NOT AT ALL GOOD		AVERAGE		VERY GOOD

Science	1	2	3	4	5
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	NOT AT ALL GOOD		AVERAGE		VERY GOD

Social Science	1	2	3	4	5
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	NOT AT ALL GOOD		AVERAGE		VERY GOOD

3. Indicate the gender of your subject teacher by writing M for male and F for female next to the subject.

Core Subjects	Gender of my subject Teachers
Maths	
Science	
Social Science	
English	

4. My school offered a student support service to provide academic and personal support. Tick the appropriate box.

Yes	
No	
I don't Know	

5. Whom did you live with when you were in your final grade at school? Please tick the appropriate box.

Parents	
Mum	
Dad	
Guardian	
By myself	
Boarding at school	
Other (Please describe briefly)	

6. a. When you were in school did your father/male guardian work?

Yes	
No	
Retired	
Deceased	

b. When you were in school did your mother/female guardian work?

Yes	
No	
Retired	
Deceased	

7. If “Yes” to item 6 & 7 above, what were their occupations?

Mother/Guardian

Father/Guardian

8. If your parents/guardians have been educated, what was their highest level of education? Look at the lists below and tick the appropriate box.

Father/Male Guardian

University Degree	
College Certificate/Diploma	
Trade Certificate/Diploma	
Grade 12 Certificate	
Grade 10 Certificate	
Below Grade 10	
Never Been to School	

Mother/Female Guardian

University Degree	
College Certificate/Diploma	
Trade Certificate/Diploma	
Grade 12 Certificate	
Grade 10 Certificate	
Below Grade 10	
Never Been to School	

9. Who paid your school fees when you were in school? Tick the appropriate box.

Both father & mother	
Father	
Mother	
Guardian (indicate relationship with guardian)	
Other (indicate briefly)	

10. What is your sibling position as a child from your mother? Tick appropriate box.

Only child in the family	
1 st born	
2 nd born	
3 rd born	
4 th born	
Additional Position (Please specify)	

PART B: PERSONAL SITUATIONS THAT INFLUENCED YOUR LEARNING

THE FOLLOWING ARE QUESTIONS ABOUT SITUATIONS THAT ARE WITHIN YOUR CONTROL THAT AFFECTED YOUR LEARNING IN YOUR CLASS. PLEASE TICK THE BOX THAT BEST DESCRIBES WHAT YOU THINK OR FEEL.

11. My reason for doing the tasks given in my core subjects was because I liked learning.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE

SOMEWHAT TRUE

VERY TRUE

12. I liked the work given in my core subjects because they really made me think.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE

SOMEWHAT TRUE

VERY TRUE

13. I tried my best to improve on my past performance in the core subjects.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE

SOMEWHAT TRUE

VERY TRUE

14. I wanted to do better than other students in core subjects.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE

SOMEWHAT TRUE

VERY TRUE

15. I preferred to study the core subjects that I did well in than those that I did poorly.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

16. I felt smart when I performed a task without making any mistake.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

17. I had to do well in the core subjects because my parents/guardians had spent a lot of money on me.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

18. I enjoyed working in groups.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

19. I worked better when I worked with friends.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

20. In my class it was important to understand the work, not just memorise it.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

21. In my class you were allowed to make mistakes so long as you were learning.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

22. In my class we competed against each other.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

23. In my class getting good grade was more important than improving in your work.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

24. Teachers encouraged us to get good grades to undertake tertiary studies in the future.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

25. In my class it was important that we helped each other.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

26. In my class everyone was treated equal.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

27. My parents/guardians wanted school work to be challenging for me.

1 **2** **3** **4** **5**

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

28. My parents/guardians were happy so long as I mastered the skills and knowledge for life.

1 **2** **3** **4** **5**

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

29. My parents/guardians would have liked it if I showed that I got better grades than others.

1 **2** **3** **4** **5**

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

30. My parents/guardians wanted me to gain good results to continue onto tertiary education.

1 **2** **3** **4** **5**

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

31. My parents/guardians would have appreciated it if I showed that I was better than other students in my class.

1 **2** **3** **4** **5**

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

32. My parents/guardians encouraged me to work in teams.
- | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1 | 2 | 3 | 4 | 5 |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| NOT AT ALL TRUE | | SOMEWHAT TRUE | | VERY TRUE |
33. My parents/guardians didn't mind when I hung out with friends.
- | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1 | 2 | 3 | 4 | 5 |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| NOT AT ALL TRUE | | SOMEWHAT TRUE | | VERY TRUE |
34. I could understand the key points that were taught in the core subjects.
- | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1 | 2 | 3 | 4 | 5 |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| NOT AT ALL TRUE | | SOMEWHAT TRUE | | VERY TRUE |
35. I could master the skills and new ideas taught in the core subjects.
- | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1 | 2 | 3 | 4 | 5 |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| NOT AT ALL TRUE | | SOMEWHAT TRUE | | VERY TRUE |
36. I understood the teachers in my core subject very well.
- | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1 | 2 | 3 | 4 | 5 |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| NOT AT ALL TRUE | | SOMEWHAT TRUE | | VERY TRUE |
37. Even if they took up more time, I liked the subjects that made me think deeply.
- | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1 | 2 | 3 | 4 | 5 |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| NOT AT ALL TRUE | | SOMEWHAT TRUE | | VERY TRUE |

38. In the core subjects I checked over my work to ensure it was right.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

39. I always prepared for tests in advance.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

40. I used a study method that helped me very well.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

41. When I had difficulty solving a problem in a core subject, I enjoyed trying different ways to identify the one that worked.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

42. I was a good student.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

43. I found it easy to learn things in school.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

44. I had a good understanding of my subjects.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NOT AT ALL TRUE		SOMEWHAT TRUE		VERY TRUE

45. I usually did well on tests in my core subject.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NOT AT ALL TRUE		SOMEWHAT TRUE		VERY TRUE

PART C. EXTERNAL FACTORS THAT INFLUENCED YOUR LEARNING

THE FOLLOWING ARE SOME QUESTIONS ABOUT FACTORS BEYOND YOUR CONTROL THAT YOU CONSIDER TO HAVE HAD SOME EFFECT ON YOU AS A STUDENT. PLEASE TICK THE BOX THAT BEST DESCRIBES WHAT YOU THOUGHT, FELT OR PERCEIVED.

46. I felt settled because my parents ensured that my school fees were paid on time.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NOT AT ALL TRUE		SOMEWHAT TRUE		VERY TRUE

47. I felt encouraged when my parents/guardians ensured I had necessary resources to support my learning.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NOT AT ALL TRUE		SOMEWHAT TRUE		VERY TRUE

48. When I had learning difficulties I sought help from my parents/guardians.
- | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1 | 2 | 3 | 4 | 5 |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| NOT AT ALL TRUE | SOMEWHAT TRUE | | VERY TRUE | |
49. My parents/guardians gave their children equal opportunity to go to school.
- | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1 | 2 | 3 | 4 | 5 |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| NOT AT ALL TRUE | SOMEWHAT TRUE | | VERY TRUE | |
50. My parents/guardians wanted me to get married soon after graduating so that I could look after them.
- | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1 | 2 | 3 | 4 | 5 |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| NOT AT ALL TRUE | SOMEWHAT TRUE | | VERY TRUE | |
51. My school promoted equal treatment of boys and girls.
- | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1 | 2 | 3 | 4 | 5 |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| NOT AT ALL TRUE | SOMEWHAT TRUE | | VERY TRUE | |
52. My teachers encouraged girls to participate in class.
- | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1 | 2 | 3 | 4 | 5 |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| NOT AT ALL TRUE | SOMEWHAT TRUE | | VERY TRUE | |
53. I had both male and female teachers teaching me.
- | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1 | 2 | 3 | 4 | 5 |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| NOT AT ALL TRUE | SOMEWHAT TRUE | | VERY TRUE | |

54. I had female teachers teaching me in either, Science, Mathematics or Technology.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

55. My school gave equal access to resources such as textbooks, computers, etc, to both boys and girls.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

56. My school textbooks featured both male and female examples.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

57. My subjects had enough resources such as textbooks/computers.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

58. My subjects provided up to date variety of resources.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

59. My core subjects were well resourced with teachers.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

60. I had access to appropriate facilities and services such as a study table to study after school hours.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

61. The curriculum prepared me well for what I am now.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

62. The school offered a wide range of curriculum for me to choose what I thought would prepare me for the future.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

63. My class was overcrowded with students.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

64. My class was dominated by male students.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

65. My school was very large.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

66. It was easy to get to know other students in my school.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NOT AT ALL TRUE		SOMEWHAT TRUE		VERY TRUE

67. My school made me feel a valuable member of the school.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NOT AT ALL TRUE		SOMEWHAT TRUE		VERY TRUE

68. When I had personal and academic concerns in school, I had someone to talk to.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NOT AT ALL TRUE		SOMEWHAT TRUE		VERY TRUE

69. I felt safe in school.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NOT AT ALL TRUE		SOMEWHAT TRUE		VERY TRUE

70. I felt safe between home and school.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NOT AT ALL TRUE		SOMEWHAT TRUE		VERY TRUE

71. My school routine was too long to have time to absorb what I learned.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NOT AT ALL TRUE		SOMEWHAT TRUE		VERY TRUE

72. Each school period sufficient time to cover each core subject.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NOT AT ALL TRUE		SOMEWHAT TRUE		VERY TRUE

73. We had bloc periods to cover content, research and practicals in my core subjects.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NOT AT ALL TRUE		SOMEWHAT TRUE		VERY TRUE

74. My school allowed us enough time to pay our school fees and other educational charges.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NOT AT ALL TRUE		SOMEWHAT TRUE		VERY TRUE

75. My school organised scholarships for female students who had difficulty paying school fees and other educational costs.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NOT AT ALL TRUE		SOMEWHAT TRUE		VERY TRUE

76. My school accommodated for female students who got pregnant in school to complete their education.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NOT AT ALL TRUE		SOMEWHAT TRUE		VERY TRUE

77. My religious faith contributed positively towards my achievement in school.

1

2

3

4

5

NOT AT ALL TRUE

SOMEWHAT TRUE

VERY TRUE

APPENDIX B: GROUP A & B SURVEY- TOK PISIN VERSION

*OL ASKIM BILONG WOK PAINIM AUT (OI
meri we ino inap mekim igo long haikul na
ol meri we I bin lusim haikul long namel.)*

TOK PISIN (G3)

HED TOK: OI Tingting Bilong ol Meri: OI
meri I save lukim wanem samting I mekim
ol wokim ol wok insait long haikul.

*Wok Painim Aut Blong: Dinah R. Dovona-
Ope University of Southern Queensland
Toowoomba, Australia*

As bilong dispela wok painim aut.

Dispela wok painim aut is laik lukluk long ol tingting bilong ol meri long

- (a) ol hevi I save pasim ol long go insait long haiskul, pinisim gut haiskul na.
- (b) ol samting we oli ting olsem I save halivim ol long wokim gut or nogut long haiskul.

Wok Kamap long dispela wok painim aut

Dispela wok painim aut inap long

- (a) halivim ol meri long kamapim ol gutpela mak long wok bilong ol long haiskul
- (b) halivim ol meri I go long haiskul long pinisim gut haiskul.

BIKPELA TOKTOK

1. Dispela wok painim aut emi stap long tripela hap.

Nambawan Hap: Ol stori blong wanwan na ol stori blong skul.

Nambatu Hap: Ol askim long ol samting I stap long lewa bilong yu we I kamapim sampela hevi long skul bilong yu.

Nambatri Hap: Ol askim blong ol samting we I stap autsait long yu we I kamapim sampela hevi lonf skul bilong yu.

2. Mi no laik luksave long husait I makim dispela pepa olsem na mi no laikim yu long raitim nem bilong yu long dispela pepa.

3. Ridim gut ol askim pastaim yu I makim wanwan askim. Sapos yu no klia, askim mi.

NAMBAWAN HAP: OL ASKIM IGO LONG YU

Pinisim ol dispela askim long yu.

1. Nem bilong laspela skul yu bin skul long em.
-

2. Wok blong yu long wanwan subjek it bin ron olsem wanem? Yu skelim mak blong yu I go inap long 5 na putim mak insait long box I makim ron blong wok blong yu.

English	1	2	3	4	5
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	INO GUTPELA TUMAS		NAMEL		GUTPELA TRU

Maths	1	2	3	4	5
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	INO GUTPELA TUMAS		NAMEL		GUTPELA TRU

Science	1	2	3	4	5
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	GUTPELA TUMAS		NAMEL		GUTPELA TRU

Social Science	1	2	3	4	5
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	INO GUTPELA TUMAS		NAMEL		GUTPELA TRU

3. Ol tisa I lainim yu long wanwan subjek i man or meri? Sapos man I lainim yu long wanpela subjek, raitim “man” klostu long dispel subjek na sapos meri, yu raitim “meri” klostu long em.

Ol Subjeck	Ol tisa husaet lainim mi
Maths	
Science	
Social Science	
English	

4. Skul bilong mi ibin save gat ol lain long stap sambai long halivim ol sumatin husait I bin gat hevi wantaim skul wok ol hevi blong ol yet.

Yes	
Nogat	
Mi no save	

5. Long taim yu bin wokim laspela greid long skul, yu bin stap wantaim husaet? Plis, tikim raitpela box tambolo.

Papamama	
Mama	
Papa	
Was mama/papa	
Mi yet	
Stap long skul	
Ol narapela (Plis yu tok klia liklik)	

6. a. Taim yu stap long skul, Papa/ Waspapa bilong yu I bin save wok?

Yes	
Nogat	
Wok i pinins	
Em I dai	

- b. Taim yu stap long skul, mama/ wasmama bilong yu I bin save wok?

Yes	
Nogat	
Wok I pinins	
Em I dai	

7. Sapos yu makim “Yes” long askim 6a na b antap, oli wokim wanem kain wok?

Mama/ Was Mama

Papa/ Was Pap

8. Sapos papamama/ was papamama I bin skul, wanem bikpela skul oli bin wokim. Lukluk long lis tambolo na makim box we i soim wanem kain bikpela skul oli bin wokim.

Papa/ Waspapa

Mama/ Was mama

Digri long univesiti	
Setifiket/Diploma long Kolis	
Treid Setifiket /Diploma	
Greid 12 Setifiket	
Greid 10 Setifiket	
Tambolo long Greid 10	
Ino bin go long skul	

Digri long univesiti	
Setifiket/Diploma long Kolis	
Treid Setifiket /Diploma	
Greid 12 Setifiket	
Greid 10 Setifiket	
Tambolo long Greid 10	
Ino bin go long skul	

9. Taim yu stap long skul, husaet I bin baim skul fi blong yu? Putim mak long box I tokaut long husaet I baim fib long yu.

Tupela papamama wantaim	
Papa	
Mama	
Was papamama (Tokaut long husaet emi was papamama)	
Ol Narapela (Tok aut long husaet)	

10. Insait long famili blong yu, yu wanem namba long ol pikinini mama blong yu yet I karim? Putim mak long box I soim namba blong yu long famili.

Mi tasol wanpela	
Mi nambawan	
Mi namba tu	
Mi namba tri	
Mi namba fo	
Narapela namba (Plis raitim namba blong yu long famili)	

**NAMBATU HAP: OL KAINKAIN SAMTING YU BUNGIM OR
PILIM INSAIT LONG YU YET I WOK LONG AFEKTIM YU
TAIM YU SKUL.**

**OL DISPELA ASKIM I ASKIM YU LONG OL KAINKAIN
SAMTING I STA INSAIT LONG YU WE I AFEKTIM YU TAIM
YU SKUL LONG KLAS BLONG YU. PLIS, PUTIM MAK LONG
BOX WE I SOIM TINGTING, FILING OR LUKLUK BILONG
YU.**

11. As tru long mi I bin save wokim ol wok oli bin save givim insait long ol bikpela (core) subjek emi olsem mi bin save laik lainim ol samting.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

12. Mi bin save laikim wok oli bin save givim long ol bikpela (core) subjek taim oli bin save mekim mi long tingting gut.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

13. Mi bin save traim hat long improvim ol mak mi bin save kisim long bipo insait long ol bikpela (core) subjek.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

14. Mi bin save laik wokim gut moa long ol narapela sumatin long ol bikpela (core) subjek mi kisim.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS TUMAS		OLSEM I TRU		I TRU

15. Mi bin save laik stadi moa long ol bikpela (core) subjek we mi bin save wokim gut na ino ol subjek mi no bin save wokim gut long em.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS TUMAS		OLSEM I TRU		I TRU

16. Mi bin save pilim olsem mi kleva taim mi bin save wokim gut wok wantaim nogat rong.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

17. Emi bin bikpela samting moa long mi mas wokim gut long ol bikpela (core) subjek blong mi long wanem ol papamama/was papamama I bin toromoi bikpela moni long mi I skul.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

18. Mi bin save laikim tru long wok wantaim ol narapela long grup.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

19. Mi bin save wokim gut wok taim mi bin save wok wantaim ol poroman.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

20. Long klas bilong mi bipo, emi bikpela samting long mipela I mas save gut long wokim wok, ino long kisim save nating long het.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

21. Long klas bilong mi bipo oli bin save larim mipela i mekim rong tasol mipela I mas soim olsem mipela I lainim ol samting.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

22. Long klas bilong mi bipo, mipela I bin save resis wantaim ol narapela.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

23. Long klas bilong mi bipo, emi bikpela samting moa long kisim ol gutpela mak, ino long impruvim wok blong yu.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

24. Ol tisa bilong mipela I bin save tokim mipela long kisim gutpela mak long mipela I ken skul long ol bikpela skul bihain taim long wokim wanem wok mipela I diriman long wokim.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

25. Long klas bilong mi emi bin bikpela samting long mipela I halivim narapela.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

26. Long klas bilong mi oli bin save tritim mipela olgeta mangi na meri wankain.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

27. Ol papamama/was papamama I bin save laikim bai mi mas wokim wok I hat liklik moa long mi.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

28. Ol papamama/was papamama I bin save hamamas sapos mi lainim gut ol skil na save long wokim gut long halivim mi long bihain taim mi pinisim skul.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

29. Ol papamama/was papamama I bin save laikim sapos mi soim olsem mi kisim gutpela mak moa long ol narapela.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

30. Bikpela samting long ol papamama/ was papamama em long mi mas kisim gutpela mak long mi I ken go long bikpela skul long bihain taim.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

31. Ol papamama/was papamama I bin save laikim sapos mi soim olsem mi gutpela moa long ol narapela sumatin long wokim ol wok insait long klas blong mi.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

32. Ol papamama/was papamama I bin save tokim mi long wok wantaim ol narapela insait long ol tim.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

33. Ol papamama/was papamama I no bin save wari taim mi bin save raun wantain ol poroman.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

34. Mi bin save kisim gut ol bikpela tingting long ol samting mipela I lainim long ol wanwan subjek.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

35. Mi bin inap long kisim gut ol skil na ol niupela tingting oli bin save lainim mipela long ol bikpela (core) subjek blong mi.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

36. Mi bin save kisim gut save long ol tisa I bin lainim mi long ol bikpela (core) subjek blong mi.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

37. Maski sapos emi kisim mi longpela taim, mi bin save laikim ol subjek we I mekim mi long skelim gut tingting blong mi.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

38. Insait long ol bikpela (core) subjek blong mi, mi bin save sekim gut ol wok bilong mi long mi I ken klia gut olsem wok I stret.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

39. Mi bin save redi gut pastaim long ol test I kamap.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

40. Mi bin save yusim wanpela we blong stadi we I save halivim long stadi gut.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

41. Taim mi bin save painim hat long stretim hevi insait long ol bikpela (core) subjek blong mi, mi bin save laikim tru taim mi bin save traim ol planti rot long painim wanpela ansa we I wok.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

42. Mi bin wanpela gutpela sumatin.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

43. Mi bin save painim olsem emi isi long lainim ol samting long skol.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

44. Mi bin save gat gutpela save long ol bikpela (core) subjek blong mi.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

45. Mi bin save wokim gut long ol test long ol bikpela (core) subjek blong mi.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

NAMBA TRI HAP. OL SAMTING I STAP ARASAIT LONG YU WE I PASIM YU TAIM YU SKUL

OL DISPELA ASKIM I ASKIM YU LONG OL SAMTING YU TING OLSEM OL INO STAP LONG KONTROL BILONG YU TASOL YU I LUKIM OLSEM OLI AFEKTIM SKUL WOK BILONG YU. PLIS, PUTIM MAK LONG BOX WE I MAKIM TINGTING OR PILIM BILONG YU.

46. My bin save skul wantaim bel isi long wanem papamama/was papamama blong mi ibin save baim skul fi long taim stret.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

47. Long taim Papamama/was papamama blong mi I bin save redim gut ol samting blong mi long yusim long skul, emi bin save mekim mi hamamas tru long taim mi skul.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

48. Taim mi bin save painim hevi long lainim or wokim gut ol skul wok, mi bin save askim papamama/was papamama long halivim mi.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

49. Papamama/was papamama I bin save givim mipela olgeta wankain sans long go long skul.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

50. Ol papamama/was papamama bilong I bin laikim bai mi mas marit hariap taim mi pinisim skul long wanem mi ken lukautim ol.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

51. Skul blong mi I bin save strong long givim olgeta sumatin man na meri long kisim wankain tritmen.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

52. Ol tisa blong mi I bin save larim ol mangi na meri long kisim wankain sans insait long klas.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

53. Mi bin gat ol tisa manmeri wantaim I bin save skulim mi.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

54. Ol meri tisa I bin skulim mi long science, mathematics na technology.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

55. Olgeta sumatin mangi na meri I bin gat wankain sans long yusim ol samting olsem book na tuls na computer.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

56. Ol buk mipela yusim long skul I bin gat piksa or stori blong ol manmeri wantaim.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

57. Ol bikpela (core) sabjek mipela I lainim long skul I bin gat inap ol buk na ol samting long halivim mipela long lainim olsem ol buk na computa.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

58. Ol bikpela (core) sabjek mi lainim I bin gat ol planti na ol narapela buk na ol samting long halivim mipela long skul.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

59. Ol bikpela sabjek blong mi ibin gat ol tisa long lainim mipela.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

60. Mi bin igat ol samting long olsem tebol o buk long wokim skul wok bihain long taim skul I pinis.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

61. Ol samting mi lainim long skul I bin redim mi gut long laip nau mi stap.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

62. Skul blong mi ibin save ronim planti ol sabjek long mi I ken kisim ol sabjek mi I ting bai halivim mi long bihain taim.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

63. Klas bilong mi I bin pulap tumas long ol sumatin.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

64. Klas blong mi I bin gat planti mangi na I nogat planti meri

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

65. Skul blong mi ibin bikpela tumas.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

66. Emi isi tru long save long ol narapela sumatin long skul bilong mi.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

67. Skul bilong mi ibin mekim mi pil olsem oli luksave long mi, mi no sumatin nating.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

68. Taim mi bin gat hevi long mi yet or long skul wok blong mi long taim blong skul, I bin gat sampela lain I stap sambai long mi.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

69. Mi pil olsem mi sef long skul.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

70. Mi fil olsem mi sef namel long haus blong mi na skul.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

71. Ron blong skul emi longpela tumas long mi olsem na mi no bin gat inap taim long tingting gut long samting mi lainim.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

72. Wanwan piriod long skul emi bin inap long karamapim ol samting mipela I lainim ol wanwan bikpela (core) subjek.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

73. I bin gat ol bloc period long karamapim wanwan bikpela (core) subjek wantaim taim blong wok painim aut, long mekim ol samting na lainim ol samting.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

74. Skul bilong mi I bin save givim inap taim long baim ol skul fi na ol narapela fi nambaut blong skul.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

75. Skul bilong mi I bin save givim sampela kain halivim olsem skolaship long halivim ol meri we I gat hevi long baim skul fi na ol narapela fi nambaut.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

76. Skul bilong mi I bin save givin sans long ol sumatin meri I bin save gat bel long pinisim gut skul blong ol.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

77. Bilip blong mi emi bin halivim mi long skul wok bilong mi.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INO TRU TUMAS		OLSEM I TRU		I TRU TUMAS

APPENDIX C: GROUP C SURVEY

**For females students who are doing
Grade 12 in secondary schools**

ENGLISH

**TOPIC: Female Students'
Attributions for Academic
Achievement in Secondary Schools in
Papua New Guinea**

**Researcher: Dinah R. Dovona-Ope
University of Southern Queensland
Toowoomba, Australia**

Expected Outcomes

This study should assist in

- (a) improving academic achievement of females.
- (b) improving completion rate for females in secondary schools.

IMPORTANT NOTES

1. This Survey Questionnaire is in three main parts.

Part A comprises personal details and the details of your school.

Part B asks for situations that are within your control which you consider to have affected your learning.

Part C asks you for situations that are outside your control which you consider to have affected your learning.

2. For confidentiality, you are not to disclose your name anywhere on this paper.
3. Read each situation carefully before attempting it. If you are not sure, do ask.

PART A: PERSONAL DETAILS

Complete the following personal details.

Item 1: Name of your school _____

Item 2: List the core and the major subjects you study and the grades you have attained in the last two semesters.

Subjects	Last Two Semesters Grades	
	Grade 11 Semester 2	Grade 12 Semester 1
1.		
2.		
3.		
4.		
5.		
6.		
7.		

Item 3: Indicate the gender of each one of your subject teachers.

Core Subjects	Gender of my subject Teachers
Maths A	
Maths B	
Physics	
Chemistry	
Biology	
Geography	
Economics	
History	

Q4: School student support service - academic & personal

Yes	
No	
I don't Know	

Q5: Whom do you live with?

Parents	
Mum	
Dad	
Guardian	
By myself	
Boarding at school	
Other (Please describe briefly)	

Q6: Does father/ guardian work?

Yes	
No	
Retired	
Deceased	

Q6: Does mother/guardian work?

Yes	
No	
Retired	
Deceased	

Q7a : What is your father's occupation

--

Q7b: What is your mother's occupation

--

Q8: Highest educational level of your parents. Tick the appropriate box for your parents

Father

Mother

University Degree	
College Certificate/Diploma	
Trade Certificate/Diploma	
Grade 12 Certificate	
Grade 10 Certificate	
Below Grade 10	
Never Been to School	

University Degree	
College Certificate/Diploma	
Trade Certificate/Diploma	
Grade 12 Certificate	
Grade 10 Certificate	
Below Grade 10	
Never Been to School	

Q9: Who pays school fees?

Both father & mother	
Father	
Mother	
Guardian (indicate relationship with guardian)	
Other (indicate briefly)	

Q10: Sibling position from mother

Only child in the family	
1 st born	
2 nd born	
3 rd born	
4 th born	
Additional Position (Please specify)	

PART B: PERSONAL SITUATIONS THAT INFLUENCE YOUR LEARNING

THE FOLLOWING ARE QUESTIONS ABOUT SITUATIONS THAT ARE WITHIN YOUR CONTROL THAT AFFECT YOUR LEARNING IN YOUR CLASS. PLEASE TICK THE BOX THAT BEST DESCRIBES WHAT YOU THINK OR FEEL.

Q11: My reason for doing the task given in my core subjects is because I like to learn

1 2 3 4 5

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

Q12: I like the work given in my core subjects when they really make me think.

1 2 3 4 5

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

Q13: I try my best to improve on my past performance in the core subjects.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

Q14: I want to do better than other students in my core subjects.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

Q15: I prefer to study the core that I do well in than those than those that I do poorly.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

Q16: I feel smart when I perform a task without making any mistake.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

Q17: I have to do well in the core subjects because my parents have spent a lot of money on me.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

Q18: I enjoy working in groups.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NOT AT ALL TRUE		SOMEWHAT TRUE		VERY TRUE

Q19: I work better when I work with friends.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NOT AT ALL TRUE		SOMEWHAT TRUE		VERY TRUE

Q20: In my class it is important to understand the work, not just memorise it.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NOT AT ALL TRUE		SOMEWHAT TRUE		VERY TRUE

Q21: In my class you are allowed to make mistakes so long as you are learning.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NOT AT ALL TRUE		SOMEWHAT TRUE		VERY TRUE

Q22: In my class getting good grades is more important than improving in your work.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NOT AT ALL TRUE		SOMEWHAT TRUE		VERY TRUE

Q23: In my class we compete against each other.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NOT AT ALL TRUE		SOMEWHAT TRUE		VERY TRUE

Q24: Teachers encourage us to get good grades to undertake tertiary studies in the future.

1 2 3 4 5

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

Q25: In my class it is important that we help each other.

1 2 3 4 5

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

Q26: In my class everyone is treated equal.

1 2 3 4 5

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

Q27: My parents/guardians want school work to be challenging for me.

1 2 3 4 5

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

Q28: My parents/guardians are happy so long as I master the skills and knowledge for life.

1 2 3 4 5

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

Q29: My parents/guardians would like it if I could show that I could get better grades than others.

1 2 3 4 5

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

Q30: My parents/guardians want me to gain good results to continue onto tertiary education.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NOT AT ALL TRUE		SOMEWHAT TRUE		VERY TRUE

Q31: My parents/guardians would appreciate it if I could show that I am better than other students.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NOT AT ALL TRUE		SOMEWHAT TRUE		VERY TRUE

Q32: My parents/guardians encourage me to work in teams.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NOT AT ALL TRUE		SOMEWHAT TRUE		VERY TRUE

Q33: My parents/guardians don't mind when I hang out with friends.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NOT AT ALL TRUE		SOMEWHAT TRUE		VERY TRUE

Q34: I can understand the key points of what we learn in the core subjects.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NOT AT ALL TRUE		SOMEWHAT TRUE		VERY TRUE

Q35: I can master the skills and new ideas taught in my core subjects.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NOT AT ALL TRUE		SOMEWHAT TRUE		VERY TRUE

Q36: I understand the core teachers of my core subjects very well.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

Q37: Even if they take up more time, I like the subjects that make me think deeply.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

Q38: In the core subjects I check over my work to ensure it is right.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

Q39: I always start preparing for tests in advance.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

Q40: I use a study method that helps me very well.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

Q41: When I have difficulty solving a problem in a core subject, I enjoy trying different ways to identify the one that works.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

Q42: I am a good student.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE

SOMEWHAT TRUE

VERY TRUE

Q43: I find it easy to learn things in school.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE

SOMEWHAT TRUE

VERY TRUE

Q44: I have a good understanding of my core subjects.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE

SOMEWHAT TRUE

VERY TRUE

Q45: I usually do well in my core subjects' tests

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE

SOMEWHAT TRUE

VERY TRUE

Q46: I feel settled because my parents/guardians ensure that my school fees are paid on time.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE

SOMEWHAT TRUE

VERY TRUE

Q47: I feel encouraged when my parents/guardians ensure I have necessary resources to support my learning.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE

SOMEWHAT TRUE

VERY TRUE

Q48: When I have learning difficulties I can seek help from my parents/guardians.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

Q49: My parents/guardians give their children equal opportunity to go to school.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

Q50: My parents/guardians would like me to get married soon after graduating so I can look after them.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

Q51: My school promotes equal treatment of boys and girls.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

Q52: My teachers encourage girls to participate in class.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

Q53: I have both male and female teachers teaching me.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

Q54: I have female teachers teaching me in either Science, Mathematics or Technology.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

Q55: My school gives equal access to resources such as textbooks, computers, etc, to both boys and girls.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

Q56: My school textbooks feature both male and female examples.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

Q57: My core subjects have enough amounts of resources such as textbooks and computers.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

Q58: My core subjects provide up-to-date variety of resources.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

Q59: My core subjects are well resourced with teachers.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE SOMEWHAT TRUE VERY TRUE

Q60: I have access to appropriate facilities and services to study after school hours.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NOT AT ALL TRUE		SOMEWHAT TRUE		VERY TRUE

Q61: The curriculum prepares me well for what I want to do in the future.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NOT AT ALL TRUE		SOMEWHAT TRUE		VERY TRUE

Q62: The school offers a wide range of curriculum for me to choose what I think will prepare me for the future.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NOT AT ALL TRUE		SOMEWHAT TRUE		VERY TRUE

Q63: My class is overcrowded with students.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NOT AT ALL TRUE		SOMEWHAT TRUE		VERY TRUE

Q64: My class is dominated by male students.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NOT AT ALL TRUE		SOMEWHAT TRUE		VERY TRUE

Q65: My school is very large.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NOT AT ALL TRUE		SOMEWHAT TRUE		VERY TRUE

Q66: It is easy to get to know other students in my school.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE

SOMEWHAT TRUE

VERY TRUE

Q67: My school makes me feel a valuable member of the society.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE

SOMEWHAT TRUE

VERY TRUE

Q68: When I have personal and academic concerns in school, I have someone to confide in.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE

SOMEWHAT TRUE

VERY TRUE

Q69: I feel safe in school.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE

SOMEWHAT TRUE

VERY TRUE

Q70: I feel safe between home and school.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE

SOMEWHAT TRUE

VERY TRUE

Q71: My school routine is too long to have time to absorb what I learn.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE

SOMEWHAT TRUE

VERY TRUE

Q72: Each school period takes up sufficient time to cover each core subject.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE

SOMEWHAT TRUE

VERY TRUE

Q73: We have bloc periods to cover content, research and practicals in my core subjects.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE

SOMEWHAT TRUE

VERY TRUE

Q74: My school allows us enough time to pay our school fees and other educational charges.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE

SOMEWHAT TRUE

VERY TRUE

Q75: My school organises scholarships for female students who have difficulty paying school fees and other educational costs.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE

SOMEWHAT TRUE

VERY TRUE

Q76: My school gives female students who get pregnant in school the opportunity to complete their education.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE

SOMEWHAT TRUE

VERY TRUE

Q77: My religious faith has contributed positively towards my achievement in school.

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOT AT ALL TRUE

SOMEWHAT TRUE

VERY TRUE

APPENDIX D: INTERVIEW AND FOCUS GROUP PROTOCOL-TOK PISIN

1. Inap yu tok klia long mi (mipela) yu husaet na tokaut long
Nem blong yu
Ples blong yu
Laspela greid yu bin wokim long skul nay u I pinisim skul blong yu.
Yia yu pinisim or lusim skul
2. Yu bin wokim Grade 8 tasol yu no bin sindaun long Grade 8 exam...
OR
Yu bin wokim Grade 8 exam tasol yu no bin nap long mekim igo long
secondary school...
OR
Yu bin mekim igo inap long secondary school tasol yu no pinisim gut skul
long Grade 9 na 10 na yu lusim skul
OR
Yu sindaun long Grade 10 exam na oli makim yu or ino makim yu long
wokim Grade 11...

...yu painim wanem kain hevi s bagarapim skul wok blong yu
na yu no bin wokim gut long skul? Inap yu tok klia long dispel.
(Taim yu tok olsem "...” yu minim olsem wanem?
3. Yu olsem sumatin meri, yu inap tok wanem long sait blong support long skul
na long haus long papamama? Yu kisim gutpela sapot or nogat? Inap yu stori
liklik? Taim yu tok olsem "...”, yu minim wanem?
4. Yu tokaut long how yu filim long sait blong sefti blong yu yet namel long
haus na skul na insait long skul. Watpo yu tok olsem?