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The relationships among first year Bachelor of Nursing students' entry characteristics, self-regulated learning and academic performance for their science and nursing practice courses

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Sharon Andrew
University of Wollongong

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**THE RELATIONSHIPS AMONG FIRST
YEAR BACHELOR OF NURSING
STUDENTS' ENTRY CHARACTERISTICS,
SELF-REGULATED LEARNING AND
ACADEMIC PERFORMANCE FOR THEIR
SCIENCE AND NURSING PRACTICE
COURSES**

A thesis submitted in fulfilment of the requirements for
the award of the degree

DOCTOR OF PHILOSOPHY

from

UNIVERSITY OF WOLLONGONG

by

SHARON ANDREW

MSc (Honours), BAppSc, RN

FACULTY OF EDUCATION

2002

To David, George, Jack, Laura and Michelle

THESIS CERTIFICATION

I, SHARON ANDREW, declare that this thesis, submitted in fulfillment of the requirements for the award of Doctor of Philosophy, in the Faculty of Education, University of Wollongong, is wholly my work unless otherwise referenced or acknowledged. The document has not been submitted for qualifications at any other academic institution.

.....

Signature

.....*25 October 2002*.....

Date

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Love and thanks also to my father who never had the opportunity to participate in higher education. I know you will be proud of my achievements.

During my doctoral candidature I had the pleasure of sharing an office with fellow post-graduate students who provided stimulating conversations about research issues and about respective cultures. My particular gratitude goes to Susan (Ruiyun) Xu, Sook Hee Lee and Marie Perera for making my time in the research office so enjoyable.

Lastly, I would like to extend my thanks to the students and staff from the universities involved in this research as it was their participation that made this thesis possible.

ABSTRACT

This thesis used a multimethod approach and an adapted version of the Pintrich and Schrauben (1992) model of cognition and motivation in the classroom to examine the relationship among students' entry characteristics, self-regulated learning (cognition and motivation) and academic performance for Nursing Practice and Science courses in first year Bachelor of Nursing programs.

Students from three universities were surveyed, by structured questionnaire, in the first and second semesters of their Bachelor of Nursing program. The questionnaires contained questions about students' entry characteristics—age, mode of entry, academic background, nursing as a first choice, ethnicity—and research instruments—SEFS, NCSES, NASES, and selected MSLQ scales (SELAP, TV, MSCR, CT). Scores and grades for their Science and Nursing Practice courses were used as measures of students' academic performance. High and Low Achiever categories were used to categorise students' performance.

Structured telephone interviews were conducted, in the first semester, with a purposeful sample of 40 students and 19 of these students were interviewed again at the end of the first year. The first interview established students' self-beliefs about science, their expectations about their courses, perceptions of the relevance of the courses, and learning strategies for their Science and Nursing Practice courses. The second interview sought to identify changes in their learning strategies that students may have made during the year. Semi-structured face-to-face interviews were conducted with 10 academics involved in teaching the Science and Nursing Practice courses. The academics were asked to identify student entry characteristics linked to academic success in their respective course areas. The results from the questionnaires, and student and academic interviews were triangulated.

Age, ethnicity, nursing as a first choice, TER scores and HSC Science background were identified by academics as factors influencing academic performance. Academics described students aged 20+ years as self-regulated learners who, despite having low self-efficacy expectations for science and academic learning and performance, become empowered once they have been successful in their first semester courses. Students from a NESB were described as having difficulties with their first year courses. Three themes were identified from academics' comments

about students from a NESB: language skills, help-seeking and cultural specific approach to study.

Students who questioned the relevance of their Science courses to clinical nursing practice tended to be Low Achievers. Students used general and course-specific learning strategies when studying for their Science and Nursing Practice courses. Eight categories of learning strategies—organisation, reading, elaboration, rehearsal, metacognitive self-regulation, study environment and help-seeking—were used by students when studying for their Science courses. Six categories were identified for the Nursing Practice courses—workbook, reading, elaboration, clinical skills practice, metacognitive self-regulation and help-seeking. High Achievers reported using more and a wider variety of learning strategies than Low Achievers. Low Achievers were consistent over the year in the number and type of strategies they used.

Hypothesised models for students' first and second semester Science and Nursing Practice courses were tested and refined using AMOS. In all final (trimmed) models, cognition (metacognitive and self-regulated learning strategies and critical thinking) had direct effects on motivation (self-efficacy measures and task value). Motivation had direct effects on academic performance. Ethnicity and nursing as a first choice had direct effects on Sc1 academic performance and ethnicity and age had direct effects on NP1 academic performance. In the second semester age had a direct effect on Sc2 academic performance and ethnicity and age had direct effects on NP2 academic performance. Age had direct effect on cognition. Goodness-of-fit indices for the final (trimmed) models were: Sc1: AGFI=0.94, RMSEA=0.04, TLI=0.98, CFI=0.99; NP1: AGFI=0.91, RMSEA=0.07, TLI=0.90, CFI=0.94; Sc2: AGFI=0.90, RMSEA=0.08, TLI=0.93, CFI=0.97; NP2: AGFI=0.92, RMSEA=0.06, TLI=0.94, CFI=0.97.

TABLE OF CONTENTS

THESIS CERTIFICATION..... i

ACKNOWLEDGEMENTS..... ii

ABSTRACT iii

TABLE OF CONTENTS..... v

LIST OF TABLES xii

LIST OF FIGURES xv

LIST OF APPENDICES..... xvi

GLOSSARY xvii

ABBREVIATIONS xviii

Chapter 1: INTRODUCTION 1

 1.1 Introduction 1

 1.2 Background to the Problem..... 2

 1.2.1 Background to the thesis: research by the author 6

 1.3 Justification for the Research 7

 1.4 Aims of the Study..... 10

 1.5 Research Questions 10

 1.6 Brief Overview of Method 13

 1.7 Limitations of the Study 14

 1.8 Outline of the Thesis 15

Chapter 2: THEORETICAL FRAMEWORK..... 16

 2.1 Introduction 16

 2.2. General Social Cognitive Model of Student Motivation..... 18

 2.2.1 Introduction 18

 2.2.2 Expectancy 18

 2.2.3 Value Components 19

 2.2.4 Affective Component 21

 2.3 General Social Cognitive Model of Student Cognition 21

 2.3.1 Introduction 21

 2.3.2 Knowledge..... 21

 2.3.3 Learning strategies..... 22

 2.3.4 Thinking Strategies..... 22

 2.4 The Motivated Strategies for Learning Questionnaire 26

 2.5 Pintrich and Schrauben Model (1992) 27

 2.6 Model for this Thesis 29

Chapter 3: LITERATURE REVIEW	33
3.1 Introduction	33
3.2. Students' Entry Characteristics	34
3.2.1 Introduction.....	34
3.2.2 Age.....	34
3.2.3 Gender.....	36
3.2.4 Academic Entry Characteristics.....	37
3.2.5 Ethnicity.....	40
3.3 Self-Efficacy	44
3.3.1 Introduction.....	44
3.3.2 Self-Efficacy	45
3.3.3 Expectancy for Success	47
3.4 Task Value/Relevance	48
3.4.1 Introduction.....	48
3.4.2 Interest	48
3.4.3 Teachers and the Issue of Relevance in Nursing	49
3.4.4 Task Value/Relevance and Learning	54
3.4.5 Task Value/Relevance and Academic Performance	55
3.4.6 Changes in Task Value/Relevance Related to Time.....	56
3.5 Learning Strategies.....	57
3.5.1 Introduction.....	57
3.5.2 Learning Styles and Nursing.....	57
3.5.3 From Learning Styles to Learning Strategies.....	59
3.5.4 High and Low Achievers	59
3.5.5 Specificity of Self-Regulated Learning.....	62
3.5.6 Science and Learning.....	65
3.6 Critical Thinking	67
3.7 Summary	68
Chapter 4: METHOD	72
4.1 Introduction	72
4.1.1 Why Use a Multimethod Approach?	73
4.1.2 How was the Multimethod Approach Done?	74
4.1.3 What was the Purpose of the Multimethod Approach?	75
4.1.4 Outline of the Chapter	76
4.2 Universities Involved in the Study	77
4.2.1 Factors Considered in the Selection of the Universities	77
4.2.2 Some Characteristics of the Universities Selected	78
4.2.3 Liaison with Universities.....	79
4.3 Ethics Approval.....	80
4.4 First Year Bachelor of Nursing Curricula and Assessment.....	81
4.4.1 Science Courses.....	81
4.4.2 Nursing Practice Courses.....	83
4.5 Questionnaire.....	85
4.5.1 Introduction.....	85

4.5.2	Purpose of Questionnaires	86
4.5.3	Questionnaire: Content and Instrument Scoring/Coding.....	87
4.5.4	Questionnaire: semester Two	96
4.6	Data Collection.....	98
4.6.1	Introduction.....	98
4.6.2	First Semester	98
4.6.3	Second Semester.....	99
4.6.4	Collection of Academic Results	100
4.6.5	Questionnaire Respondents	100
4.6.6	Academic Performance.....	101
4.7	Statistical Analyses.....	103
4.7.1	Introduction.....	103
4.7.2	Statistical Techniques Overview	103
4.7.3	Questionnaire Sample Sizes and Power of the Study	104
4.7.4	Structural Equation Modeling.....	105
4.7.5	Students' Academic Performance.....	110
4.8	Summary	112
Chapter 5: METHOD 2: Interviews		114
5.1	Introduction	114
5.2	Telephone Interviews	115
5.2.1	Introduction.....	115
5.2.2	Purpose of Telephone Interviews	117
5.2.3	Content of Telephone Interviews.....	117
5.2.4	Telephone Participants.....	119
5.2.5	Characteristics of the Telephone Interview Sample	121
5.2.6	Conduct of Interviews.....	123
5.2.7	Data Analyses	125
5.2.8	Academic Performance.....	128
5.3	Academic Interviews	131
5.3.1	Introduction.....	131
5.3.2	Purpose of Academic Interviews	132
5.3.3	The Interview: Participants, Conduct and Content.....	132
5.3.4	Analyses of Academic Interviews	134
5.4	Reliability, Validity and Generalisability of Qualitative Data	135
5.5	Summary	137
Chapter 6: RESULTS 1: Students' Entry Characteristics.....		139
6.1	Introduction	139
6.2	Research Questions and Expectations	140
6.3	Nursing as a First Choice	142
6.3.1	Introduction.....	142
6.3.2	Nursing as a First Choice.....	142
6.3.3	Students Views on "Why I Chose to do Nursing"	144
6.3.4	Academics Views about Nursing as a First Choice.....	146

6.4	Nursing Experience	147
6.4.1	Academics' Views about "Prior Nursing Experience"	148
6.5	Age/Mode of Entry	149
6.5.1	Introduction.....	149
6.5.2	Semester One.....	149
6.5.3	Semester Two	152
6.5.4	Academics' Views about Mature Age and High School Leaver Students	153
6.6	Academic Entry Characteristics	157
6.6.1	Introduction.....	157
6.6.2	TER Score.....	158
6.6.3	HSC Science	158
6.6.4	Academics' Views about Students' Academic Entry Characteristics.....	159
6.6.5	Students' Views about TER Scores and Nursing	164
6.7	Ethnicity	166
6.7.1	Introduction.....	166
6.7.2	Semester One.....	166
6.7.3	Semester Two	170
6.7.4	Academics' Views of NESB Students.....	172
6.8	Summary and Discussion	178
Chapter 7: RESULTS 2: Motivation		185
7.1	Introduction	185
7.2	Research Questions and Expectations.....	186
	Part One: Self-Efficacy.....	187
7.3	Self-Efficacy Semester One.....	187
7.3.1	Introduction.....	187
7.3.2	Students' Perceptions of their Bachelor of Nursing Program.....	189
7.3.3	Students' Perceptions Regarding Science in the First Year of a Nursing Program.....	190
7.3.4	Students' Past Experiences with Science	191
7.3.5	Academics' Comments about Students' Perceptions of their Science and Nursing Practice courses	193
7.3.6	Questionnaire Results	195
7.3.7	Students' Academic Performance Expectations.....	196
7.4	Self-Efficacy Semester Two	200
7.4.1	Introduction.....	200
7.4.2	Students' Views about their Semester Two Science and Nursing Practice Courses.....	201
7.4.3	Questionnaire Results	203
	Part Two: Task Value.....	205
7.5	Semester One.....	205
7.5.1	Introduction.....	205

7.5.2	Relevance of Science Courses to Nursing	206
7.5.3	Relevance of Nursing Practice Courses to Nursing.....	209
7.5.4	Questionnaire Results	210
7.6	Semester Two	211
7.6.1	Introduction.....	211
7.6.2	Students' Views about the Relevance of Science Courses to Nursing	212
7.6.3	Students' Views about the Relevance of Nursing Practice Courses to Nursing	213
7.6.4	Questionnaire Results	213
7.7	Summary and Discussion	214
Chapter 8: RESULTS 3: Cognition		217
8.1	Introduction	217
8.2	Research Questions and Expectations	218
8.3	Semester One.....	219
8.3.1	Introduction.....	219
8.3.2	Questionnaire Results.	220
8.3.3	Students' Reported Learning Strategy Use for their Science course	221
8.3.4	Academic Achiever Group and Strategy Use for Science.....	227
8.3.5	Students' Reported Learning Strategy Use for their Nursing Practice course	229
8.3.6	Academic Achiever Group and Strategy Use for..... Nursing Practice course	233
8.4	Semester Two	234
8.4.1	Introduction.....	234
8.4.2	Questionnaire Results	235
8.4.3	Learning Strategies for Science	236
8.4.4	Learning Strategies for Nursing Practice	241
8.5	Summary and Discussion	243
Chapter 9: TOWARDS MODELS OF STUDENTS' ENTRY CHARACTERISTICS, SELF-REGULATED LEARNING AND ACADEMIC PERFORMANCE FOR FIRST YEAR SCIENCE AND NURSING PRACTICE COURSES		246
9.1	Introduction	246
9.2	Research Instruments.....	247
9.2.1	Introduction.....	247
9.2.2	Self-Efficacy for Science	248
9.2.3	Nursing Clinical Self-Efficacy Scale	248
9.2.4	Nursing Academic Self-Efficacy Scale	248
9.2.5	Task Value	249
9.2.6	Self-Efficacy for Learning and Performance	249

9.2.7	Critical Thinking.....	250
9.2.8	Metacognitive Self-Regulation.....	250
9.3	Aspects of Structural Equation Modeling	250
9.3.1	Introduction.....	250
9.3.2	Variables.....	251
9.3.3	Correlations and Collinearity.....	251
9.3.4	SEM Analysis	254
9.4	Semester One Science Courses	255
9.4.1	Introduction.....	255
9.4.2	Hypothesised Sc1 Model	257
9.4.3	Final (Trimmed) Sc1 Model	263
9.5	Semester One Nursing Practice Courses	264
9.5.1	Introduction.....	264
9.5.2	Hypothesised NP1 Model	264
9.5.3	Final (Trimmed) NP1 Model.....	270
9.6	Semester Two Science Courses.....	270
9.6.1	Introduction.....	270
9.6.2	Hypothesised Sc2 Model	271
9.6.3	Final (Trimmed) Sc2 Model	274
9.7	Semester Two Nursing Practice Courses	276
9.7.1	Hypothesised NP2 Model	276
9.7.2	Final (Trimmed) NP2 Model.....	277
9.8	Summary and Discussion	281

Chapter 10: DISCUSSION, CONCLUSION AND

	RECOMMENDATIONS	285
10.1	Introduction	285
10.2	The First Year of a Bachelor of Nursing Program and Comparisons/Contrasts of the Science and Nursing Practice Courses	286
10.2.1	Bachelor of Nursing Programs: the First Year	286
10.2.2	Some Comparisons/Contrasts of the Science and Nursing Practice Courses.....	287
10.3	Students' Entry Characteristics and their Relationship to Students' Self-Regulated Learning and Academic Performance in their First Year Science and Nursing Practice Courses (Aim2)	289
10.4	Students' Motivation—Self-Efficacy and Value/Relevance—for their First and Second Semester Science and Nursing Practice courses (Aim3)	299
10.4.1	Self-Efficacy	299
10.4.2	Task Value/Relevance	3023
10.5	The Learning Strategies Students Report Using for their Science and Nursing Practice courses and Changes, if any , that Students Report Making to these Strategies courses (Aim 4)	303

	The Interrelationships Among Nursing Students' Entry Characteristics Self-Regulated Learning (Motivation and Cognition) and Academic Performance in their Science and Nursing Practice Courses for their First Year Bachelor of Nursing Programs (Aim 1)	306
10.7	Conclusion	309
10.8	Recommendations	311
REFERENCES		313

LIST OF TABLES

Table 2.1	Explanations and examples of learning strategies.....	23-25
Table 4.1	Semester one and two questionnaire respondents and percentage of students giving consent for collection of academic results	101
Table 4.2	Summary statistics for Science and Nursing Practice courses	110
Table 4.3	Relationship among Science and Nursing Practice courses	111
Table 5.1	Comparison of students' background details: questionnaire and telephone interview samples	122
Table 5.2	Preliminary codes for "Why I chose to do nursing"	126
Table 5.3	Revised codes for "Why I chose to do nursing"	127
Table 5.4	Themes for "Why I chose to do nursing"	128
Table 5.5	Comparison of telephone interview sample (TIS) and questionnaire sample High (HA) and Low Achiever (LA) categories for first and second semester Science and Nursing Practice courses	130
Table 6.1	Nursing as a first choice: summary statistics and t-test results	143
Table 6.2	Nursing experience: summary statistics and t-test results	147
Table 6.3	Profile of students by age group and entry characteristics and association between age groups and students' entry characteristics	150
Table 6.4	Semester one: summary statistics and t-test results for students' age	151
Table 6.5	Semester two: summary statistics and t-test results for students' age	153
Table 6.6	Association between students' TER score and academic Achievement groups.....	159
Table 6.7	Semester one: summary statistics and t-test results for HSC Biology, Chemistry and Physics	163
Table 6.8	Students' ethnicity and association between country of birth and language spoken at home and parents' birthplace	165
Table 6.9	Birthplace of semester two students	165
Table 6.10	Semester one: summary statistics and t-test results for ethnicity	169
Table 6.11	Students' ethnicity and academic achievement for semester one and two	169
Table 6.12	Semester two: summary statistics and t-test results for ethnicity	171
Table 7.1	Relationship between self-efficacy measures and task value with academic performance.....	196
Table 7.2	Differences between semester one and two Science and Nursing Practice high and low achiever groups and students' self-efficacy and task value	204

Table 8.1	Relationship between MCSR and CT with semester one academic performance.....	220
Table 8.2	Differences between semester one Science and Nursing Practice high and low achievement groups and students' MCSR and CT	221
Table 8.3	Explanations and examples of students' learning strategies for their first semester Science course.....	225
Table 8.4	Explanations and examples of students' "non-learning Strategies" for their first semester Science course	226
Table 8.5	Strategies used by high and low achievers for their first semester Science course	226
Table 8.6	Strategy means, by achiever group, for first semester Science courses.....	229
Table 8.7	Explanations and examples of students' learning strategies for their first semester Nursing Practice course	231
Table 8.8	Explanations and examples of students' "non-learning Strategies" for their first semester Nursing Practice course	231
Table 8.9	Strategies used by high and low achievers for their first semester Nursing Practice course	233
Table 8.10	Strategy means, by achiever group, for first semester Nursing Practice courses	234
Table 8.11	Relationship between MCSR and CT with semester two academic performance.....	235
Table 8.12	Differences between semester two Science and Nursing Practice high and low achiever groups and students' MCSR and CT scores	236
Table 9.1	Summary Statistics, Cronbach alphas' and t-test results for the research instruments	248
Table 9.2	Correlations for students' entry characteristics, cognition, motivation, and academic performance for semester one Science and Nursing Practice courses	252
Table 9.3	Correlations for students' entry characteristics, cognition, motivation, and academic performance for semester two Science and Nursing Practice courses	253
Table 9.4	Standardised path coefficients for Science 1 hypothesised model	260-261
Table 9.5	Standardised path coefficients for Science 1 final (trimmed) model	261
Table 9.6	Goodness-of-fit indices for the hypothesised and final (trimmed) model for Science 1	263
Table 9.7	Standardised path coefficients for Nursing Practice 1 hypothesised model	265
Table 9.8	Standardised path coefficients for Nursing Practice 1 final (trimmed) model.....	268

Table 9.9	Goodness-of-fit indices for the hypothesised and final (trimmed) model for Nursing Practice 1	268
Table 9.10	Standardised path coefficients for Science 2 hypothesised model.....	273
Table 9.11	Standardised path coefficients for Science 2 final (trimmed) model.....	274
Table 9.12	Goodness-of-fit indices for hypothesised and final (trimmed) model for Science 2.....	276
Table 9.13	Standardised path coefficients for Nursing Practice 2 hypothesised model	278
Table 9.14	Standardised path coefficients for Nursing Practice 2 final (trimmed) model.....	279
Table 9.15	Goodness-of-fit indices for hypothesised and final (trimmed) model for Nursing Practice 2	279
Table 10.1	Students' comparisons /contrasts of their Science and Nursing Practice courses: categories with explanations and examples.....	288

LIST OF FIGURES

Figure 2.1	“Conceptual framework for motivation and cognition in the classroom context” from Pintrich and Schrauben (1992, p. 82)	29
Figure 2.2	Proposed model self-regulated learning in first year Science and Nursing Practice courses adapted from Pintrich and Schrauben (1992, p. 82)	30
Figure 9.1	Final (trimmed) model of nursing students’ entry characteristics and self-regulated learning for their first semester Science course	262
Figure 9.2	Final (trimmed) model of nursing students’ entry characteristics and self-regulated learning for their first semester Nursing Practice course.....	269
Figure 9.3	Final (trimmed) model of nursing students’ entry characteristics and self-regulated learning for their second semester Science course	275
Figure 9.4	Final (trimmed) model of nursing students’ entry characteristics and self-regulated learning for their second semester Science course	280

LIST OF APPENDICES

APPENDIX 1 Consent..... 328

APPENDIX 2 Semester One Questionnaire 333

APPENDIX 3 Semester Two Questionnaire..... 349

APPENDIX 4 Telephone Interview Schedules..... 365

GLOSSARY

Term	Definition
Course	A unit or subject in a specified area which generally has a title and code and for which a student is awarded a grade. The courses of interest in this thesis were the Science and Nursing Practice courses.
Program	Required number of courses studied to complete a Bachelors (baccalaureate) degree. Students in this thesis were studying courses in a Bachelor of Nursing program.
Semester	One session of study, with Semester one or first semester referring to the March-July semester, also known as the Autumn Semester. Semester two, or second semester, refers to the July-December semester also known as the Spring Semester.
Clinical skills	Nursing skills practised by nurses or nursing students that are associated with the delivery of client care.
Clinical practice	Delivery of the client care (and includes the use of nursing clinical skills) that may be undertaken in a variety of places including the community and hospital. Often abbreviated to simply clinical.
Academic Performance	Students' academic results for a course. May include mark/score and/or grade awarded.
TER Score (Tertiary Entrance Rank)	Score derived from students' academic performance in their final high school year subjects for the High School Certificate. The score may vary from 0-100 with 100 indicating high academic performance and 0 poor academic performance.

ABBREVIATIONS

α	alpha
AGFI	Adjusted Goodness-of-Fit Index
AIN	Assistant in Nursing
ANOVA	Analysis of Variance
ASI	Approaches to Study Inventory
Aust	Australia
β	Standardised path coefficient
BN	Bachelor of Nursing
C	Credit grade
CFI	Comparative Fit Index
Chem	Chemistry
CR	Critical Ratio
CT	Critical Thinking
CT-N	Critical Thinking for Nursing Practice course
CT-S	Critical Thinking for Science course
D	Distinction (Academic) grade
DF	Degrees of Freedom
EN	Enrolled Nurse
ESB	English Speaking Background
F	Fail Grade
GPA	Grade Point Average
HA	High Achiever
HD	High Distinction grade
HSC	High School Certificate
LA	Low Achiever
lab	laboratory
LSI	Learning Style Inventory
M	Mean
MAE	Mature-Age Entry
MCSR	Metacognitive Self-Regulation
MCSR-N	Metacognitive Self-Regulation for Nursing Practice course
MCSR-S	Metacognitive Self-Regulation for Science course
MSLQ	Motivated Strategies for Learning Questionnaire
n	number (sample)
NASES	Nursing Academic Self-Efficacy Scale
NCSSES	Nursing Clinical Self-Efficacy Scale
NESB	Non-English Speaking Background
NP	Nursing Practice
NP1	Nursing Practice course semester one
NP2	Nursing Practice course semester two
NZ	New Zealand

p	probability
P	Pass grade
pracs	practical component of course
Q	Questionnaire item
RMSEA	Root Mean Square Error of Approximation
RN	Registered Nurse
Sc1	Science course semester one
Sc2	Science course semester two
SD	Standard Deviation
SE	Standard Error
SEFS	Self-Efficacy for Science
SELAP	Self-Efficacy for Learning and Performance
SELAP-N	Self-Efficacy for Learning and Performance for Nursing Practice course
SELAP-S	Self-Efficacy for Learning and Performance for Science course
SEM	Structural Equation Modeling
SRLIS	Self-Regulated Learning Interview Schedule
SS	Sum of Squares
t	Computed Value of T-Test
TAFE	Technical and Further Education
TER	Tertiary Entrance Rank
TIS	Telephone Interview Schedule
TLI	Tucker-Lewis Index
tuts	tutorials
TV	Task Value
TV-N	Task Value for Nursing Practice course
TV-S	Task Value for Science course
UK	United Kingdom
uni	university
USA	United States of America
χ^2	Chi-Square