



**UNIVERSITY *of the*  
WESTERN CAPE**

**Faculty of Community and Health Sciences**

**TITLE: AN INTERVENTION TOWARDS THE IMPROVEMENT OF  
ACADEMIC PERFORMANCE, SUCCESS AND RETENTION AMONG  
BACHELOR OF NURSING STUDENTS AT A HIGHER EDUCATION  
INSTITUTION IN THE WESTERN CAPE**

A thesis submitted in fulfilment of the requirements for the Degree of Doctor Philosophiae in  
the School of Nursing, Faculty of Community and Health Sciences, University of the  
Western Cape

By

**KATLEGO DUMISANI TREVOR MTHIMUNYE**

Student number: 3406922

November 2018

Supervisor: Professor F Daniels

## **KEY WORDS**

Academic performance

Academic success

Attrition

Intervention

Retention

Undergraduate nursing students



## DECLARATION

I, Katlego Dumisani Trevor Mthimunye, declare that **an intervention towards the improvement of academic performance, success and retention among bachelor of nursing students at a higher education institution in the Western Cape** is my own work, that it has not been submitted before for any degree or examination to any other university, and that all sources I have used or quoted have been indicated and acknowledged as complete references.

**Name:** Katlego Dumisani Trevor Mthimunye

**Signed:** *Katlego Mthimunye*

**Date:** 06 November 2018



## ACKNOWLEDGEMENTS

With sincere gratitude, I wish to acknowledge all those in my life who have walked with me throughout this process, providing encouragement, support and assistance:

- Almighty God who granted me the emotional and spiritual strength to undertake and complete this research study
- Professor Felicity Daniels, my supervisor, for her continuous support, guidance and encouragement throughout this study
- Statistician for statistical support
- Mauricia Abdol for support with data collection
- Gava Kassiem for transcribing of the interviews
- The editors of the dissertation Mr. Gareth Lowe
- Bronwyn Mthimunye (my wife) and Kgethego Mthimunye (my son) for their encouragement, motivation, support, patience and belief in me.
- Obed Mthimunye (my father) for motivation, support and being a good role model
- My mother Thelma Malebo Mthimunye for watching over me and guiding me from the heavens above (may her soul rest in perfect peace)
- My siblings, Percy, Linky, Thabiso and Sibho, for encouragement, support and prayers
- The University of the Western Cape Registrar for granting me permission to conduct the study at the university
- The School of Nursing at the University of the Western Cape
- All participants, without whom the study would not have been possible

## ABSTRACT

**Background:** Academic success, which is measured by continuous assessment and examination results, is one of the major goals of higher education. However, Higher Education institutions worldwide are faced with a challenge on how to improve the academic performance, success and ultimately the retention of students during their studies.

**Aim:** The aim of this study was to develop an intervention towards the improvement of academic performance, success and retention among undergraduate nursing students at a university in the Western Cape, South Africa.

**Methods:** A multi-method research approach was employed to meet the study aim and objectives. The study was conducted in three phases that were guided by the adapted phases of the Design and Development (D&D) model by Rothman and Thomas (2013). Phase one (**Study 1– 4**) was the problem analysis and information gathering phase. Phase two was the design and early development during which designing observational elements and specifying procedural elements were applied. Phase three (**Study 5**) was the validation phase.

**Results:** This thesis comprised of five interdependent studies. **Study 1:** A systematic review of literature was conducted encompassing previous literature from 2006 to 2016 regarding the predictors of academic performance and success among undergraduate nursing students. It was found that satisfactory academic performance among nursing students is associated with older age, female gender, English language proficiency, majority ethnic status, pre-admission academic achievements, selecting nursing as first choice for study, participating in organised music programmes, active academic engagement, as well as psychological and emotional factors. **Study 2:** Undergraduate nursing students' (n =232) perceptions regarding their educational environment were explored. This study showed that generally the nursing students were positive about their educational environment. However, the findings indicated that enhancements are required to improve the conditions of the educational environment. **Study**

**3:** The study explored the challenges experienced by undergraduate nursing students (6 - focus group discussions) regarding their academic performance and success and the measures implemented to overcome these challenges. The findings revealed that students' academic performance is influenced by the students' economic background, place of residence, inadequate theoretical and clinical support and the unfavorable educational environment. However, the findings also indicated that students employ a surface approach to learning, maintain a positive attitude and remain academically engaged in response to these challenges.

**Study 4:** The study explored the challenges experienced by nurse educators (n = 8) regarding the academic performance, success and retention of undergraduate nursing students and the measures implemented to overcome these challenges. The findings revealed that students' academic performance is influenced by poor class attendance, lack of academic readiness, socioeconomic backgrounds, English language proficiency, structure of the programme, the educational environment and the working conditions for nurse educators. **Study 5:** A three round Delphi study was conducted to validate an intervention towards improving the academic performance, success and retention among nursing students. The intervention was structured into eleven categories that emerged from phase 2: (1) Select high quality prospective nursing students; (2) Provide English language support; (3) Promote class attendance; 4) providing financial support to deserving students; (5) Provide university residence to undergraduate nursing students; (6) Encourage family support and involvement; (7) Make the undergraduate nursing programme student-friendly; (8) Ensure a conducive teaching and learning environment; (9) Enhance theoretical and clinical support to undergraduate nursing students at all times; (10) Ensure uniformity and consistency in the process of teaching and learning as well as; (11) Provide support to nurse educators and clinical supervisors.

**Conclusion:** The findings of this study have several implications for the education of nursing students. The developed intervention may help promote better understanding of the academic performance, success and retention of nursing students.



## Table of Contents

<b>KEY WORDS</b> .....	<b>i</b>
<b>DECLARATION</b> .....	<b>ii</b>
<b>ACKNOWLEDGEMENTS</b> .....	<b>iii</b>
<b>ABSTRACT</b> .....	<b>iv</b>
<b>LIST OF FIGURES</b> .....	<b>x</b>
<b>LIST OF TABLES</b> .....	<b>xi</b>
<b>LIST OF APPENDICES</b> .....	<b>xii</b>
<b>LIST OF ABBREVIATIONS</b> .....	<b>xiv</b>
<b>Doctoral Thesis (PhD) by Publications</b> .....	<b>xvi</b>
<b>CHAPTER ONE</b> .....	<b>1</b>
<b>ORIENTATION TO THE STUDY</b> .....	<b>1</b>
<b>1.1. INTRODUCTION</b> .....	<b>1</b>
<b>1.2. BACKGROUND</b> .....	<b>1</b>
1.2.1. Admission of undergraduate nursing students .....	4
1.2.2. Academic performance, success, retention and attrition .....	5
1.2.3. Attempts to improve nursing student academic performance and increase success .....	11
<b>1.3. PROBLEM STATEMENT</b> .....	<b>12</b>
<b>1.4. AIM OF THE STUDY</b> .....	<b>13</b>
<b>1.5. RESEARCH OBJECTIVES</b> .....	<b>13</b>
<b>1.6. RESEARCH QUESTIONS</b> .....	<b>14</b>
<b>1.7. SIGNIFICANCE OF THE STUDY</b> .....	<b>15</b>
<b>1.8. PHILOSOPHICAL (PARADIGM) PERSPECTIVES</b> .....	<b>16</b>
<b>1.9. OPERATIONAL DEFINITIONS</b> .....	<b>17</b>
1.9.1. At-risk .....	17
1.9.2. Attrition .....	17
1.9.3. Challenges.....	18
1.9.4. Nurse educator .....	18
1.9.5. Intervention .....	18
1.9.6. Learning environment .....	18
1.9.7. Performance .....	19
1.9.8. Predictors.....	19
1.9.9. Programme .....	19
1.9.10. Retention .....	19
1.9.11. Success.....	20
1.9.12. Throughput rate .....	20
<b>1.10. RESEARCH METHODS</b> .....	<b>20</b>
1.10.1. Problem analysis and information gathering.....	21
1.10.2. Design and early development .....	22
1.10.3. Validation phase .....	22
<b>1.11. OUTLINE OF THE STUDY</b> .....	<b>23</b>
1.11.1. Chapter one .....	23
1.11.2. Chapter two .....	23
1.11.3. Chapter three .....	23
1.11.4. Chapter Four (Study 1).....	24
1.11.5. Chapter Five (Study 2) .....	24

1.11.6. Chapter Six (Study 3) .....	24
1.11.7. Chapter Seven (Study 4) .....	24
1.11.8. Chapter Eight (Study 5).....	24
1.11.9. Chapter nine .....	25
<b>1.12. SUMMARY</b> .....	<b>25</b>
<b>1.13. REFERENCES</b> .....	<b>25</b>
<b>CHAPTER 2</b> .....	<b>33</b>
<b>CONCEPTUAL FRAMEWORK</b> .....	<b>33</b>
<b>2.1. INTRODUCTION</b> .....	<b>33</b>
<b>2.2. CONCEPTUAL FRAMEWORK</b> .....	<b>33</b>
2.2.1. Definition of student success.....	34
2.2.2. Characteristics of the proposed conceptual model of student success .....	36
<b>2.3. LAYERS OF THE CONCEPTUAL MODEL</b> .....	<b>39</b>
2.3.1. Layer 1 – Internal context.....	40
2.3.2. Layer 2 – Family context .....	43
2.3.3. Layer 3 – School context.....	45
2.3.4. Layer 4 – Social, economic and policy context .....	48
<b>2.4. APPLICATION OF PERNA AND THOMAS’ FRAMEWORK</b> .....	<b>49</b>
<b>2.5. CONCLUSION</b> .....	<b>52</b>
<b>2.6. REFERENCES</b> .....	<b>52</b>
<b>CHAPTER THREE</b> .....	<b>57</b>
<b>3.1. INTRODUCTION</b> .....	<b>57</b>
<b>3.2. MULTI-METHOD RESEARCH APPROACH</b> .....	<b>58</b>
<b>3.3. RESEARCH DESIGN</b> .....	<b>59</b>
<b>3.4. IMPLEMENTATION OF INTERVENTION RESEARCH</b> .....	<b>61</b>
<b>3.5. RESEARCH CONTEXT</b> .....	<b>65</b>
<b>3.6. PHASE ONE: PROBLEM ANALYSIS AND INFORMATION GATHERING</b> .....	<b>66</b>
3.6.1. Systematic review: Chapter Four – Study 1 .....	66
3.6.2. Cross-sectional survey: Chapter Five – Study 2 .....	73
3.6.3. Focus group discussions: Chapter Six - Study 3 .....	78
3.6.4. Individual interviews: Chapter Seven – Study 4 .....	81
<b>3.7. PHASE TWO: DESIGN AND EARLY DEVELOPMENT OF THE INTERVENTION</b> .....	<b>86</b>
3.7.1. The design phase .....	87
3.7.2. Specifying procedural elements .....	90
<b>3.8. PHASE THREE: VALIDATION</b> .....	<b>97</b>
3.8.1. Delphi study: Chapter Eight – Study 5 .....	97
<b>3.9. RESEARCH ETHICS</b> .....	<b>106</b>
3.9.1. Informed consent .....	106
3.9.2. Respect for participants.....	107
3.9.3. Non-maleficence.....	107
3.9.4. Beneficence .....	108
3.9.5. Justice .....	108
3.9.6. Privacy and confidentiality .....	109
<b>3.10. SUMMARY</b> .....	<b>109</b>
<b>3.11. REFERENCES</b> .....	<b>109</b>
<b>RESULTS: OVERVIEW OF CHAPTERS / ARTICLES</b> .....	<b>117</b>
<b>CHAPTER FOUR</b> .....	<b>119</b>
<b>4.1 INTRODUCTION</b> .....	<b>119</b>
<b>4.2 OBJECTIVE</b> .....	<b>119</b>

4.3 METHODOLOGY.....	119
4.4 STUDY OUTCOME .....	120
<b>CHAPTER FIVE .....</b>	<b>158</b>
5.1 INTRODUCTION .....	158
5.2 OBJECTIVE .....	158
5.3 METHODOLOGY.....	158
5.4 STUDY OUTCOME .....	159
<b>CHAPTER SIX .....</b>	<b>196</b>
6.1 INTRODUCTION .....	196
6.2 OBJECTIVE .....	196
6.3 METHODOLOGY.....	196
6.4 STUDY OUTCOME .....	197
<b>CHAPTER SEVEN.....</b>	<b>234</b>
7.1 INTRODUCTION .....	234
7.2 OBJECTIVE .....	234
7.3 METHODOLOGY.....	234
7.4 STUDY OUTCOME .....	234
<b>CHAPTER EIGHT .....</b>	<b>267</b>
8.1 INTRODUCTION .....	267
8.2 OBJECTIVE .....	267
8.3 METHODOLOGY.....	267
8.4 STUDY OUTCOME .....	268
<b>CHAPTER NINE .....</b>	<b>316</b>
9.1. INTRODUCTION .....	316
9.2. SUMMARY OF ALL STUDIES AND THEIR SIGNIFICANCE.....	316
9.2.1. Phase 1: Problem analysis and information gathering .....	318
9.2.2. Phase 2: Design and early development of the intervention .....	321
9.2.3. Phase 3: Validation .....	323
9.3. LIMITATIONS OF THE RESEARCH STUDY.....	324
9.4. RECOMMENDATIONS .....	325
9.4.1. Nursing education and practice.....	325
9.4.2. Future research .....	327
9.5. CONCLUSION .....	327
9.6. REFERENCES .....	328

# LIST OF FIGURES

## Chapter 2

Figure 2.1. Key transitions and indicators of student success.....	35
Figure 2.2. Conceptual model of student success.....	39
Figure 2.3: Conceptual model: Internal context.....	43
Figure 2.4. Conceptual model: Family context.....	45
Figure 2.5. Conceptual model: School context.....	47
Figure 2.6. Conceptual model: Social, economic and policy context.....	49

## Chapter 3

Figure 3.1: Components of intervention research (IR).....	60
Figure 3.2: Six phases of intervention research modified into three phases (Rothman & Thomas, 1994; 2013) .....	63
Figure 3.3: Adapted three phases and activities of the intervention research model (adapted from Rothman and Thomas, 1994; 2013).....	64
Figure 3.4: Systematic review steps.....	72

## Chapter 4

Figure 1: Flow chart of study screening process.....	126
--	-----

## Chapter 8

Figure 1: Process of the Delphi study.....	282
Figure 2: The designed intervention .....	304

# LIST OF TABLES

## Chapter 2

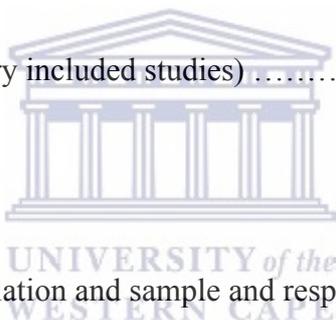
Table 2.1. Alignment of research objectives and questions with Perna and Thomas's framework.....	50
--	----

## Chapter 3

Table 3.1: Application of intervention Design and Development (D&D) .....	61
Table 3.2: Summary of study population and sample.....	75
Table 3.3: Summary of the study phases.....	104

## Chapter 4

Table 1: Data extraction (summary included studies) .....	129
---	-----



## Chapter 5

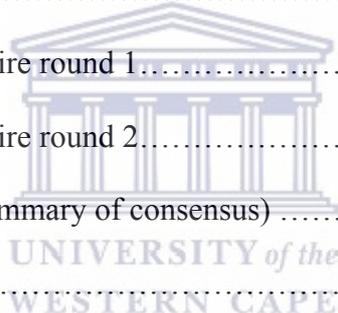
Table 1: Summary of study population and sample and response rate.....	165
Table 2: Mean (SD) and overall scores by year level.....	174
Table 3: Mean (SD) and overall score by ethnicity.....	175
Table 4: Mean score (SD) and overall scores by gender ( $N = 232$ ) .....	176
Table 5: Mean score (out of 4) of the items under study domains.....	177

## Chapter 8

Table 1: Key findings and the concluding statements from phase one.....	275
Table 2: Expert panel demographical details.....	284
Table 3: Level of consensus in round 1.....	285
Table 4: Level of consensus in round 2.....	296

## LIST OF APPENDICES

Appendix 1: Research ethics clearance letter.....	330
Appendix 2: Summary of findings (Phase 1) .....	331
Appendix 3: Title reading and extraction tool (TRET).....	337
Appendix 4: Abstract reading extraction tool (ARET).....	338
Appendix 5: Quality assessment tool (QAT).....	339
Appendix 6: Data extraction tool (DAT).....	342
Appendix 7: Educational environment tool.....	343
Appendix 8: Focus group discussion guide.....	346
Appendix 9: Interview guide for nurse educators .....	347
Appendix 10: Text boxes.....	348
Appendix 11: Delphi questionnaire round 1.....	355
Appendix 12: Delphi questionnaire round 2.....	367
Appendix 13: Delphi round 3 (summary of consensus) .....	373
Appendix 14: Information sheet .....	381
Appendix 15: Information sheet (Delphi Study) .....	383
Appendix 16: Information sheet (Delphi Round 1 - Expert briefing) .....	385
Appendix 17: Information sheet (Delphi Round 2) .....	387
Appendix 18: Consent form.....	388
Appendix 19: Consent form (Delphi study) .....	389
Appendix 20: Focus group confidentiality binding form.....	390
Appendix 21: Permission from registrar.....	391
Appendix 22: Permission from director of school of nursing.....	392
Appendix 23: Proof of language editing .....	393



Appendix 24: Correspondence with South African Journal of Higher Education (SAJHE) – Study 1.....	397
Appendix 25: Correspondence with the Journal of the Democratic Nursing Organisation of South Africa ( <i>Curationis</i> ) - Study 2.....	398
Appendix 26: Correspondence with the Journal of the Democratic Nursing Organisation of South Africa ( <i>Curationis</i> ) - Study 3.....	401
Appendix 27: Correspondence with the Independent Journal of Teaching and Learning (IJTL) - Study 4.....	402
Appendix 28: Correspondence with the International Journal of Africa Nursing Sciences- Study 5.....	404



## LIST OF ABBREVIATIONS

Abbreviation	Meaning
ANOVA	Analyses of variance
ARET	Abstract Reading Extraction Tool
BN	Bachelor of Nursing
CHE	Council on Higher Education
CHS	Community and Health Sciences
CPUT	Cape Peninsula University of Technology
CVB	Cultural values and beliefs
D&D	Design and Development
DET	Data extraction tool
DR	Digital resources
ECP	Extended curriculum programme
EPHPP	Effective Public Health Practice Project
FGD	Focus group discussions
GNS	General Nursing Science
GPA	Grade point average
ESL	English as a Second Language
HE	Higher education
HEI	Higher education institution
HESA	Higher Education South Africa
IR	Intervention research
KD	Intervention Knowledge Development
KU	Intervention Knowledge Utilisation



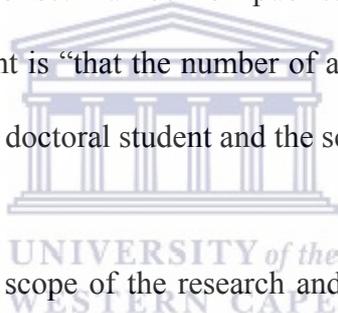
NC	Nursing curriculum
PMTP	Peer-based mentor tutor programmes
QAT	Quality Assessment Tool
PCE	Physical classroom environment
R425	Regulation for registration as registered nurse (general, psychiatric and community) and midwife
RN	Registered nurse
SAQA	South African Qualifications Authority
SANC	South African Nursing Council
SAT	Scholastic aptitude test
SD	Standard deviations
SL	Skills laboratory
SoN	School of Nursing
SPSS	Statistical Package for Social Sciences
TEAS	Test of Essential Academic Skills
TLC	Teaching and learning climate
TLS	Teaching and learning strategies
TRET	Title Reading and Extraction Tool
UL	University library
UWC	University of the Western Cape
WCCN	Western Cape College of Nursing



## Doctoral Thesis (PhD) by Publications

The PhD in Nursing is submitted in the format of a PhD by Publication. At the core of a PhD by Publication is the dissemination of findings. The findings presented in this doctoral thesis were submitted to various national and international academic journals including (i) South African Journal of Higher Education (SAJHE), (ii) Journal of the Democratic Nursing Organisation of South Africa (Curationis), (iii) Independent Journal of Teaching and Learning (IJTL), and (iv) International Journal of Educational Research.

According to the University of the Western Cape Guidelines for the Doctoral Thesis (PhD) by Publications (2012), there is no set number of publications required for the PhD by Publications, the only requirement is “that the number of articles presented in the thesis will depend on the contribution of the doctoral student and the scope of the thesis”.



The following articles cover the scope of the research and are presented as chapters in this thesis.

*Journal Article – Accepted for publication*

**Mthimunye, K.D.T., & Daniels, F.M.** (2019). Predictors of academic performance, success and retention amongst Undergraduate Nursing students: A systematic *review South African Journal of Higher Education*. (In press)

**Mthimunye, K.D.T., & Daniels, F.M.** (2019). Student nurses’ perceptions of their educational environment at a school of nursing in Western Cape Province, South Africa: A cross-sectional study: *Curationis*. (In press)

**Mthimunye, K.D.T., & Daniels, F.M. (2019).** Nurse educator's challenges and corresponding measures to improve the academic performance, success and retention of undergraduate nursing students at a university in the Western Cape, South Africa: *Independent Journal of Teaching and Learning*.

*Journal Articles – In review*

**Mthimunye, K.D.T., & Daniels, F.M. (2018).** Exploring the challenges and corresponding measures implemented to improve academic performance and success of undergraduate nursing students at a university in the Western Cape, South Africa: *Curationis*.

**Mthimunye, K.D.T., & Daniels, F.M. (2018).** An intervention for the improvement of academic performance, success and retention of nursing students at the university in the western cape, South Africa: *International Journal of Educational Research*.



# CHAPTER ONE

## ORIENTATION TO THE STUDY

### 1.1. INTRODUCTION

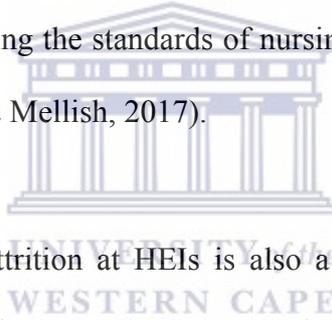
In this chapter, the background and motivation for this study are outlined, and the literature focusing on factors that promote academic performance and success is discussed. The overall aim of the study is provided and the specific objectives that guided the study are outlined. The significance of the study, with reference to the value that it could potentially add in the field of nursing education, is discussed. Lastly, the philosophical perspectives and the terms included in this dissertation are outlined.

### 1.2. BACKGROUND



South Africa (SA) is under enormous pressure to produce more graduates of good quality in order to accelerate all forms of social and economic development (Badat, 2010). SA is in need of more university graduates to expand the education system by providing a solid generation of academics, researchers and curriculum developers (Council on Higher Education (CHE), 2013). Academic performance and success are the major goals of higher education (CHE, 2010). However, these goals remain a challenge for many higher education institutions (HEI) in SA as it has been reported that only one (25%) out of four students enrolled in undergraduate programmes graduates in the minimum prescribed time (CHE, 2013). In 2005, the dropout rate in SA for students enrolled for undergraduate studies at HEIs was 50%. Of the 120 000 first-year students enrolled in 2000, a total of 36 000 (30%) dropped out in their first year of study, and a further 24 000 (20%) in their second or third year. Only 26 500 (22%) of this cohort completed their undergraduate qualifications (CHE, 2010). This has huge financial

implications given that the SA higher education funding system subsidises the number of students who successfully complete their studies rather than the number who register for higher education programmes (Wangenge-Ouma & Cloete, 2008). Excellent academic performance and success of students are required if universities are to attain the standard of education that they are aiming for. These challenges make it difficult for HEIs in SA to improve the quality of their graduates in an increasingly globalised and competitive work environment (Harvey & Kamvounias, 2008). Nursing education is tasked with producing highly trained and skilled nurse practitioners. The quality of nursing education in South Africa is regularly brought under scrutiny by stakeholders in the nursing education sector, such as curriculum developers and experts in teaching and learning. This may be due to the current emphasis placed on the education of nurses by the South African Nursing Council (SANC), which is the statutory body tasked with setting and maintaining the standards of nursing education in SA (Meyer & Van Niekerk, 2008; Bruce, Klopper & Mellish, 2017).



Quality is not the only issue, attrition at HEIs is also a global concern affecting nursing education. In 2009, the United States (US) reported an attrition rate of 30% among undergraduate nursing students (Peterson, 2009). In SA, a study conducted by McLachlan (2010) at the Western Cape College of Nursing (WCCN) to investigate the attrition rate of nursing students reported attrition of 34.4% for the 2003 admission year. The Solidarity Research Institute reported that only 13% of the nursing students who enrolled in 2004 in SA successfully completed the undergraduate nursing programme and graduated in 2007. This figure echoes disturbing findings that suggest that 87% of nursing students enrolled in 2004 failed to complete the undergraduate programme in the minimum prescribed time of four years (Solidarity, 2009). These findings were reinforced by another study conducted at the Cape Peninsula University of Technology (CPUT), which found an attrition rate of 70% among

nursing students who commenced their first year of the four-year undergraduate nursing programme in 2005 (Jeptha, 2008). In another study conducted by Swart (2013) at the University of the Western Cape (UWC) investigating the “completion in minimum time” of students in the Community and Health Science (CHS) faculty found that only 48% of the students enrolled for the final-year Bachelor of Nursing (BN) programme between 2009 and 2012 completed in the minimum time allocated.

A review conducted by Del Prato, Bankert, Grust and Joseph (2011) on the stressors and strategies that support students’ professional socialisation reported that the intensity and the design of the comprehensive undergraduate nursing curricula causes students to suffer high levels of pressure and challenges associated with academic, clinical and personal issues, consequently leading to unsatisfactory academic performance. As a result, the support that nursing students need tends to be greater than that of students enrolled in other programmes (Harris, Rosenberg & O'Rourke, 2013). Furthermore, undergraduate nursing students are traditionally expected to maintain higher standards than many other programmes (Harris et al., 2013). Newton and Moore (2009) reported that many nursing students around the world are terminated from undergraduate nursing programmes due to failure of the second or same nursing course twice. This is also a common practice in local nursing schools at both college and university level.

With regard to nursing education, it could be argued that teaching can be a demanding profession given the challenges faced in today’s classrooms (Baker, Fitzpatrick & Griffin, 2011; Bittner & O'Connor, 2012). A systematic review of literature conducted by Gui, Barriball and While (2009) with the purpose of reporting the job satisfaction levels of nurse educators revealed that nurse educators feel overwhelmed in their attempts to meet the diverse and often

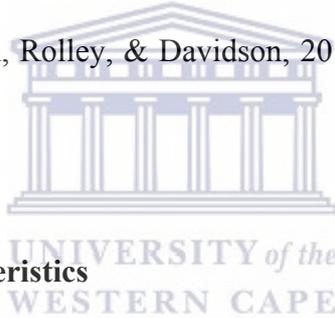
complex needs of a growing number of students along with the ancillary duties they are expected to assume. The same may apply to nurse educators in a South African context (Botma, Jeggels & Uys, 2014).

### **1.2.1. Admission of undergraduate nursing students**

To qualify for admission to bachelor's degree studies at an HEI, the student must pass with a minimum of 30% in the language of teaching and learning of the HEI concerned. Furthermore, the student will be required to obtain a minimum achievement of 50–59% or higher in four subjects chosen from the designated subject list determined by the HEI (Umalusi, 2013). The specific minimum requirements for admission to the BN programme offered at UWC are English (50–59%), another language (50–59%), Mathematics (50–59%) or Mathematics Literacy (70–79%) and Life Sciences (50–59%) (UWC, 2017). English, Mathematics and Life Sciences backgrounds are required for understanding the scientific basis of nursing (McEwen & Wills, 2017). The evidence provided thus far confirms a problem of unsatisfactory academic performance and attrition among nursing students. Unsatisfactory academic performance and failure to complete the undergraduate nursing programme is not only frustrating to the nursing students, parents and educators, but also has serious consequences for the public at large in terms of the needed nurse workforce, not to mention the loss of state funding as mentioned earlier. In response to this alarming phenomenon in nursing education, it is imperative for nurse educators to focus on developing interventions to improve academic performance, success and retention of students who are registered for the undergraduate nursing programme (Jeffreys, 2015; Mthimunye, Daniels & Pedro, 2018).

## **1.2.2. Academic performance, success, retention and attrition**

Student attrition tends to be a general concern for various types of HE programmes, including nursing programmes (Braxton, Hirschy & McClendon, 2011). Attrition is generally described as the withdrawal from or deferment of successful completion of programme requirements. Following Jeffreys' (2015) model of undergraduate nursing student retention and attrition, the basic elements that tend to be associated with student retention or attrition include the interaction of student profile characteristics, student affective factors, academic factors, environmental factors, professional integration factors, academic outcomes, psychological outcomes, and outside surrounding factors. Several studies have been conducted regarding the predictors of academic performance as well as factors that affect academic performance and the throughput rate of undergraduate nursing students (Alden, 2008; Jeffreys, 2015; Newton & Moore, 2009; Koch, Salamonson, Rolley, & Davidson, 2011; Mthimunye, Daniels & Pedro, 2018).



### **1.2.2.1. Student profile characteristics**

Various studies have been conducted evaluating the impact of students profile characteristics on academic success and retention of nursing students. However, age, gender, ethnicity, first language, socio-economic status, motivation, self-efficacy, coping skills, resilience and study skills have been shown to be the strongest profile characteristics that predict academic performance and success among nursing students (Ali & Naylor, 2010; Oducado & Penuela, 2014; Mthimunye et al., 2018). Studies such as those by Megginson (2008) have shown that negative academic achievements have an influence on the success and academic performance of the student. Furthermore, academic factors such as high school grades, aptitude exams and university entrance tests have shown to be highly significant in determining student success in nursing programmes (Alden, 2008; Jeffreys, 2015; Mthimunye et al., 2018).

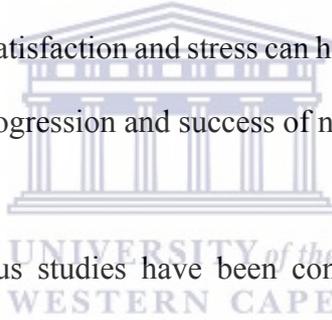
### **1.2.2.2. Student affective factors**

The School of Nursing (SoN) in this study admits to their programmes students from various parts of the country as well as international students. These students are from different socio-economic and cultural backgrounds. According to Jeffreys (2015), student affective factors are those related to students' attitudes, motivation, self-efficacy, and cultural values and beliefs (CVB) about learning. The notion of CVB recognises that all nursing students enrol in nursing programmes with values and beliefs that directly or indirectly influence their thought process, decision making and actions throughout their student life and in all dimensions of the nursing profession (Jeffreys, 2015). Furthermore, Jeffreys (2015) acknowledges that conflict between CVB and the nursing profession, the academic environment or nursing education may contribute towards an increase in nursing students' stress levels and ultimately lead to unsatisfactory academic performance, lack of motivation and consequently attrition. Not much is known about the extent of the influence that the student affective factors have on the academic performance and success of nursing students; however, a study conducted by McLaughlin, Moutray, and Muldoon (2008) with the aim of "examine[ing] the role of personality and self-efficacy in predicting academic performance and attrition in nursing students" revealed that motivation and self-efficacy have the most significant impact on the academic performance of students. Other studies such as those conducted by Goff (2011); Fernandez, Salamonson, and Griffiths (2012) and Pitt, Powis, Levett-Jones and Hunter (2014), reported that motivation, emotional intelligence, self-control and resilience also hold significant power to influence the academic performance of nursing students

### **1.2.2.3. Academic factors and academic outcomes**

Jeffreys's (2015) Nursing Universal Retention and Success (NURS) model, which presents a globally applicable framework for examining the multidimensional factors that affect

undergraduate and graduate nursing student retention and success, proposes that academic factors such as personal study skills (reading, writing, listening, note-taking, literature search, preparation for examination, time management, and clinical judgment), study hours, class attendance, class schedule/timetable arrangements, and general academic services (such as library services, counselling services, electronic-learning support services) are vital variables that have a significant impact on academic performance, successes and retention of nursing students (Jeffreys, 2015). The significance of academic factors and academic outcomes on the academic performance of students has been the most studied phenomenon and has been of interest to many researchers around the world. Furthermore, the NURS model suggests that academic outcomes (grades obtained by the student during the programme, the student's cumulative grade point average (GPA) for the nursing programme and overall GPA) and psychological outcomes such as satisfaction and stress can have a positive or negative influence on the retention, performance, progression and success of nursing students.



As mentioned previously, various studies have been conducted globally investigating the impact of academic factors on the academic performance of nursing students (Newton & Moore, 2009; Koch et al., 2011; Mthimunye & Daniels, 2017; Mthimunye et al. 2018). Some factors appeared to have a more significant influence than others. Performance in high school science subjects and university science modules, homework completion, lecture attendance, kinaesthetic learning preference and the Test of Essential Academic Skills (TEAS) have thus far shown to be the strongest academic factors that predict academic performance and success among nursing students. However, despite kinaesthetic learning preference being found by Salamonson, Andrew and Everett (2009) to have a significant influence on the academic performance of nursing students, Koch et al. (2011) and Norman (2009) argue that personal

study skills play a trivial role on the academic performance of students. These findings are further discussed in chapter four (study 1) of this study.

#### **1.2.2.4. Environmental factors**

The NURS model proposes that environmental factors outside the academic process, such as financial support, family emotional support, family responsibilities, childcare arrangements, employment hours, employment responsibilities, transport arrangements and living arrangements, have a significant influence on the academic performance, success and retention of nursing students. Jeffreys (2012; 2015) argues that the environmental factors are the most influential in the academic performance, success and retention of nursing students due to their “unexpected” nature. A small number of studies have been conducted in recent years that test only a few environmental factors which may have an influence on the academic performance of nursing students. These studies reported that the environmental factor that seems to have the strongest influence on academic performance was the number of hours spent in part-time employment (Salamonson, Andrew, & Everett, 2009; Everett et al. 2013). According to Salamonson et al. (2009), students who spend more than 16 hours per week in part-time employment are less likely to complete their undergraduate nursing programme than otherwise equivalent students who spend less or no time in part-time employment. As mentioned earlier, the SoN in this study admits students with various socioeconomic and cultural backgrounds, with the majority of the nursing students being from disadvantaged backgrounds and thus being forced to engage in part-time paid employment. This is due to the fact that there are limited bursaries and funding for tertiary education and most students simply can not afford to pay for their studies and daily survival expenses. This may have a negative impact on their academic performance both directly and indirectly.

#### **1.2.2.5. Professional integration factors**

Jeffreys (2015) proposes that professional integration also contributes towards the success and retention of nursing students. She describes professional integration factors as “factors that enhance student interaction with the social system of the college environment within the context of professional socialisation and career development” (Jeffreys, 2015). These factors include professional events, membership in professional organisations, encouragement by friends in class, peer mentoring, enrichment programmes, advisement and helpfulness. Robust professional integration results in satisfactory academic performance, success, professional commitment and ultimately retention. Consequently, Jeffreys (2015) argues that the nursing profession involves constant human interaction, and therefore, a lack of professional integration in the education of nurses may intensify the risk of attrition and limit potential. It is therefore important to enhance professional integration and prevent social isolation. However, for undergraduate nursing students at the SoN in this study, the involvement in part-time employment results in exhaustion and limited time to engage in professional activities, which ultimately has a negative influence on their academic performance and success.

#### **1.2.2.6. Psychological outcomes**

Psychological outcomes such as personal satisfaction and stress may positively or negatively influence academic performance and success of nursing students (Jeffreys, 2015). Positive psychological outcomes are associated with satisfaction, fulfilment, gratification and low stress levels, while negative psychological outcomes are associated with dissatisfaction, disappointment, unhappiness, frustration and high levels of stress. According to Jeffreys (2015), satisfactory academic performance leads to retention only when supplemented by a positive psychological outcome. In this regard, Por, Barriball, Fitzpatrick and Roberts (2011) and Pulido-Martos, Augusto-Landa, and Lopez-Zafra (2012) emphasise the emotional as well

as the psychological aspects of nursing students as determining factors influencing their academic performance. However, it is important to acknowledge that psychological outcomes may be influenced by interaction of various factors that influence academic performance, such as student profile characteristics, student affective factors, academic factors, outside and surrounding factors, environmental factors, and professional integration factors. For undergraduate nursing students at the SoN in this study, the interaction between the individual profile characteristics, socio-economic status and the inability to engage with the programme activities add pressure to nursing students who are at risk of unsatisfactory academic performance.

#### **1.2.2.7. Outside surrounding factors**

Jeffreys (2015) recognises that success and retention of nursing students is not isolated to an individual context, but encompasses other factors that are beyond manipulation and control by either student or educator. Outside surrounding factors are elements prevalent externally to the school context and the students' internal context that can have a positive or negative impact on the academic performance, success and retention of nursing students. These include politics and economics, the health care system, nursing professional issues and job certainty. For instance, Jeffreys (2015) believes that "job market changes can prompt students to continue their education beyond entry level and attain a more advanced nursing degree". A sudden decline in the job market may be discouraging and demotivating for nursing students and thus lead to unsatisfactory academic performance and ultimately to early termination and a high attrition rate.

### **1.2.3. Attempts to improve nursing student academic performance and increase success**

Among HEIs that accept and enrol at-risk nursing students, many faculties and schools of nursing have introduced support programmes to provide student support and reduce the rate of attrition. Various strategies have been reported worldwide as being effective in improving the academic performance and success of nursing students. However, the implementation of such strategies does not guarantee that students will achieve the desired level of academic performance. Robinson and Niemer (2010) found that at-risk nursing students who were involved in peer-based mentor tutor programmes (PMTPs) performed significantly higher than their counterparts on both summative and final assessments. Other studies examined successful nursing students by means of in-depth and structured interviews to determine at-risk characteristics and effective intervention (Jimenez, Navia-Osorio, & Diaz, 2010; Rogers, 2010). Common themes that emerged include the need for staff mentorship and coaching; social and peer support; activities to improve study habits, test-taking skills and time management; skill building in reading, writing, mathematics, communication and stress management; peer tutoring; financial aid or budgeting assistance; self-care; and faculty use of various teaching strategies (Jimenez et al., 2010; Rogers, 2010).

Some researchers focused on the academic performance and success of minority nursing students and concluded that they require social support (Brown, 2008; Wong, Seago, Keane, & Grumbach, 2008; Beacham, Askew & Williams, 2009; Barbatis, 2010; Bednarz, Schim, & Doorenbos, 2010). The common themes that emerged in these studies included the need for supportive families, social involvement of staff and peer support, increased cultural awareness, sensitivity among staff, support meetings and mentorship for minority nursing students in the community

### 1.3. PROBLEM STATEMENT

Unsatisfactory academic performance and failure to complete the nursing programme are not only frustrating to the nursing students, parents and nurse educators, they also have negative consequences for the public at large in terms of the needed nurse workforce (Buerhaus, Auerbach and Staiger, 2009; World Health Organization, 2010). Kesewah (2012) describes unsatisfactory/poor academic performance as the student being unable to meet the expected standards. Schools of nursing in the Western Cape province are confronted with the problem of unsatisfactory academic performance and attrition, as reported by Jephtha (2008), McLachlan (2010), Swart (2013) and Mthimunye, Daniels and Pedro (2018). McLachlan (2010) reported a 34.4% attrition rate for the 2003 admission year for undergraduate nursing students at the Western Cape College of Nursing (WCCN), while Jephtha (2008) reported an attrition rate of 70% among nursing students who commenced their first year of a four-year undergraduate nursing programme in 2005 at Cape Peninsula University of Technology (CPUT). Furthermore, Swart (2013) reported that 48% of the students enrolled for the Bachelor of Nursing programme at the University of the Western Cape completed in minimum time. Despite much being known about the challenge of academic performance and student retention in nursing education, little attention has been given to developing interventions for the improvement of academic performance, success and retention of nursing students in BN programmes (Jephtha, 2008; Peterson, 2009; McLachlan, 2010; CHE, 2010, 2013; Swart, 2013; Mthimunye, Daniels & Pedro, 2018).

Nursing education is a core sector where interventions for the improvement of academic performance, success and retention of students should be investigated and implemented, since the core purpose of nursing programmes is to prepare nursing students to be independent and professionally competent in the field of nursing practice. According to Adeoye and Popoola

(2011), nursing education can be described as a strategically planned educational programme implemented to provide an extensive foundation for effective nursing practice. However, in situations where this is compromised as a result of unsatisfactory academic performance and ultimately poor success rates, researchers become encouraged to undertake intervention studies in an attempt to bridge the gap, to ensure good academic performance and the preparation of competent nursing graduates.

The obvious lack of research on this phenomenon supports the need for investigation and exploration to be conducted. This study, therefore, aimed to develop an intervention to improve the academic performance, success and consequent retention of undergraduate nursing students at a university in the Western Cape in response to the existing challenges.

#### **1.4. AIM OF THE STUDY**

The aim of this study was to develop an intervention towards the improvement of academic performance, success and retention among undergraduate nursing students at a university in the Western Cape, South Africa.

#### **1.5. RESEARCH OBJECTIVES**

The following objectives are aligned with the aim of the study and were formulated to guide it:

**Objective 1:** To conduct a systematic review to determine the predictors of academic performance, success and retention among undergraduate nursing students

**Objective 2:** To explore the undergraduate nursing students' perception of their educational environment at the school of nursing (SoN) selected for this study

**Objective 3:** To explore and describe the challenges experienced by undergraduate nursing students at the identified SoN regarding their academic performance and success, and the measures implemented to overcome these challenges

**Objective 4:** To explore and describe the challenges experienced by nurse educators at a selected SoN regarding the academic performance, success and retention of undergraduate nursing students and the measures implemented to overcome these challenges

**Objective 5:** To use the findings of phase one to design, develop and validate interventions towards improving the academic performance, success and retention of undergraduate nursing students

## 1.6. RESEARCH QUESTIONS

A research question presents the problem that is to be examined in the study (LoBiondo-Wood & Haber, 2014). It thus generates the foundation of the study. The following research questions were formulated for this study:

- What are the predictors of academic performance, success and retention among undergraduate nursing students?
- What are the perceptions of undergraduate nursing students regarding their educational environment?
- What are the challenges experienced by undergraduate nursing students at the selected SoN regarding their academic performance and success and the measures implemented to overcome these challenges?
- What are the challenges experienced by nurse educators at the selected SoN regarding the academic performance, success and retention of undergraduate nursing students and the measures implemented to overcome these challenges?

- What intervention should be implemented to improve the academic performance, success and retention of undergraduate nursing students?

## 1.7. SIGNIFICANCE OF THE STUDY

The results of this study have the potential to make several contributions towards the following:

- **Nursing education and health service delivery nationally and globally**

The results of this study will assist in increasing the number of much-needed nurse graduates by addressing the challenges faced by nursing students and nurse educators and ultimately relieving the clinical staff shortage experienced by health care institutions globally. These interventions will also contribute towards nursing education policy on academic support of undergraduate nursing students, which has the potential to assist in the delivery of such support to improve the academic performance and success of undergraduate nursing students. Furthermore, the intervention will provide the CHS faculty at the selected university with significant information that will help to refine the admission criteria to reflect the changing profile of applicants for the undergraduate nursing programme.

- **HEIs in terms of financial benefit**

Government subsidies are dependent on student throughput, and therefore the findings of this study will benefit the HEIs as they meet the demands set by government in terms of securing an increasing number of graduates who will graduate in the minimum time, thereby increasing funding and decreasing debt as a result of attrition.

- **Programme improvement**

The results of this study have the potential to assist nursing curriculum experts to review the academic content of the BN programme and recommend necessary actions to

maintain or increase the number of undergraduate nursing graduates without compromising the quality of nursing education.

The findings of this intervention study have the potential to guide nurse educators in improving areas of the undergraduate nursing programme that need attention as well as understanding the needs of the nursing students they engage with. Additionally, the findings may be of interest to academics involved in the training and development of undergraduate nursing programmes locally and at other universities nationally and internationally.

## **1.8. PHILOSOPHICAL (PARADIGM) PERSPECTIVES**

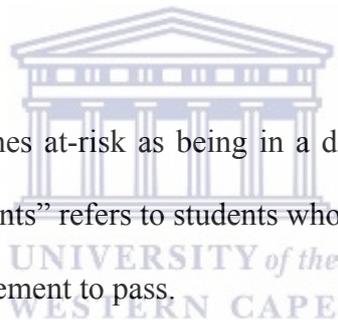
Research paradigm, also known as “worldview”, is defined as the general philosophical orientation about the world and the nature of research that a researcher brings to a study (Creswell, 2013). Therefore, the research paradigm is highly dependent on the researcher’s beliefs. The type of beliefs the researcher holds often influences the implementation of a qualitative, quantitative or mixed-method research approach. For the purpose of this study, the pragmatic paradigm was adopted. According to Creswell (2013), pragmatism arises from actions, situations and consequences rather than antecedent conditions. Furthermore, Tashakkori and Teddlie (2010) emphasise the significance of focusing attention on the research problem and then implementing multiple approaches to derive knowledge about the problem. Therefore, the pragmatic worldview aims to emphasise the problem and uses all approaches available to understand it and to take action. However, pragmatists acknowledge that truth is relative because reality is influenced by the person’s perception (Grove, Burns & Gray, 2014; Creswell, 2013). For this study, this implies that multiple interpretations are expected and thus acknowledged. Similarly, multiple methods are used by the researcher to explore various approaches for gathering and analysing data rather than committing to only one (Creswell,

2013). Lastly, the pragmatists are concerned with the issue of transferability of the results to other settings in terms of what, how and why the knowledge could be used in other settings or contexts (Creswell, 2013). The researcher argues for pragmatism as an appropriate research paradigm and the multi-method approach as appropriate for the design and development (D&D) intervention research (IR) model used as the methodological framework for this study (Thomas & Rothman, 1994). A multi-method research approach used in this study was executed by conducting a systematic review of literature, cross-sectional descriptive survey, focus group discussions (FGDs), one to one in-depth interviews and lastly by conducting a Delphi study.

## **1.9. OPERATIONAL DEFINITIONS**

### **1.9.1. At-risk**

Oxford Dictionaries (2015) defines at-risk as being in a dangerous situation or exposure to harm. In this study, “at-risk students” refers to students who are likely to experience difficulty in achieving the minimum requirement to pass.



### **1.9.2. Attrition**

Attrition refers to the action of making something smaller or less in amount or size (Oxford Dictionaries, 2015). Jeffreys (2012) refers to attrition as failure to re-enrol at an institution for two or more consecutive academic terms. Therefore, non-completion of a nursing programme due to voluntary or involuntary withdrawal is regarded as attrition. Attrition will be operationalised as non-completion of the undergraduate nursing programme: voluntary or non-voluntary withdrawal from the undergraduate nursing programme.

### **1.9.3. Challenges**

Oxford Dictionaries (2015) defines a challenge as something difficult or an obstacle that requires great effort. In this study, “challenges” refers to obstacles experienced by the nursing students in their attempt to successfully complete an undergraduate nursing degree. It also refers to obstacles experienced by nurse educators in their attempt to ensure satisfactory academic performance and success among undergraduate nursing students.

### **1.9.4. Nurse educator**

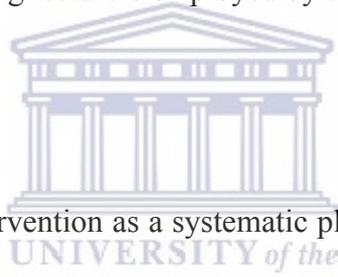
According to the SANC (2014), a nurse educator is a professional nurse with an additional qualification in nursing education and who is registered as such with the SANC. In this study, nurse educator refers to the nursing lecturers employed by the university.

### **1.9.5. Intervention**

Stevenson (2010) defines an intervention as a systematic plan to promote progress in an area where there is a need. In this study, an intervention refers to a systematic plan that will be developed to improve the academic success and retention of students in the undergraduate nursing programme.

### **1.9.6. Learning environment**

Learning environment refers to the diverse physical locations, contexts and cultures in which students learn (Osborne, 2013). In this study, it refers to school resources, the undergraduate nursing curriculum and the physical teaching and learning environment.



### **1.9.7. Performance**

Stevenson (2010) defines performance as “the action or process of carrying out or accomplishing an action, task, or function”. In this study, performance refers to the overall academic performance of undergraduate nursing students in each year of study.

### **1.9.8. Predictors**

Stevenson (2010) defines a predictor as a variable that can be used to estimate the future. For this study, the researcher refers to the predictors of academic performance, success and retention as the independent variables that can forecast the academic performance of nursing students.

### **1.9.9. Programme**

Stevenson (2010) defines a programme as a set of related measures or activities with a particular long-term aim. According to the Nursing Act 33 of 2005, a programme is defined as a “purposeful and structured set of learning experiences which lead to registration as a professional nurse”. For this study, the programme refers to the undergraduate nursing programme which leads to registration as a general nurse, midwife, and community health and psychiatric nurse with the SANC in terms of the Nursing Act 33 of 2005 (SANC R786, 2017). The undergraduate programmes offered by the SoN include the four-year Bachelor of Nursing (BN) and the five-year Bachelor of Nursing Foundation (BNF) programmes.

### **1.9.10. Retention**

Oxford Dictionaries (2015) defines retention as the continued possession of something. For the purpose of this study, retention refers to an institutional measure of the rate at which students

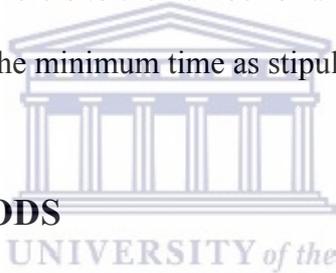
persist in the undergraduate nursing programme. In this study, the associated link between performance and success results in retention of nursing student.

### **1.9.11. Success**

Success can be defined as the accomplishment of an aim or purpose (Stevenson, 2010). For this study, success means that the student obtains the minimum requirements stipulated by the university to proceed to the next level of study or to complete the programme.

### **1.9.12. Throughput rate**

Throughput rate refers to the amount of material or items passing through a system (Stevenson, 2010). For this study, throughput refers to the number of undergraduate nursing students who complete the programme within the minimum time as stipulated by the institution.



## **1.10. RESEARCH METHODS**

A multi-method research approach was adopted for this study (Creswell, 2013). A systematic review, quantitative research approach, qualitative research approach as well as a Delphi study were conducted. Rothman and Thomas's (2013) Design and Development (D&D) model was adapted and the first five phases were used, namely problem analysis and project planning; information gathering and synthesis; design; early development and implementation; and evaluation and advanced development. For this study, the first two phases of D&D are merged to form an adapted phase one, "Problem Analysis and Information Gathering"; the third and fourth phase of D&D Model are merged to form an adapted phase two, "Design and Early Development"; phase three of the current study, the "validation phase", is the evaluation phase in Rothman and Thomas's (2013) D&D model.

### **1.10.1. Problem analysis and information gathering**

The main activities in this phase are systematic review of literature, a cross-sectional survey, focus group discussions with undergraduate nursing students, and individual (one-on-one) interviews with nurse educators.

#### **1.10.1.1. Systematic review of literature**

The systematic review of literature followed the intense process as stated in Fink (2013). A search was carried out using various databases and journals (Science Direct, Escohost, BioMed Central, PubMed, SAGE Journals and the Directory of Open Access Journals) for the period from 2006 to 2016. Textual narrative synthesis was used to synthesise the findings of the review.

#### **1.10.1.2. A cross-sectional descriptive survey**

A quantitative research method with a cross-sectional design was applied. Data was collected by means of a researcher-developed four-point Likert scale questionnaire completed by undergraduate nursing students from the SoN in this study. Data were analysed by means of the Statistical Package for Social Sciences (SPSS-24; IBM) using analysis of variances (ANOVAs), independent-sample T-tests, mean scores, standard deviations and percentages.

#### **1.10.1.3. Focus group discussions**

An in-depth qualitative research approach with an explorative and descriptive design was implemented. The population comprised of all undergraduate nursing students enrolled in a four-year programme or the five-year extended curriculum programme (ECP) at the University of the Western Cape for the 2017 academic year. A stratified random sampling technique was

implemented to select the study participants. Data were analysed by means of thematic analysis (Braun & Clark, 2013) using ATLAS.ti for Mac version 1.6.

#### **1.10.1.4. Individual (one-on-one) interviews**

An in-depth qualitative research approach with an exploratory and descriptive design was applied. The population included all nurse educators involved in the undergraduate nursing programme (four-year programme and the five-year ECP) at the University of the Western Cape. A stratified purposive sampling technique was used to recruit nurse educators to participate in the study. Data were analysed by means of thematic analysis (Braun & Clark, 2013) using ATLAS.ti for Mac version 1.6.

#### **1.10.2. Design and early development**

The design objective of this study was to create interventions towards improving the academic performance and success of nursing students. The main activities of this phase included designing observational elements and specifying procedural elements. These activities are discussed in depth in chapter three.

#### **1.10.3. Validation phase**

The main activity in this phase involved a Delphi process aimed at refining and validating the proposed interventions. A quantitative, non-experimental, three-round Delphi process was implemented. Data were collected by means of a researcher-developed five-point Likert scale questionnaire. A purposive sampling method was used to select participants who are experts in nursing and in education of nurses. Quantitative data were analysed by means of descriptive statistical analysis using IBM SPSS-24. Qualitative responses were analysed using the six steps of thematic analysis as identified by Braun and Clarke (2013).

## **1.11. OUTLINE OF THE STUDY**

The dissertation was completed using manuscripts, and comprises nine chapters. Of these, five (chapters four to eight) represent the five journal articles which address the five objectives of the dissertation. For this reason, it is to be expected that there will be some overlap of the literature in the chapters presented as articles. A brief outline of how the chapters are presented follows below.

### **1.11.1. Chapter one**

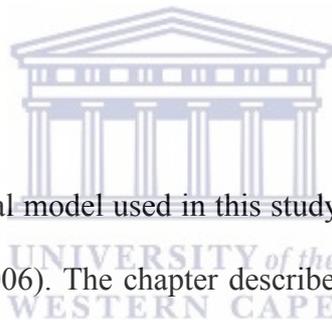
This chapter introduces the research problem and describes the background, significance, aims, research questions and objectives of the study. A description of the key research variables are introduced, namely academic performance, success, retention and attrition of nursing students.

### **1.11.2. Chapter two**

Chapter two presents a conceptual model used in this study which is based on the conceptual model by Perna and Thomas (2006). The chapter describes the typical characteristics of the model as well as the layers of the conceptual model.

### **1.11.3. Chapter three**

This chapter introduces the multi-method approach that was used for this study as well as the process that was followed in different phases of the study. The purpose of this chapter is to provide the reader with a complete and detailed understanding of the steps followed in various chapters that were published in article format.



#### **1.11.4. Chapter Four (Study 1)**

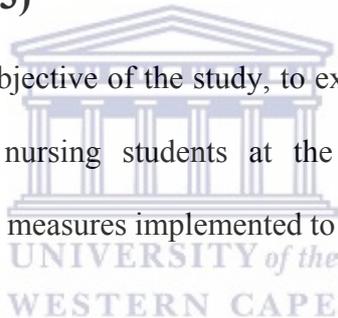
Chapter four presents a systematic review conducted to address the first objective of the study, namely to determine the predictors of academic performance, success and retention among undergraduate nursing students, and is presented as the first article.

#### **1.11.5. Chapter Five (Study 2)**

This chapter addresses the second objective of the study, to explore the undergraduate nursing students' perceptions of their educational environment at the school of nursing (SoN) selected for this study, and is presented as the second article.

#### **1.11.6. Chapter Six (Study 3)**

Chapter six addresses the third objective of the study, to explore and describe the challenges experienced by undergraduate nursing students at the SoN regarding their academic performance and success, and the measures implemented to overcome these challenges, and is presented as the third article.



#### **1.11.7. Chapter Seven (Study 4)**

This chapter addresses the fourth objective of the study, to explore and describe the challenges experienced by nurse educators at the selected SoN regarding academic performance and success among undergraduate nursing students, and the measures they put in place to overcome these challenges, and is presented as the fourth article.

#### **1.11.8. Chapter Eight (Study 5)**

Chapter eight addresses the fifth objective of the study, to validate interventions towards

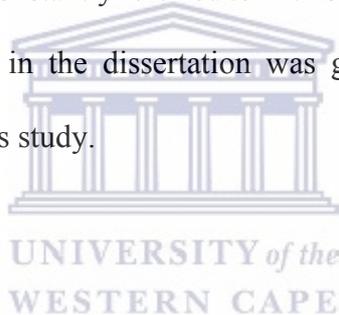
improving the academic performance, success and retention among undergraduate nursing students, and is presented as the fifth article.

### **1.11.9. Chapter nine**

Chapter nine presents the overall summary of findings, conclusion and recommendations for future studies.

## **1.12. SUMMARY**

In chapter one, the researcher provided a brief description of the study with specific reference to its significance and the problem statement, aims, objectives, research questions and research methodology applied. Concepts constantly referred to in this study were clarified. Furthermore, an outline of the nine chapters in the dissertation was given. Chapter two describes the theoretical framework used in this study.



## **1.13. REFERENCES**

Adeoye, M.O., & Popoola, S.O. (2011). Teaching effectiveness, availability, accessibility, and use of library and information resources among teaching staff of schools of nursing in Osun and Oyo State, Nigeria. *Library Philosophy and Practice* (e-journal). Paper 525. Available from <http://digitalcommons.unl.edu/libphilprac/525>.

Alden, K.R. (2008). *Predictors of early academic success and program completion among baccalaureate nursing students*. ProQuest.

Ali, P.A., & Naylor, P.B. (2010). Association between academic and non-academic variables and academic success of diploma nursing students in Pakistan. *Nurse Education Today*, 30(2): 157–162.

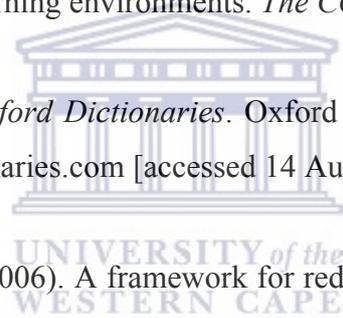
- Badat, S. (2010). The challenges of transformation in higher education and training institutions in South Africa. *Development Bank of Southern Africa*, 8.
- Baker, S.L., Fitzpatrick, J.J., & Griffin, M.Q. (2011). Empowerment and job satisfaction in associate degree nurse educators. *Nursing Education Perspectives*, 32(4): 234–239.
- Barbatis, P. (2010). Underprepared, ethnically diverse community college students: factors contributing to persistence. *Journal of Developmental Education*, 33(3): 16.
- Beacham, T., Askew, R.W., & Williams, P.R. (2009). Strategies to increase racial/ethnic student participation in the nursing profession. *The ABNF Journal*, 20: 69–72.
- Bednarz, H., Schim, S., & Doorenbos, A. (2010). Cultural diversity in nursing education: Perils, pitfalls, and pearls. *Journal of Nursing Education*, 49(5): 253–260.
- Bittner, N.P., & O'Connor, M. (2012). Focus on retention: Identifying barriers to nurse faculty satisfaction. *Nursing Education Perspectives*, 33(4): 251–254.
- Botma, Y., Jeggels, J., & Uys, L. (2014). Preparation of clinical preceptors. *Trends in Nursing*, 1(1): 67–78.
- Braun, V., & Clarke, V. (2013). *Successful qualitative research: A practical guide for beginners*. sage.
- Braxton, J.M., Hirschy, A.S., & McClendon, S.A. (2011). *Understanding and reducing college student departure: ASHE-ERIC higher education report, volume 30, number 3* (Vol. 16). John Wiley & Sons.
- Brown, J.F. (2008). Developing an English-as-a-second-language program for foreign-born nursing students at an historically black university in the United States. *Journal of Transcultural Nursing*, 19(2): 184–191.
- Bruce, J. C., Klopper, H. C., & Mellish, J. M. (2017). *Teaching and learning the practice of nursing*. (6th ed.). Cape Town: Butterworth Heinemann.

- Buerhaus, P.I., Auerbach, D.I., & Staiger, D.O. (2009). The recent surge in nurse employment: Causes and implications. *Health Affairs*, 28(4): w657–w668.
- Council on Higher Education (CHE). (2010). *Higher Education Monitor. Access and throughput in South African Higher Education: Three case studies*. Pretoria: Council on Higher Education.
- Council on Higher Education (CHE). (2013). *A proposal for undergraduate curriculum reform in South Africa. The case study for a flexible curriculum structure*. Pretoria: Council on Higher Education.
- Creswell, J.W. (2013). *Research design: Qualitative, quantitative, and mixed methods approaches*. SAGE Publications.
- Del Prato, D., Bankert, E., Grust, P., & Joseph, J. (2011). Transforming nursing education: a review of stressors and strategies that support students' professional socialization. *Advances in Medical Education and Practice*, 2, 109.
- Everett, B., Salamonson, Y., Trajkovski, S., & Fernandez, R. (2013). Demographic and academic-related differences between standard-entry and graduate-entry nursing students: A prospective correlational survey. *Nurse Education Today*, 33(7): 709–713.
- Fernandez, R., Salamonson, Y., & Griffiths, R. (2012). Emotional intelligence as a predictor of academic performance in first-year accelerated graduate entry nursing students. *Journal of Clinical Nursing*, 21(23-24): 3485–3492.
- Fink, A. (2013). *Conducting research literature reviews: From the Internet to paper*. SAGE Publications.
- Goff, A. M. (2011). Stressors, academic performance, and learned resourcefulness in baccalaureate nursing students. *International Journal of Nursing Education Scholarship*, 8(1).

- Grove, S.K., Burns, N., & Gray, J.R. (2014). *Understanding nursing research: Building an evidence-based practice*. Elsevier Health Sciences.
- Gui, L., Barriball, K.L., & While, A.E. (2009). Job satisfaction of nurse teachers: A literature review. Part I: Measurement, levels and components. *Nurse Education Today*, 29(5): 469–476.
- Harris, R. C., Rosenberg, L., & O'Rourke, M. E. G. (2013). Addressing the challenges of nursing student attrition. *Journal of Nursing Education*, 53(1), 31-37.
- Harvey, A., & Kamvounias, P. (2008). Bridging the implementation gap: A teacher-as-learner approach to teaching and learning policy. *Higher Education Research & Development*, 27(1): 31–41.
- Jimenez, C., Navia-Osorio, P.M., & Diaz, C.V. (2010). Stress and health in novice and experienced nursing students. *Journal of Advanced Nursing*, 66(2): 442–455.
- Jeptha, I.D. (2008). Throughput rate of nursing students in the Faculty of Health and Wellness Sciences at a university of technology (Masters dissertation).
- Jeffreys, M.R. (2012). *Nursing student retention: Understanding the process and making a difference*. Springer Publishing Company.
- Jeffreys, M.R. (2015). Jeffreys's Nursing universal retention and success model: overview and action ideas for optimizing outcomes A–Z.
- Kesewah, F.R. (2012). Investigating the performance of students in colleges of education in the English language (Doctoral dissertation, University of Ghana).
- Koch, J., Salamonson, Y., Rolley, J.X., & Davidson, P. M. (2011). Learning preference as a predictor of academic performance in first year accelerated graduate entry nursing students: a prospective follow-up study. *Nurse Education Today*, 31(6): 611–616.

- LoBiondo-Wood, G., & Haber, J. (2014). Reliability and validity. In *Nursing research – e-book: Methods and critical appraisal for evidence-based practice*. Missouri: Elsevier Mosby. pp. 289–309.
- McLaughlin, K., Moutray, M., & Muldoon, O.T. (2008). The role of personality and self-efficacy in the selection and retention of successful nursing students: a longitudinal study. *Journal of Advanced Nursing*, 61(2): 211–221.
- McEwen, M., & Wills, E.M. (2017). *Theoretical basis for nursing*. Lippincott Williams & Wilkins.
- McLachlan, M.E. (2010). Experiences influencing the academic performances of 1st year nursing students at the Western Cape College of Nursing, South Africa, during 2008 (Masters dissertation, University of the Western Cape).
- Megginson, L.A. (2008). RN-BSN education: 21st century barriers and incentives. *Journal of Nursing Management*, 16(1): 47–55.
- Meyer, S.M., & Van Niekerk, S.E. (2008). *Nurse educator in practice*. Juta and Company Ltd.
- Mthimunye, K.D., & Daniels, F.M. (2017). Performance in grade 12 mathematics and science predicts student nurses' performance in first year science modules at a university in the Western Cape. *Curationis*, 40(1): 1–6.
- Mthimunye, K.D.T., Daniels, F.M., & Pedro, A. (2018). Predictors of academic performance among second-year nursing students at a university in the Western Cape. *South African Journal of Higher Education*, 32(1): 192–215.
- Newton, S.E., & Moore, G. (2009). Use of aptitude to understand Bachelor of Science in nursing student attrition and readiness for the National Council Licensure Examination-Registered Nurse. *Journal of Professional Nursing*, 25(5): 273–278.

- Norman, G. (2009). When will learning style go out of style? *Advances in Health and Science Education, 14*: 1–4.
- Umalusi. (2013). NSC pass requirements. A discussion document for Umalusi on the NSC pass mark, in Umalusi [database online]. Available from <http://www.umalusi.org.za/>.
- Nursing Act. Act 33 of 2005. The South African Nursing Council. Government Printers. Available from <http://www.sanc.co.za/pdf/Nursing%20Act%202005.PDF> [Accessed 30 June 2017].
- Oducado, R.M.F., & Penuela, A.C. (2014). Predictors of academic performance in professional nursing courses in a private nursing school in Kalibo, Aklan, Philippines. *Asia Pacific Journal of Education, Arts, and Sciences, 1*(5): 21–28.
- Osborne, M. (2013). Modern learning environments. *The CORE education blog*.
- Oxford Dictionaries. (2015). *Oxford Dictionaries*. Oxford University Press. Available from <http://www.oxforddictionaries.com> [accessed 14 August 2018].
- Perna, L. W., & Thomas, S.L. (2006). A framework for reducing the college success gap and promoting success for all.
- Peterson, V.M. (2009). Predictors of academic success in first semester baccalaureate nursing students. *Social Behavior and Personality: an international journal, 37*(3): 411–417.
- Pitt, V., Powis, D., Levett-Jones, T., & Hunter, S. (2014). The influence of personal qualities on performance and progression in a pre-registration nursing programme. *Nurse education today, 34*(5), 866-871.
- Por, J., Barriball, L., Fitzpatrick, J., & Roberts, J. (2011). Emotional intelligence: Its relationship to stress, coping, well-being and professional performance in nursing students. *Nurse Education Today, 31*(8): 855–860.



- Pulido-Martos, M., Augusto-Landa, J.M., & Lopez-Zafra, E. (2012). Sources of stress in nursing students: a systematic review of quantitative studies. *International Nursing Review*, 59(1): 15–25.
- Robinson, E., & Niemer, L. (2010). A peer mentor tutor program for academic success in nursing. *Nursing education perspectives*, 31(5): 286–289.
- Rogers, T.L. (2010). Prescription for success in an associate degree nursing program. *Journal of Nursing Education*, 49(2): 96–100.
- Rothman, J., & Thomas, E. J. (2013). *Intervention research: Design and development for human service*. Routledge.
- Salamonson, Y., Andrew, S., & Everett, B. (2009). Academic engagement and disengagement as predictors of performance in pathophysiology among nursing students. *Contemporary Nurse: A Journal for the Australian Nursing Profession*, 32(1-2):123–132.
- Solidarity. (2009). Nursing shortage in South Africa. Available from [www.solidariteitinstituut.co.za/docs/Addendum%205.1\\_reg.pdf](http://www.solidariteitinstituut.co.za/docs/Addendum%205.1_reg.pdf) [Accessed 30 June 2016].
- South African Nursing Council (SANC). (2014). (Under the provisions of Nursing Act, 2005). *Competencies for a nurse educator*. Pretoria.
- Stevenson, A. (2010). *Oxford dictionary of English*. Oxford University Press, USA.
- Swart, R. (2013). Student success at UWC. Thinktank on student success: Towards redrafting student admission and selection criteria for 2015. UWC, 26 August 2013.
- Tashakkori, A., & Teddlie, C. (2010). *SAGE handbook of mixed methods in social & behavioral research*. SAGE Publications.

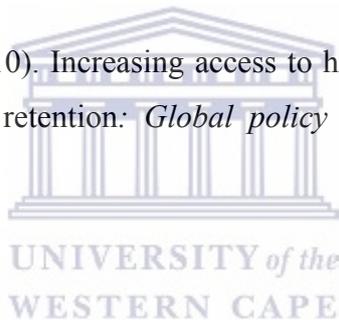
Thomas, E.J., & Rothman, J. (1994). An integrative perspective on intervention research. In *Intervention research: Design and development for human service*. pp. 3–24.

University of the Western Cape (2017). Admission requirements. Available from <http://prospectus.uwc.ac.za/educate/admissions-requirements/> [Accessed 16 February 2017].

Wangenge-Ouma, G., & Cloete, N. (2008). Financing higher education in South Africa: Public funding, non-government revenue and tuition fees. *South African Journal of Higher Education*, 22(4): 906–919.

Wong, S.T., Seago, J.A., Keane, D., & Grumbach, K. (2008). College Students' Perceptions of Their Experiences: What Do Minority Students Think?. *Journal of Nursing Education*, 47(4): 190–195.

World Health Organization. (2010). Increasing access to health workers in remote and rural areas through improved retention: *Global policy recommendations*. World Health Organization.

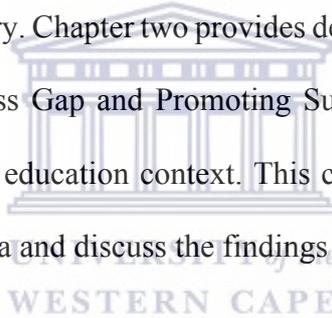


## CHAPTER 2

### CONCEPTUAL FRAMEWORK

#### 2.1. INTRODUCTION

The first chapter provided a broad understanding of various factors that are in constant interaction and have an influence on the academic performance, success and retention of nursing students. These factors include student profile characteristics, student affective factors, academic factors, environmental factors, professional integration factors, academic outcomes, psychological outcomes, and outside surrounding factors. Understanding the challenges associated with the academic performance of nursing students is not sufficient, however, if not grounded within a particular theory. Chapter two provides detailed insight into the “Framework for Reducing the College Success Gap and Promoting Success for All” (Perna & Thomas, 2006), as adapted to the nursing education context. This conceptual framework was used to guide data collection, analyse data and discuss the findings of this study.



#### 2.2. CONCEPTUAL FRAMEWORK

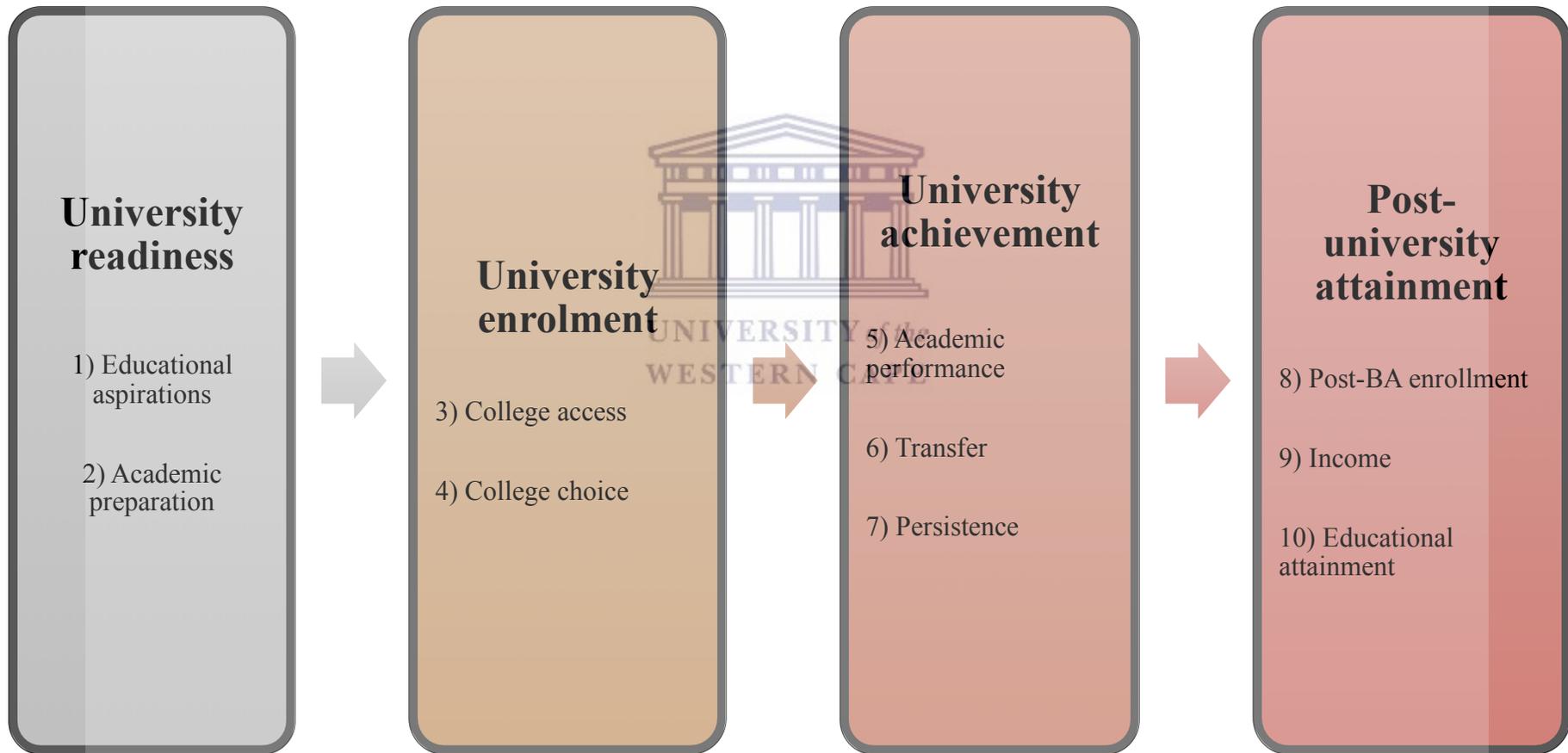
Research on nursing students’ success is characterised by a variety of theoretical and conceptual methodologies. Each methodology offers understanding of the systems and influences that contribute to nursing students’ success. However, these varying methodologies can be used together to gain a more widespread understanding, allowing policymakers and academics to develop intervention strategies to enhance nursing students’ success. The conceptual model used in the current study is based on that developed by Perna and Thomas (2006). The model’s fundamental aim is to develop an understanding of student success and identify ways to reduce gaps in success across income, class and racial/ethnic groups.

Therefore, this model is relevant to the current study, which aims to develop an intervention towards the improvement of academic performance, success and retention among undergraduate nursing students at a university in the Western Cape, South Africa. Furthermore, this model was selected because the university and school of nursing used in this study is diverse and admits students from different socio-economic and racial backgrounds (University of the Western Cape, n.d.).

### **2.2.1. Definition of student success**

The framework for reducing the college success gap and promoting success for all is based on a review and synthesis of Perna's (2006) conceptual model of research on college access and choice. The model is universal, as it can be employed to comprehend any of the ten indicators of student success. Perna and Thomas (2006) expressed student success as accomplishment of ten indicators of educational achievement, characterised by four fundamental transitions (indicated in figure 2.1) in a longitudinal student success process which includes: (1) university readiness, (2) university enrolment, (3) university achievement, and (4) post-university attainment.

The first fundamental transition, university readiness, is measured by two indicators of academic success, namely educational aspirations and academic preparedness for university. The second transition, becoming enrolled in university, is measured by university access and university choice. The third transition, university achievement, is measured by academic performance in university, transfer among institutions, and persistence to programme or degree completion. The final transition, post-university attainment, is represented by enrolment in graduate and professional schools, income, and educational attainment.



**Figure 2.1. Key transitions and indicators of student success**

SOURCE: Perna and Thomas (2006)

### **2.2.2. Characteristics of the proposed conceptual model of student success**

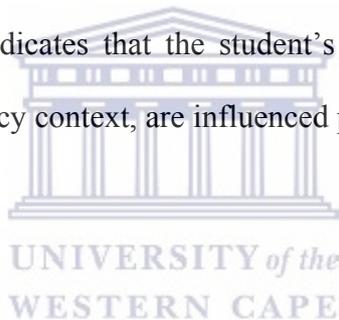
Perna and Thomas (2006) conducted a literature review on the findings of researchers in four key disciplines (economics, education, psychology and sociology), from which six conclusions were drawn, namely: “(1) attention to student success in articles published in top journals varies across the disciplines; (2) even within disciplines, differing aspects of student success are examined; (3) a wide variety of theoretical approaches to understanding student success exist and these vary by disciplinary perspective; (4) methodological approaches and sources of data for exploring student success also vary and are bound to the theoretical stance employed; (5) the unit of analysis varies by disciplinary and theoretical approach; and (6) attention to differences in student success across sub-groups of students varies.”

The model assumes that the ten indicators discussed above are interconnected and form part of the larger student success process. Drawing from the above conclusions and indicators of success, the selected conceptual model postulates six defining characteristics: three deal with the process of student success and the remaining three deal with how student success is studied. The characteristics are: (1) student success is a longitudinal process, (2) multiple theoretical approaches inform understanding of student success, (3) student success is shaped by multiple levels of context, (4) the relative contribution of different disciplinary and area perspectives to student success varies, (5) multiple methodological approaches contribute to the knowledge of student success, and (6) student success processes vary across groups. However, it was not within the scope of this study to test the entire conceptual framework. The researcher instead focused on the third characteristic, “student success is shaped by multiple levels of context”. The levels of context as described in the conceptual model were adapted and elaborated on by creating associations with recent literature in the field of nursing education to create a more simplified understanding of how different layers of context influence the academic

performance and success of nursing students at a university in the Western Cape. A brief description of the six characteristics of the student success model is provided below.

#### **2.2.2.1. Student success is a longitudinal process**

The conceptual model assumes that a student's academic success is a longitudinal process that commences with university readiness, followed by university enrolment, then university achievement, and concludes with post-university attainment (figure 2.1). The longitudinal description of the student success process is indicated by the use of the feedback loop in figure 2.2. According to Perna and Thomas (2006), "the feedback loop (from the student success back to the various layers of context) indicates that information about attainment of any of the indicators (in figure 2.1) shapes the process for attaining other indicators of student success". Therefore, the feedback loop indicates that the student's internal context, family context, school context as well as the policy context, are influenced partly by the achievement of other indicators of student success.



#### **2.2.2.2. Multiple theoretical approaches inform understanding of student success**

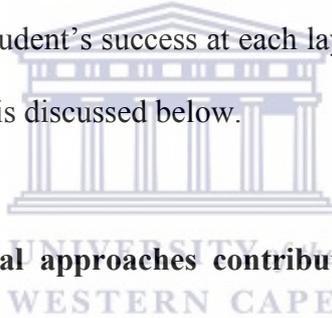
Literature reveals a range of theoretical perspectives that have been used previously to provide insight into student success and indicators (Kuh, Kinzie, Buckley, Bridges & Hayek, 2011; Hurtado, Alvarez, Guillermo-Wann, Cuellar & Arellano, 2012; Jeffreys, 2015). This model recognises that student success is best comprehended when multiple theoretical perspectives are taken into account. Kuh et al. (2011) emphasise the benefits of reflecting on multiple theoretical perspectives to study student success. In addition, Perna (2006) concludes that no one perspective is adequate for understanding student success.

### **2.2.2.3. Student success is shaped by multiple levels of context**

The model assumes that student success is determined by an individual's internal context and multiple external layers of context (figure 2.2). It assumes that students' academic success cannot be comprehended without considering that student success is shaped by four contextual layers: (1) the individual's internal context, (2) the family context, (3) the school context, and (4) the social, economic, and policy context.

### **2.2.2.4. The relative contribution of different disciplinary and area perspectives to student success varies**

The conceptual model assumes that there are various contributions from different disciplinary perspectives that shape the current knowledge of a student as well as the understanding of the particular forces that shape the student's success at each layer of context. The contribution of various factors to the four layers is discussed below.



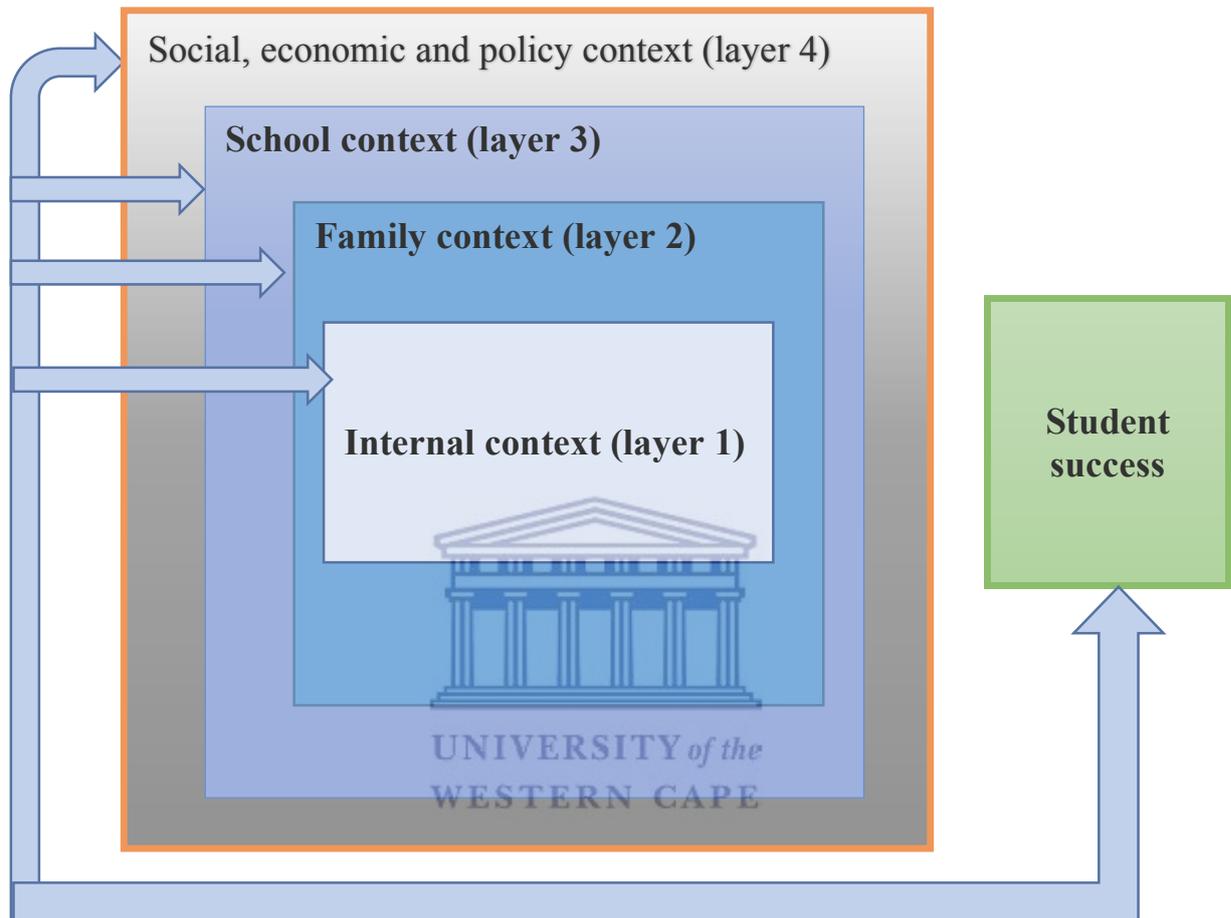
### **2.2.2.5. Multiple methodological approaches contribute to the knowledge of student success**

The model recognises the benefits of diverse methodological approaches and data sources, and is intended to be tested using multiple methods. It allows for qualitative approaches that probe particular aspects of student success predictors, processes, or indicators, as well as quantitative examinations of relationships among variables within or across particular layers of context.

### **2.2.2.6. Student success processes vary across groups**

By recognising the role of multiple layers of context, the proposed conceptual model assumes that the path to student success may vary across racial/ethnic, socioeconomic, and other groups based on differences in culture, family resources, local school and community structures and

supports, economic and social conditions, and public policies (Everett, Salamonson, Trajkovski & Fernandez, 2013; Salamonson, Everett, Cooper, Lombardo, Weaver & Davidson, 2014).



**Figure 2.2. Conceptual model of student success**

SOURCE: Adapted from Perna and Thomas (2006)

### **2.3. LAYERS OF THE CONCEPTUAL MODEL**

Drawing from literature, Perna and Thomas (2006) demonstrate a range of factors that policymakers, practitioners and researchers ought to consider in the development, implementation and evaluation of policy, and in further research. In the current study, the researcher elaborated more on some of the common indicators that contribute towards nursing

students' success within all layers (Jeffreys, 2015). However, a detailed influence and predictive validity of individual indicators of nursing students' academic performance and success is provided in a systematic review that is presented in chapter four (article 1 of the study).

### **2.3.1. Layer 1 – Internal context**

According to Perna and Thomas's (2006) success model, student success is determined by the attitude, experiences and behaviours of individual students. Layer 1 of the model gives attention to the cognitive and motivational aspects that shape an individual's behaviours. In this study, internal context was clustered in three main categories: (1) student profile, (2) academic factors and (3) psychological and emotional factors.

#### **2.3.1.1. Student profile**

The changing student profile in the classroom includes the traditional university-age students, first-time adult students and second-degree students (Hallmark, Thomas & Gantt, 2014). Jeffreys (2015) described student profile characteristics as “characteristics prior to beginning a nursing course”. According to Jeffreys (2015), these characteristics include but are not limited to the following: “age; ethnicity, race, and heritage; gender and sexual identity; first language; prior educational experience; prior work experience; and enrolment status”. Previous studies such as those conducted by Ali and Naylor (2010), Everett et al. (2013), Salamonson et al. (2014) and Mthimunye, Daniels and Pedro (2018) identified age, gender, ethnicity, first language, socio-economic status, motivation, self-efficacy, coping skills and resilience as some of the most significant determinants of academic performance and success among nursing students. The main idea of this category is to identify a nursing student's profile characteristics prior to entering the undergraduate programme. For example, Jeffreys (2012) identifies nursing

students that meet one more of the following criteria as non-traditional nursing students: “a) 25 years or older; b) commuter; c) enrolled part-time; d) male; e) member of an ethnic, racial, religious, national, or other minority group currently or historically experiencing marginalized treatment (or classified as under-represented groups within the country of residence and/or school of nursing); f) speaks the national language taught in school as a second or other language; g) has dependent children; h) completed secondary education via a different route than usual within the country of nursing programme education and i) required remedial classes”. This may be helpful in early identification of students that may be at risk of unsatisfactory academic performance.

#### **2.3.1.2. Academic factors**

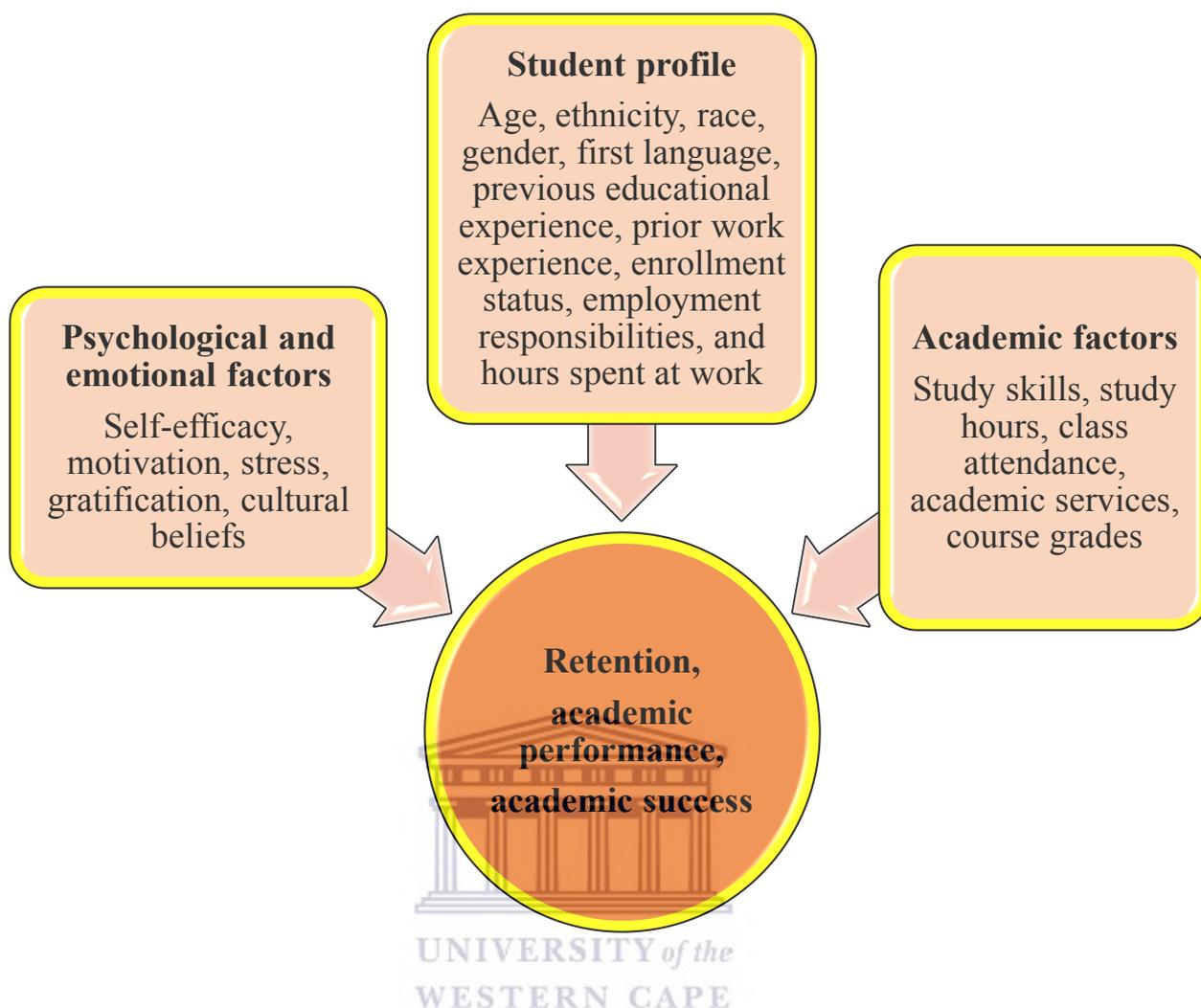
According to Jeffreys (2015), academic factors include personal study skills, study hours, attendance, class schedule and general academic services. Personal study skills refer to “skills such as reading, writing, note-taking, searching literature, preparing papers, studying for exams, listening, communicating, critical-thinking, creative thinking, and clinical decision-making/clinical judgment” (Jeffreys, 2015). Literature review revealed that limited study hours, inadequate study skills and poor attendance has a negative influence on the academic performance and success of nursing students (Salamonson, Andrew & Everett, 2009; Koch, Salamonson, Rolley & Davidson, 2011). Furthermore, academic factors such as high school grades, high school rigor, aptitude exams and university entrance tests have shown to be highly significant in determining student success in nursing programmes (Alden, 2008; Jeffreys, 2015; Mthimunye, Daniels & Pedro, 2018).

### **2.3.1.3. Psychological and emotional factors**

Positive psychological and emotional factors include self-efficacy, motivation, low or manageable levels of stress, gratification and cultural beliefs, while negative psychological and emotional factors include dissatisfaction (Clark & Springer, 2010; Fernandez, Salamonson & Griffiths, 2012; Jeffreys, 2015; Clements, Kinman, Leggetter, Teoh & Guppy, 2016). It is important to note that “all students who begin a course will pass, fail, or withdraw, all students will experience some degree of stress; however not all students may experience satisfaction” (Jeffreys, 2012). Thus, it is important for those involved in the education of nurses to encourage a positive perception by nursing students with regard to all aspects of their training.

The conceptual model (figure 2.3) illustrates the relationships between the above-mentioned categories and the academic performance and success of nursing students.





**Figure 2.3: Conceptual model: Internal context**

### **2.3.2. Layer 2 – Family context**

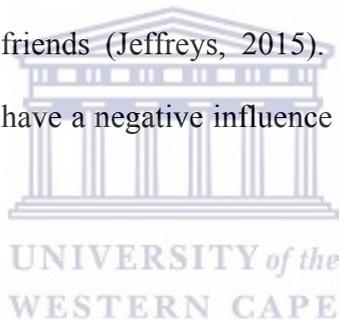
The family context acknowledges that both family and friends can contribute towards a student’s cognitive experiences and promote various indicators of student success (Perna & Thomas, 2006). For this study, the family context was represented by three main categories: (1) family background, (2) family psychology and (3) family economics. Figure 2.4 illustrates the relationship between family context and the academic performance, retention and ultimate success of nursing students.

### **2.3.2.1. Family background**

Family background is one of the most important external factors that may have an impact on the academic performance and success of nursing students (Jeffreys, 2012, 2015). Family background includes racial background, ethnicity, cultural background, immigrant status, family's educational background and childcare arrangements. Literature review reveals that students of minority race/ethnicity or those with international status are more likely to perform unsatisfactorily in the nursing programme (Timer & Clauson, 2011).

### **2.3.2.2. Family psychology**

Family psychology plays a role in the academic performance and success of nursing students. It includes strength of ties to parents, parenting style, family emotional support, family crisis and encouragement by outside friends (Jeffreys, 2015). For example, insufficient family support and encouragement may have a negative influence on the academic performance and success of nursing students.



### **2.3.2.3. Family economics**

Likewise, family economics may negatively or positively influence the academic performance and success of nursing students. It includes family financial status, family financial support, socio-economic status, parents' job security, living arrangements and transportation (Jeffreys, 2012, 2015). For example, loss of income by a breadwinner in the family may have an influence on the success of nursing students. In addition, Okioga (2013) argues that middle-class parents assume a more active role in their children's education and development by involving them in controlled activities and encouraging them, while lower-class parents are passive, resulting in their children having a sense of limitation.

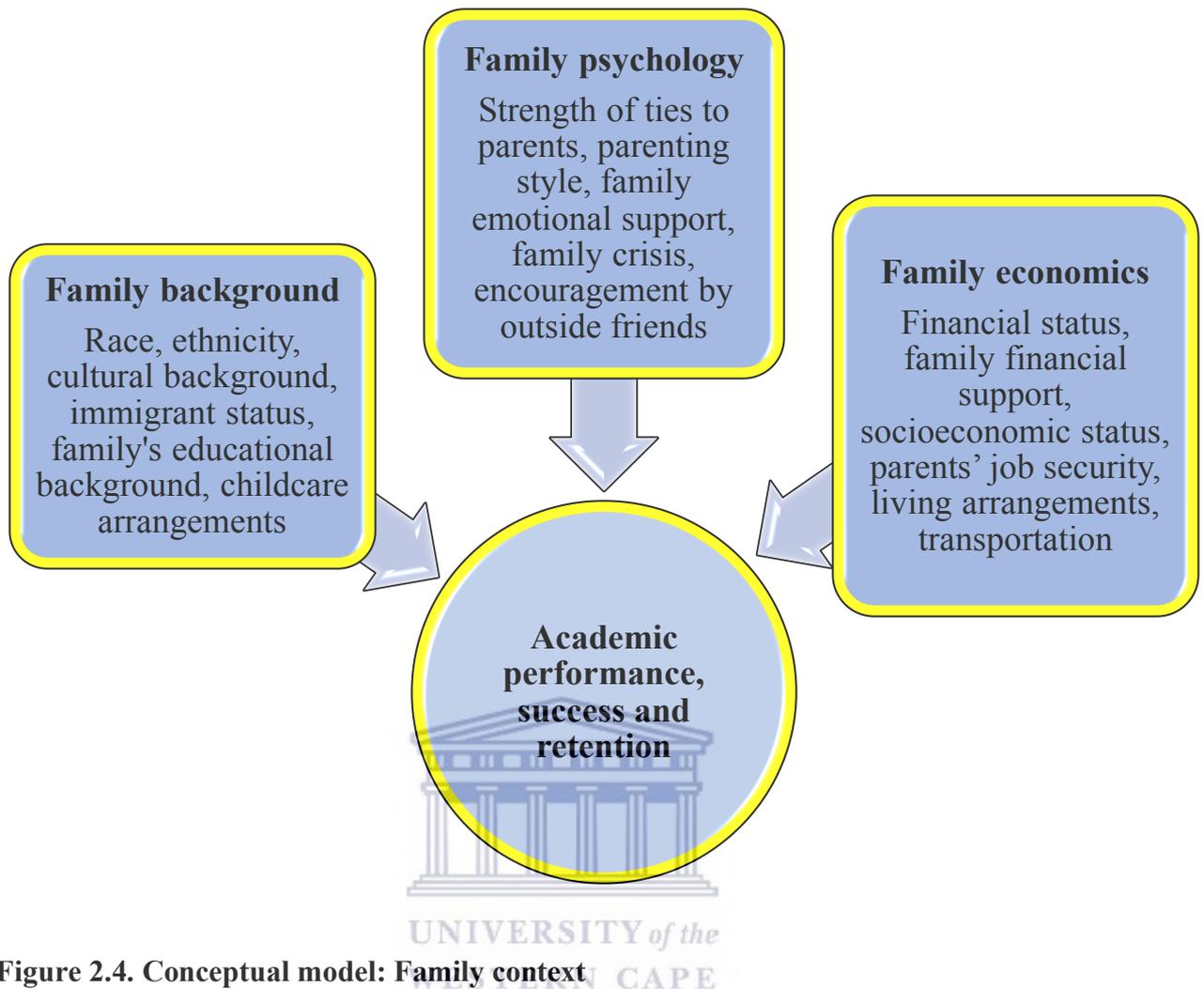


Figure 2.4. Conceptual model: Family context

### 2.3.3. Layer 3 – School context

This view enables the identification and understanding of compounding effects associated with educational resources, academic preparation and educational orientations that are necessary for success at the university level. For the current study, the school context was adapted to address three categories that have an impact on the indicators of success (figure 2.5): (1) school background, (2) professional integration and (3) teaching and learning environment.

### **2.3.3.1 School background**

Educational research demonstrates that some measures of student success are associated with the characteristics of the higher education institution (Perna & Thomas, 2006). These characteristics may include the history of the institution, and being a minority or non-minority student. The review of literature indicates that success varies based on whether a student attends a historically Black college or university or a predominantly White institution, with Black students having more positive experiences at historically Black colleges or universities than at predominantly White institutions (Hausmann, Ye, Schofield & Woods, 2009; Harper, Davis, Jones, McGowan, Ingram & Platt, 2011).

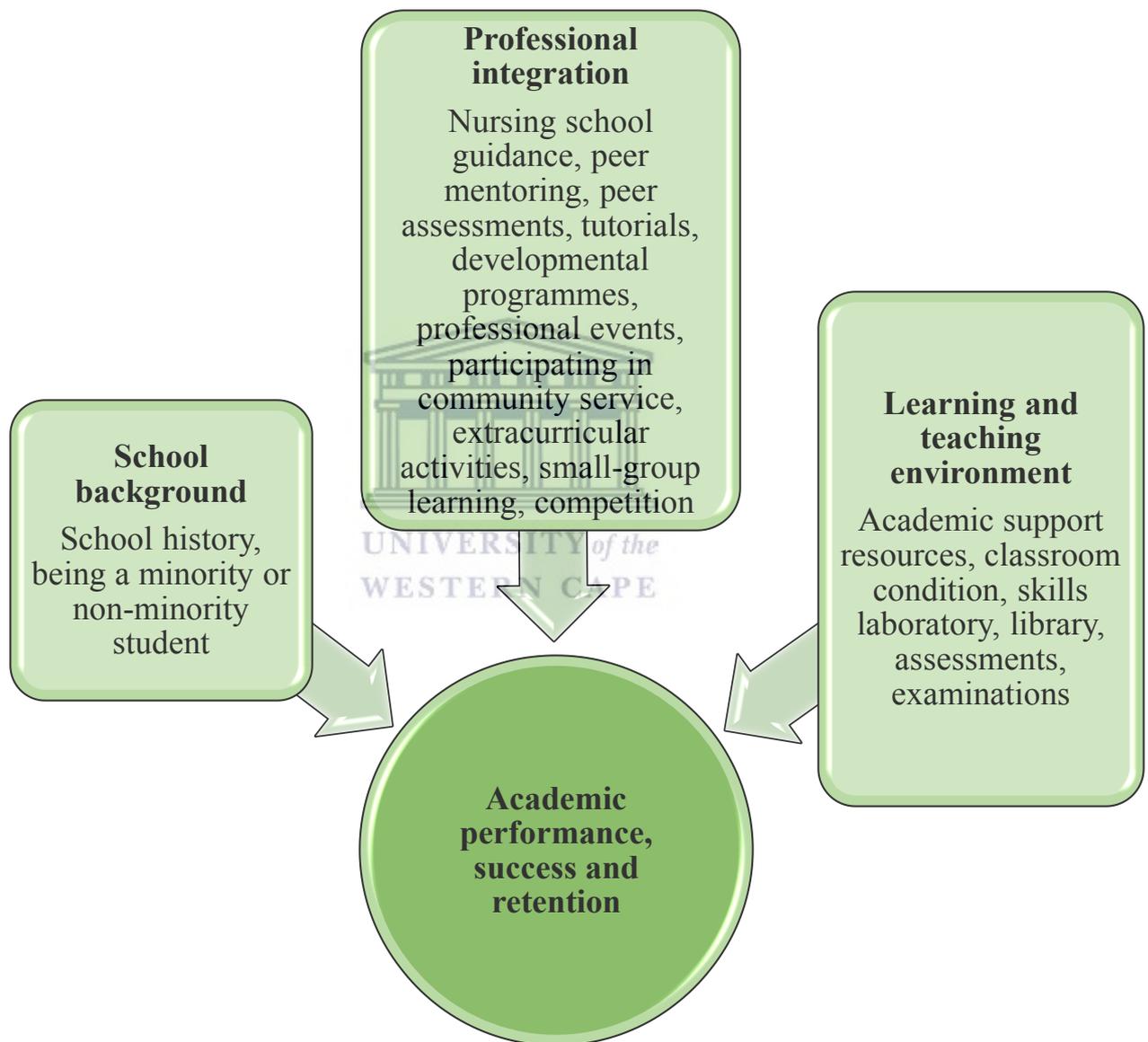
### **2.3.3.2. Professional integration**

Jeffreys (2015) defined professional integration factors as “factors that enhance students’ interaction with the social system of the university environment within the context of professional socialization and career development”. These include school of nursing guidance, professional events, affiliations with professional bodies, reassurance by classmates, peer mentoring and tutoring, and enrichment programmes. There is a strong relationship between academic success and professional integration. According to Jeffreys (2015), the absence of professional integration increases the probability of attrition and drop-outs, while robust professional integration increases academic success, retention and professional commitment.

### **2.3.3.3. Teaching and learning environment**

The literature reveals that education environments have an impact on students’ levels of success, achievement, contentment and motivation (Arzuman, Yusoff & Chit 2010). Arzuman, Yusoff and Chit (2010) and Al Ayed and Sheik (2008) report that education environment domains correlate positively with the academic success and ultimate retention of students. The

educational environment in nursing comprises both practical and theoretical learning settings (Billings & Halstead, 2015). The teaching and learning environment includes but is not limited to the following: academic support resources, classroom condition, skills laboratory, library, assessments and examinations.



**Figure 2.5. Conceptual model: School context**

### **2.3.4. Layer 4 – Social, economic and policy context**

The social, economic and policy context acknowledges that various external factors also have an impact on student academic performance and success, both directly and indirectly through other layers of context (Perna, 2006). These factors are beyond manipulation by the student or nurse educator. For this study, layer 4 was adapted and was represented by three key categories illustrated in figure 2.6: (1) social conditions, (2) economic conditions and (3) public policies.

#### **2.3.4.1. Social conditions**

Sociological conditions at layer 4 put more emphasis on the structural forces behind larger social conditions that may be related to higher education (Perna & Thomas, 2006). These conditions include societal inequities, societal norms, student demographics, racial/ethnic stratification, gender segregation and persistent gender bias (Perna, 2006; Perna & Thomas, 2006). For example, the nursing profession is traditionally a female profession; thus, gender bias and societal norms that still exist may influence the academic success of male nursing students (Victor, Ishtiaq & Parveen, 2016).

#### **2.3.4.2. Economic conditions**

Holley and Gardner (2012) addressed how education-related debt impacts on students' employment decisions and educational achievements. Supply and demand are central topics with regard to this layer. According to Perna and Thomas (2006), "supply and demand issues related to regulation and state appropriations for higher education present challenges for state struggles to maintain enrolment levels". In addition, Neill (2009) and Dearden, Fitzsimons and Wyness (2011) argue that demand predictably declines as university fees increase. Review of the literature revealed the influence of public financing and financial aid on the academic

performance of university students (Quadri & Kalyankar, 2010; Allen, Robbins, Casillas & Oh, 2008).

#### 2.3.4.3. Public policies

Likewise, public policies play an influential role in the academic success of university students (Perna & Thomas, 2006). These include politics, state aid policies, state public policies, health care systems and nursing professional issues (Jeffreys, 2012, 2015; Perna & Thomas, 2006).

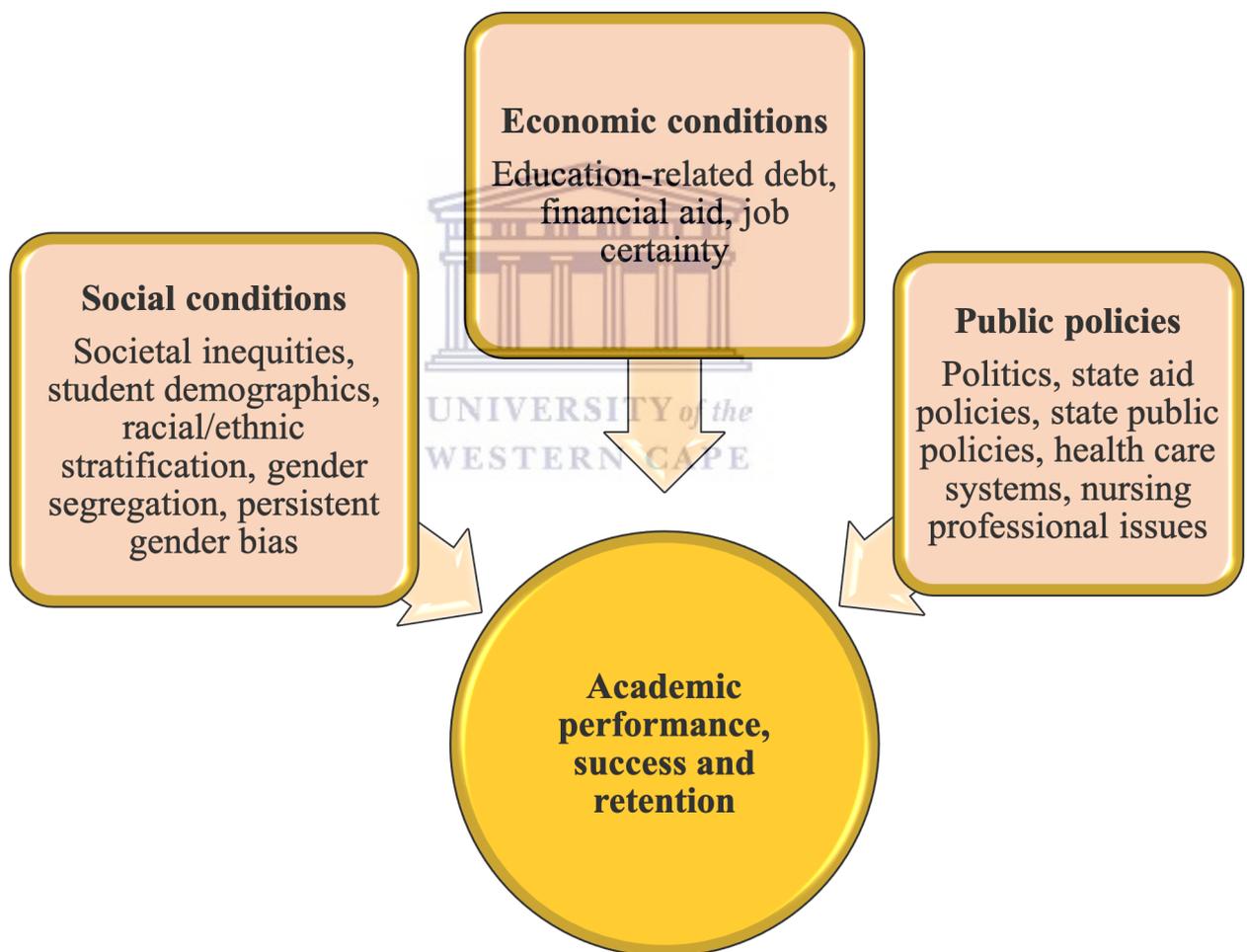


Figure 2.6. Conceptual model: Social, economic and policy context

**Table 2.1. Alignment of research objectives and questions with Perna and Thomas’s framework**

	Objectives	Research questions	Levels of context according to Perna and Thomas’s framework	
	<ul style="list-style-type: none"> <li>To conduct a systematic review to determine the predictors of academic performance, success and retention among undergraduate nursing students</li> </ul>	<ul style="list-style-type: none"> <li>What are the predictors of academic performance, success and retention among undergraduate nursing students?</li> </ul>	<ul style="list-style-type: none"> <li>Layer 1 – Internal context</li> <li>Layer 2 – Family context</li> <li>Layer 3 – School context</li> <li>Layer 4 – Social, economic and policy context</li> </ul>	
	<ul style="list-style-type: none"> <li>To explore the undergraduate nursing students’ perception of their educational environment at the school of nursing (SoN) selected for this study</li> </ul>	<ul style="list-style-type: none"> <li>What are the perceptions of undergraduate nursing students regarding their educational environment?</li> </ul>	<ul style="list-style-type: none"> <li>Layer 1 – Internal context</li> <li>Layer 3 – School context</li> </ul>	
	<ul style="list-style-type: none"> <li>To explore and describe the challenges experienced by undergraduate nursing students at the identified SoN regarding their academic performance and success and the measures implemented to overcome these challenges</li> </ul>	<ul style="list-style-type: none"> <li>What are the challenges experienced by undergraduate nursing students at the selected SoN regarding their academic performance and success and the measures implemented to overcome these challenges?</li> </ul>	<ul style="list-style-type: none"> <li>Layer 1 – Internal context</li> <li>Layer 2 – Family context</li> <li>Layer 3 – School context</li> <li>Layer 4 – Social, economic and policy context</li> </ul>	

<ul style="list-style-type: none"> <li>• To explore and describe the challenges experienced by nurse educators at the selected SoN regarding the academic performance, success and retention of undergraduate nursing students and the measures implemented to overcome these challenges</li> </ul>	<ul style="list-style-type: none"> <li>• What are the challenges experienced by nurse educators at the selected SoN regarding the academic performance, success and retention of undergraduate nursing students and the measures implemented to overcome these challenges?</li> </ul>	<ul style="list-style-type: none"> <li>• Layer 3 – School context</li> <li>• Layer 4 – Social, economic and policy context</li> </ul>
<ul style="list-style-type: none"> <li>• To use the findings of phase one to design, develop and validate interventions towards improving the academic performance, success and retention of undergraduate nursing students</li> </ul>	<ul style="list-style-type: none"> <li>• What intervention should be implemented to improve the academic performance, success and retention of undergraduate nursing students?</li> </ul>	<ul style="list-style-type: none"> <li>• Layer 1 – Internal context</li> <li>• Layer 2 – Family context</li> <li>• Layer 3 – School context</li> <li>• Layer 4 – Social, economic and policy context</li> </ul>

## 2.5. CONCLUSION

This chapter explained and discussed the conceptual framework used to guide the current study. Based on its strength and its universal use, the “Framework for Reducing the College Success Gap and Promoting Success for All” by Perna and Thomas (2006) was adapted to suit the current study. This framework was selected to guide the exploration and description of the predictors of academic performance among nursing students, as well as the experiences of nursing students and nurse educators while endeavouring to achieve satisfactory academic performance and success. Chapter three focuses on the research methodology.

## 2.6. REFERENCES

- Al Ayed, I.H., & Sheik, S.A. (2008). Assessment of the educational environment at the College of Medicine of King Saud University, Riyadh.
- Alden, K.R. (2008). *Predictors of early academic success and program completion among baccalaureate nursing students*. ProQuest.
- Ali, P.A., & Naylor, P.B. (2010). Association between academic and non-academic variables and academic success of diploma nursing students in Pakistan. *Nurse Education Today*, 30(2): 157–162.
- Allen, J., Robbins, S.B., Casillas, A., & Oh, I.S. (2008). Third-year college retention and transfer: Effects of academic performance, motivation, and social connectedness. *Research in Higher Education*, 49(7): 647–664.
- Arzuman, H., Yusoff, M.S.B., & Chit, S.P. (2010). Big sib students’ perceptions of the educational environment at the school of medical sciences, Universiti Sains Malaysia, using Dundee Ready Educational Environment Measure (DREEM) Inventory. *The Malaysian Journal of Medical Sciences: MJMS*, 17(3): 40.

- Billings, D.M., & Halstead, J.A. (2015). *Teaching in nursing-e-book: A guide for faculty*. Elsevier Health Sciences.
- Clark, C.M., & Springer, P.J. (2010). Academic nurse leaders' role in fostering a culture of civility in nursing education. *Journal of Nursing Education, 49*(6): 319–325.
- Clements, A.J., Kinman, G., Leggetter, S., Teoh, K., & Guppy, A. (2016). Exploring commitment, professional identity, and support for student nurses. *Nurse Education in Practice, 16*(1): 20–26.
- Dearden, L., Fitzsimons, E., & Wyness, G. (2011). *The impact of tuition fees and support on university participation in the UK* (No. W11/17). IFS Working Papers.
- Everett, B., Salamonson, Y., Trajkovski, S., & Fernandez, R. (2013). Demographic and academic-related differences between standard-entry and graduate-entry nursing students: A prospective correlational survey. *Nurse Education Today, 33*(7): 709–713.
- Fernandez, R., Salamonson, Y., & Griffiths, R. (2012). Emotional intelligence as a predictor of academic performance in first-year accelerated graduate entry nursing students. *Journal of clinical nursing, 21*(23-24): 3485–3492.
- Hallmark, B.F., Thomas, C.M., & Gantt, L. (2014). The educational practices construct of the NLN/Jeffries simulation framework: State of the science. *Clinical Simulation in Nursing, 10*(7): 345–352.
- Harper, S.R., Davis, R.J., Jones, D.E., McGowan, B.L., Ingram, T.N., & Platt, C.S. (2011). Race and racism in the experiences of Black male resident assistants at predominantly White universities. *Journal of College Student Development, 52*(2): 180–200.
- Hausmann, L.R., Ye, F., Schofield, J.W., & Woods, R.L. (2009). Sense of belonging and persistence in White and African American first-year students. *Research in Higher Education, 50*(7): 649–669.

- Holley, K.A., & Gardner, S. (2012). Navigating the pipeline: How socio-cultural influences impact first-generation doctoral students. *Journal of Diversity in Higher Education*, 5(2): 112.
- Hurtado, S., Alvarez, C.L., Guillermo-Wann, C., Cuellar, M., & Arellano, L. (2012). A model for diverse learning environments. In *Higher education: Handbook of theory and research* (pp. 41–122). Springer, Dordrecht.
- Jeffreys, M.R. (2012). *Nursing student retention: Understanding the process and making a difference*. Springer Publishing Company.
- Jeffreys, M.R. (2015). Jeffreys' nursing universal retention and success model: overview and action ideas for optimizing outcomes A–Z.
- Koch, J., Salamonson, Y., Rolley, J.X., & Davidson, P.M. (2011). Learning preference as a predictor of academic performance in first year accelerated graduate entry nursing students: a prospective follow-up study. *Nurse Education Today*, 31(6): 611–616.
- Kuh, G.D., Kinzie, J., Buckley, J.A., Bridges, B.K., & Hayek, J.C. (2011). *Piecing together the student success puzzle: research, propositions, and recommendations: ASHE Higher Education Report* (Vol. 116). John Wiley & Sons.
- Lichtenberger, E., & George-Jackson, C. (2013). Predicting high school students' interest in majoring in a STEM Field: Insight into high school students' postsecondary plans. *Journal of Career and Technical Education*, 28(1): 19–38.
- Mthimunye, K.D.T., Daniels, F.M., & Pedro, A. (2018). Predictors of academic performance among second-year nursing students at a university in the Western Cape. *South African Journal of Higher Education*, 32(1): 192–215.
- Neill, C. (2009). Tuition fees and the demand for university places. *Economics of Education Review*, 28(5): 561–570.

- Okioga, C.K. (2013). The impact of students' socio-economic background on academic performance in Universities, a case of students in Kisii University College. *American International Journal of Social Science*, 2(2): 38–46.
- Perna, L.W. (2006). Studying college access and choice: A proposed conceptual model. In *Higher education: Handbook of theory and research* (pp. 99–157). Springer, Dordrecht.
- Perna, L.W., Rowan-Kenyon, H.T., Thomas, S.L., Bell, A., Anderson, R., & Li, C. (2008). The role of college counseling in shaping college opportunity: Variations across high schools. *The Review of Higher Education*, 31(2), 131–159.
- Perna, L.W., & Thomas, S.L. (2006). A framework for reducing the college success gap and promoting success for all.
- Quadri, M.M., & Kalyankar, N.V. (2010). Drop out feature of student data for academic performance using decision tree techniques. *Global Journal of Computer Science and Technology*, 10(2): 2–5.
- Ross, K.U. (2010). *The effect of institutional merit-based aid on student aspirations, choice and participation: A mixed methods approach* (Doctoral dissertation, Education: Faculty of Education).
- Salamonson, Y., Everett, B., Cooper, M., Lombardo, L., Weaver, R., & Davidson, P.M. (2014). Nursing as first choice predicts nursing program completion. *Nurse Education Today*, 34(1): 127–131.
- Salamonson, Y., Andrew, S., & Everett, B. (2009). Academic engagement and disengagement as predictors of performance in pathophysiology among nursing students. *Contemporary Nurse: A Journal for the Australian Nursing Profession*, 32(1-2):123–132.

Timer, J.E., & Clauson, M.I. (2011). The use of selective admissions tools to predict students' success in an advanced standing baccalaureate nursing program. *Nurse Education Today*, 31(6): 601–606.

University of the Western Cape. (n.d.). UWC History. Available from: <https://www.uwc.ac.za/Pages/History.aspx> [accessed 27 June 2018].

Victor, G., Ishtiaq, M., & Parveen, S. (2016). Nursing students' perceptions of their educational environment in the bachelor's programs of the Shifa College of Nursing, Pakistan. *Journal of Educational Evaluation for Health Professions*, 13: 43.



# CHAPTER THREE

## RESEARCH METHODOLOGY

### 3.1. INTRODUCTION

Chapter one sketched the background to the study, presented the aim and objectives and a brief outline of the research methodology. The aim of the study was to design and develop an intervention towards improving the academic performance, success and retention of undergraduate nursing students, which was grounded on the adapted “Framework for Reducing the College Success Gap and Promoting Success for All” by Perna and Thomas (2006) as discussed in Chapter Two. To achieve the aim, the following objectives were addressed: (1) To conduct a systematic review to determine the predictors of academic performance, success and retention among undergraduate nursing students; (2) to explore the undergraduate nursing students’ perception of their educational environment at the school of nursing (SoN) selected for this study; (3) to explore and describe the challenges experienced by undergraduate nursing students at the identified SoN regarding their academic performance and success and the measures implemented to overcome these challenges; (4) to explore and describe the challenges experienced by nurse educators at the selected SoN regarding the academic performance, success and retention of undergraduate nursing students and the measures implemented to overcome these challenges; and (5) to use the findings of phase one to design, develop and validate an intervention towards improving the academic performance, success and retention of undergraduate nursing students. This chapter explains, in detail, the methodology employed for the study.

### 3.2. MULTI-METHOD RESEARCH APPROACH

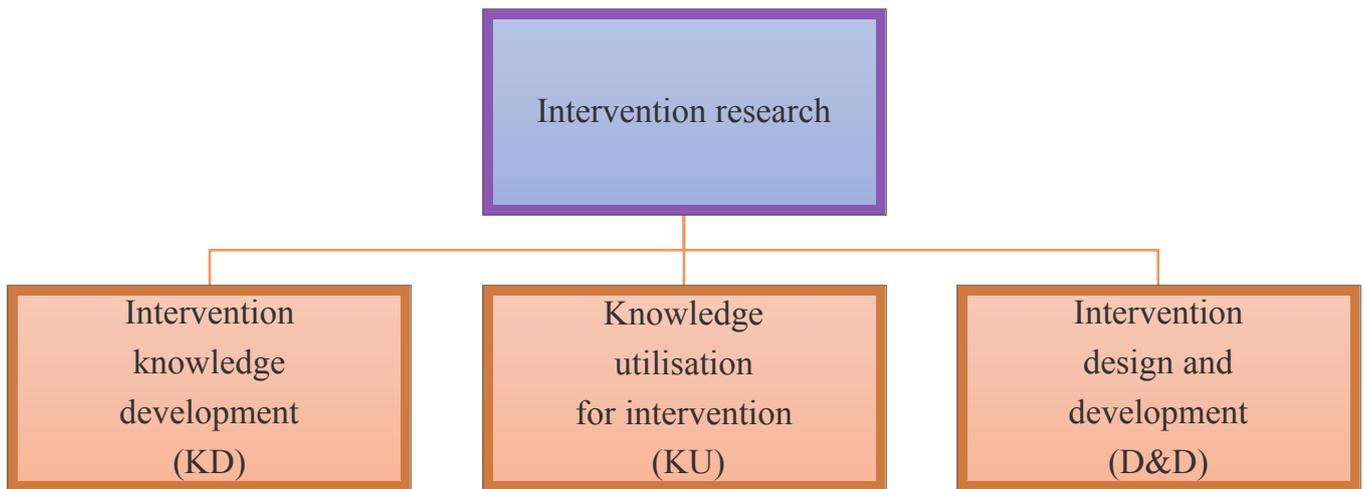
Creswell (2014) described methodology as the method used by the researcher to investigate the reality of the study. This study employed a multi-method research approach. According to Venkatesh, Brown and Bala (2013) a multi-method approach is the use of two or more research methods, each conducted rigorously and complete in itself, in one project. In this study, a quantitative research approach was employed to address objectives 1, 2 and 5 of the study, while a qualitative research approach was employed to address objectives 3 and 4. Each of these studies was completed separately, and all were then combined to form key components (see Appendix 2) that addressed the main aim of the study (Venkatesh et al., 2013).

A developing trend in nursing research is the integration of qualitative and quantitative research within the same study or synchronised clusters of studies (Creswell, 2014). Mixed-method and multi-method research approaches are prominent in integrative research. A multi-method research approach differs from a mixed-method approach (Creswell, 2014; Hesse-Biber & Johnson, 2015) in that a mixed-method study involves the mixing of both qualitative and quantitative data in a single study (Venkatesh et al., 2013; Dixon-Woods et al., 2014), while a multi-method research approach does not require such mixing of data or methods (Hesse-Biber & Johnson, 2015). According to Venkatesh et al. (2013) and Hesse-Biber and Johnson (2015) a multi-method approach has the following strengths: (1) multimethod studies allow for both in-depth and positivist inquiries into a single study, (2) a multi-method research approach permits the generation of data from various sources, and (3) a multi-method approach allows for the articulation of findings from previous studies to inform the present one.

### 3.3. RESEARCH DESIGN

De Vos, Strydom, Fouché and Delpont (2011) define research design as a plan or blueprint for the conducting of a study. Furthermore, Grove, Burns and Gray (2012) suggest that research design maximises control over factors that could affect the study outcomes. Therefore, the type of design selected will determine the type of population sampling and the methods of measurement, and assist the researcher with the planning of data collection and data analysis (Grove et al., 2012). This study will adopt Rothman and Thomas's intervention research Design and Development (D&D) activities as an independent research design. According to Rothman and Thomas (1994; 2013), two products emerge from intervention research: (1) The research data that may demonstrate relationships between the intervention and the behaviours or outcomes that define the problem of interest. (2) The intervention may include a strategy, technique or programme; informational or training materials; environmental design variables; motivational system; a new or modified policy; or other procedures. Intervention research (IR) utilises three integrated components that have a linear relationship as well as being complete research processes that can stand alone (Rothman & Thomas, 1994; 2013). Rothman and Thomas (1994; 2013) described the components of IR as follows:

1. Intervention Knowledge Development (KD): Empirical research to extend knowledge of human behaviour relating to human service intervention
2. Intervention Knowledge Utilisation (KU): The means by which the findings from Intervention Knowledge Development research may be linked to, and utilised in practical application
3. Intervention Design and Development (D&D): research directed toward developing innovative interventions



**Figure 3.1: Components of intervention research (IR)**

Rothman and Thomas (2013) described the six integrated phases of intervention D&D. Each phase has distinctive activities and operations that need to be carried out in order to complete the work of that phase. However, while the three components of IR were followed, the researcher adapted the application of the phases of the D&D for use in this study. Table 3.1 summarises the application of the six phases of D&D to the study.

**Table 3.1: Application of intervention Design and Development (D&D)**

PHASES OF D&D	OPERATIONS/ACTIVITIES	STUDY OBJECTIVES
1. Problem analysis and project planning	<ul style="list-style-type: none"> <li>Identify clients, gain entry and cooperation</li> <li>Analyzing identified concerns and setting goals</li> </ul>	<ul style="list-style-type: none"> <li>Objective 1- 4</li> </ul>
2. Information gathering and synthesis	<ul style="list-style-type: none"> <li>Using existing information sources</li> <li>Studying natural examples and successful models</li> </ul>	<ul style="list-style-type: none"> <li>Objective 1- 4</li> </ul>
3. Design	<ul style="list-style-type: none"> <li>Design of an intervention plan</li> <li>Identify procedural elements of the intervention plan</li> </ul>	<ul style="list-style-type: none"> <li>Objective 5</li> </ul>
4. Early Development and implementation	<ul style="list-style-type: none"> <li>Designing a preliminary intervention</li> <li>Applying design criteria to the intervention</li> </ul>	<ul style="list-style-type: none"> <li>Objective 5</li> </ul>
5. Evaluation and advanced development*	<ul style="list-style-type: none"> <li>Selecting an experimental design</li> <li>Collecting and analyzing data</li> </ul>	<ul style="list-style-type: none"> <li>Objective 5</li> </ul>
6. Dissemination	<ul style="list-style-type: none"> <li>Encouraging appropriate adaptation</li> </ul>	<ul style="list-style-type: none"> <li>Future research</li> </ul>

\*For the purpose of this study, only the early development of phase five of Rothman and Thomas (1994; 2013) was done. The implementation part of this phase will be addressed in future research.

### 3.4. IMPLEMENTATION OF INTERVENTION RESEARCH

The research is guided by the first five phases of the IR model by Rothman and Thomas (2013). These phases are (1) problem analysis and project planning, (2) information gathering and synthesis, (4) design, early development and implementation, and (5) evaluation and advanced development. The scope of the study did not necessitate the inclusion of the last phase of the IR model. Furthermore, Thomas and Rothman (2013) states that these phases are not

necessarily linear and can form loops to earlier phases or some phases may even be integrated. The adaptation of this step should not be interpreted as fidelity compromise (Thomas & Rothman 2013). For this study, the first two phases of IR are merged to form an adapted phase one, Problem Analysis and Information Gathering, which corresponds with objectives 1 to 4 of the study (see Figure 3.1). Similarly, the third and fourth phase of IR are merged to form an adapted phase two, design and early development and implementation, which corresponds with “part 1” of objective 5 (see Figure 3.1). Thus, the study was conducted in three phases illustrated in figure 3.2.



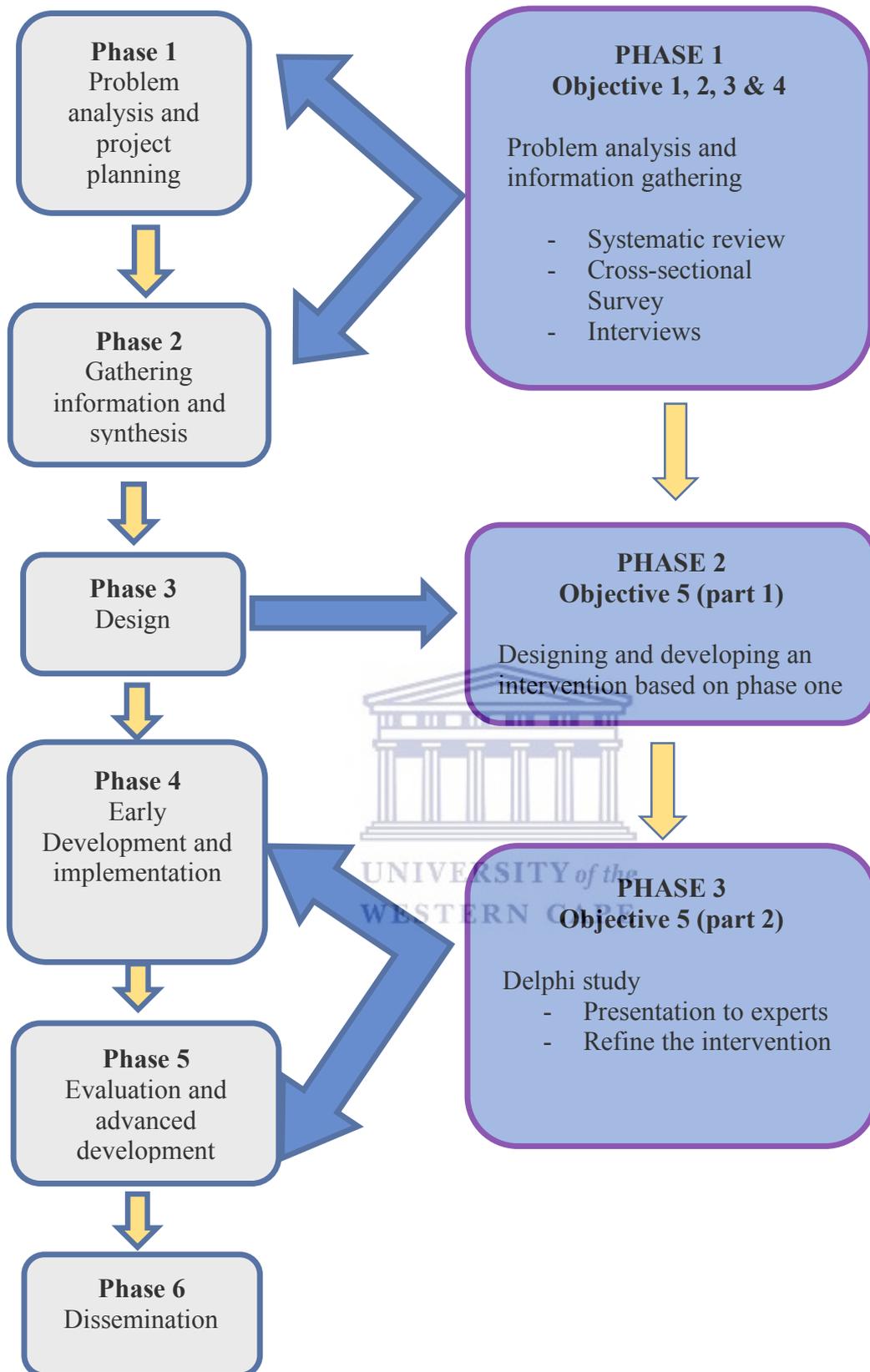
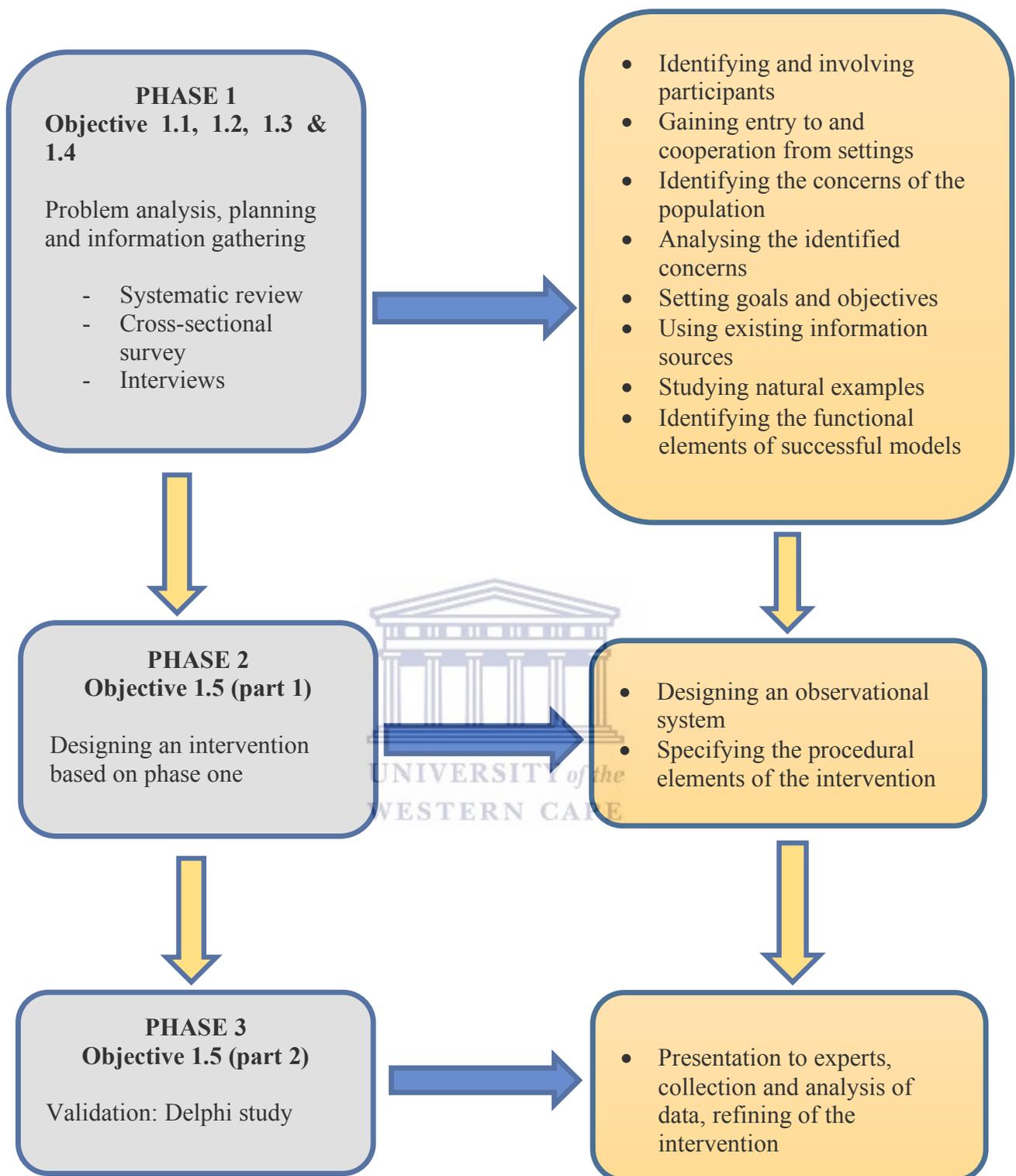


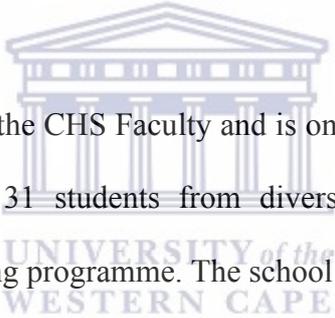
Figure 3.2: Six phases of intervention research modified into three phases (Rothman & Thomas, 1994; 2013).



**Figure 3.3: Adapted three phases and activities of the intervention research model (adapted from Rothman and Thomas, 1994; 2013).**

### 3.5. RESEARCH CONTEXT

The research setting can be described as the physical, social and cultural situation in which the researcher conducts a study (Grove et al., 2012). This study was conducted in a School of Nursing (SoN) at a university in the Western Cape, South Africa. This university is located in Bellville, Cape Town and within the Western Cape Province of South Africa. This higher education institution (HEI) is committed to excellence in learning and teaching and research, and prides itself as a place of quality and a place to grow. The university under study attracts students from diverse backgrounds (i.e. different socio-economic and religions backgrounds), of different race and age groups, and from different countries in Africa and beyond. In addition, the university has many different faculties, including Community and Health Sciences (CHS), Natural Science (NS) and Arts.



The SoN is one of the schools in the CHS Faculty and is one of the largest nursing schools in Africa, with approximately 1 131 students from diverse backgrounds enrolled for the undergraduate Bachelor of Nursing programme. The school offers a full range of programmes at both under- and postgraduate levels; however, the undergraduate programme is the focus of this study. The university is currently the only one in the Western Cape that offers the undergraduate Bachelor of Nursing programme. The undergraduate Bachelor of Nursing programme is offered as a full-time, four-year programme, as well as the five-year, full-time Extended Curricular Programme (ECP), which prepares graduates to practise as general nurses, midwives, community health and psychiatric nurses after registration with the South African Nursing Council (SANC).

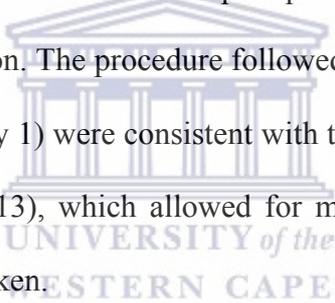
## **3.6. PHASE ONE: PROBLEM ANALYSIS AND INFORMATION**

### **GATHERING**

In phase one, four methods of data collection were used, namely (1) a systematic review, (2) a cross-sectional survey, (3) focus group discussions (FGDs) and (4) individual (one-on-one) interviews.

#### **3.6.1. Systematic review: Chapter Four – Study 1**

A systematic review of literature was conducted to address objective 1 of the study. Systematic literature reviews aim to widely integrate and identify research, using structured and replicable procedures (Littell, Corcoran & Pillai, 2008). A systematic review is a rigorous method which attempts to collate all empirical evidence that fits pre-specified eligibility criteria in order to answer a specific research question. The procedure followed in the systematic review (further discussed in Chapter Four – Study 1) were consistent with the intense process of a systematic review as described in Fink (2013), which allowed for methodological rigour. Figure 3.4. summarises the steps that were taken.



##### **3.6.1.2. Select a research question in line with aims and objectives of the study**

In addressing objective 1 of this study (To conduct a systematic review to determine the predictors of academic performance, success and retention among undergraduate nursing students), the following research question was formulated to guide the review:

- i. What are the predictors of academic performance and success as well as the factors that may impact on the retention of undergraduate nursing students?

### **3.6.1.3. Choose appropriate databases and/or websites**

All the databases available through the university library formed the database source for this systematic review.

- i. Science Direct: This database is considered to be Elsevier's leading information solution for researchers, teachers, students, health care professionals and information professionals.
- ii. Escohost: Escohost was selected as it offers a podium to access over 24 different database platforms that can be searched individually (Eric, Academic Search Complete, Psych Info, Education Search Complete).
- iii. BioMed Central: This database was included as it provides a large portfolio of over 200 peer-reviewed, open-access journals.
- iv. PubMed: This database was considered as it provides an open-access podium that continually informs current articles on a collection of academic fields.
- v. SAGE Journals: This database was selected as it is said to be one of the leading independent academic and professional publishers and provides access to over 1 000 journals.
- vi. Directory of Open Access Journals (DOAJ): This database was selected as it provides access to over 11 000 open-access journals, over 6 000 of which are searchable at article level.

### **3.6.1.4. Selected search terms and definitions considered in the review**

- i. predictors of academic performance
- ii. predictors of academic success
- iii. nursing students

### 3.6.1.5. Identified inclusion and exclusion criteria for the review

The most time-consuming step of a systematic review is to identify studies which address the defined review question (Smith, Morrow & Ross, 2015). Therefore, a well-defined set of inclusion and exclusion criteria is necessary in refining a search strategy which is highly sensitive, specific and precise (Gough, Oliver & Thomas, 2017). The inclusion criteria used in the systematic review were as follows:

- i. Only full-text quantitative studies published in or translated into the English language.
- ii. Type of participants: All studies that involved undergraduate nursing students were considered.
- iii. Types of outcomes: The primary outcome of interest was significant predictors of academic performance, success and retention among undergraduate nursing students. Secondary outcomes included factors that impact on academic performance and success.
- iv. Types of studies: Prospective cohort and retrospective cohort studies, case-control study and cross-sectional studies were included.
- v. Time frame: Studies had to be published between 2006 and 2016 to be included. Globally, the major development in nursing education over the last decade has been towards addressing nurse shortages, improving the status of nursing education and improving the quality of nurses produced from graduate and other programmes. This time frame will allow for assessing studies related to nursing education reform in South Africa based on the new framework for nursing qualifications concluded in 2013 (Blaauw, Ditlopo & Rispel, 2014).

The exclusion criteria used in this systematic review were as follows:

- i. Systematic reviews, meta-analysis, randomised controlled trials (RCT's) and quasi-experimental studies were excluded. This was done to ensure that the review process is applicable to the research question (Gough, et al., 2017).
- ii. Type of participants: Study populations not representative of a general population of undergraduate nursing students were excluded.

Study selection: Three instruments were utilised to ensure rigorous screening of the research studies and to ensure that all relevant data were collected.

- i. Title Reading and Extraction Tool (see TRET – Appendix 3). This tool was used to select journal articles for inclusion based on the relevance of the title.
- ii. Abstract Reading Extraction Tool (see ARET – Appendix 4). Abstracts were assessed for relevance based on the inclusion and exclusion criteria.
- iii. The Quality Assessment Tool (see QAT – Appendix 5). This tool was used to assess the adequacy of a study to be considered within the review.

#### **3.6.1.6. Methodological appraisal tool**

To assess the methodological quality of primary studies, quantitative documents were critically assessed and evaluated by two independent reviewers for validity prior to inclusion in the review. A quality assessment tool (QAT) for quantitative studies developed by the Effective Public Health Practice Project (EPHPP) was used. The QAT was adapted from previous studies (Armijo-Olivo, Stiles, Hagen, Biondo & Cummings, 2012; Puertas, Arósquipa & Gutiérrez, 2013; Bassir, Sadr-Eshkevari, Amirikhorheh & Karimbux, 2014). The EPHPP tool (see QAT

– Appendix 5) assesses aspects of the methodologies employed and awards scores on a Likert-type scale. When the methodological quality appraisal score obtained was categorised as being between satisfactory and good, it was considered for possible inclusion in the review.

#### **3.6.1.7. Pre-test of the review process**

Reliability was ensured by conducting a pre-test of the review process (Fink, 2013). The aim of the pre-test study was to assess the appropriateness and suitability of the inclusion criteria and methodological appraisal tool. A random sample of studies was selected based on the proposed research questions and the inclusion criteria, and the methodological appraisal tool was used. Two weeks later, the researcher and the research assistant followed the same process to determine if it yielded similar results. When inconsistencies were discovered, reasons were sought until the process yielded the same consistent results.

#### **3.6.1.8. Commencement of the review process**

The review process commenced after the pre-testing of the review yielded consistent results after two weeks.

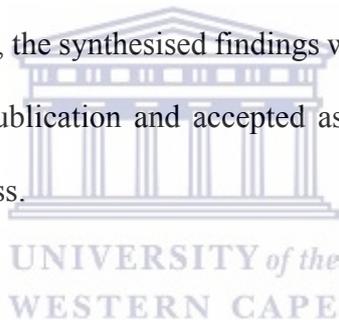
#### **3.6.1.9. Synthesis of the research findings of the review**

After completion of the methodological quality appraisal, studies that met the criteria for the categories of “strong” to “moderate” were reviewed, and a data extraction tool (see DET - Appendix 6) was used to ensure that all relevant data were extracted from the selected articles. The process of data extraction is used as a method of synthesising and collating all the findings which have been gathered in the review. The DET used extracted the following information about the reviewed articles: author(s) name(s), year of publication, geographical location, participants, study design, data collection instruments used and the results of the study in line

with the research question. Statistical meta-analysis was not possible because: (1) the included studies addressed a heterogeneous outcome variable, and (2) not all shortlisted studies provided the required statistical data for possible meta-analysis. Thus, a textual narrative synthesis was used to synthesise the findings of the review (Edwards, Carrier & Hopkinson, 2017). Barnett-Page and Thomas (2009) define textual narrative synthesis as “an approach which arranges studies into more homogenous groups”. Furthermore, Barnett-Page & Thomas (2009) argue that in textual narrative synthesis, “study characteristics, context, quality and findings are reported on according to a standard format and similarities and differences are compared across studies”. Thus, this method of data synthesis was found to be appropriate for the review.

#### **3.6.1.10. Dissemination of results from the review**

Subsequent to the review process, the synthesised findings were presented in an article format. The article was submitted for publication and accepted as part of the dissemination of the findings step of the review process.



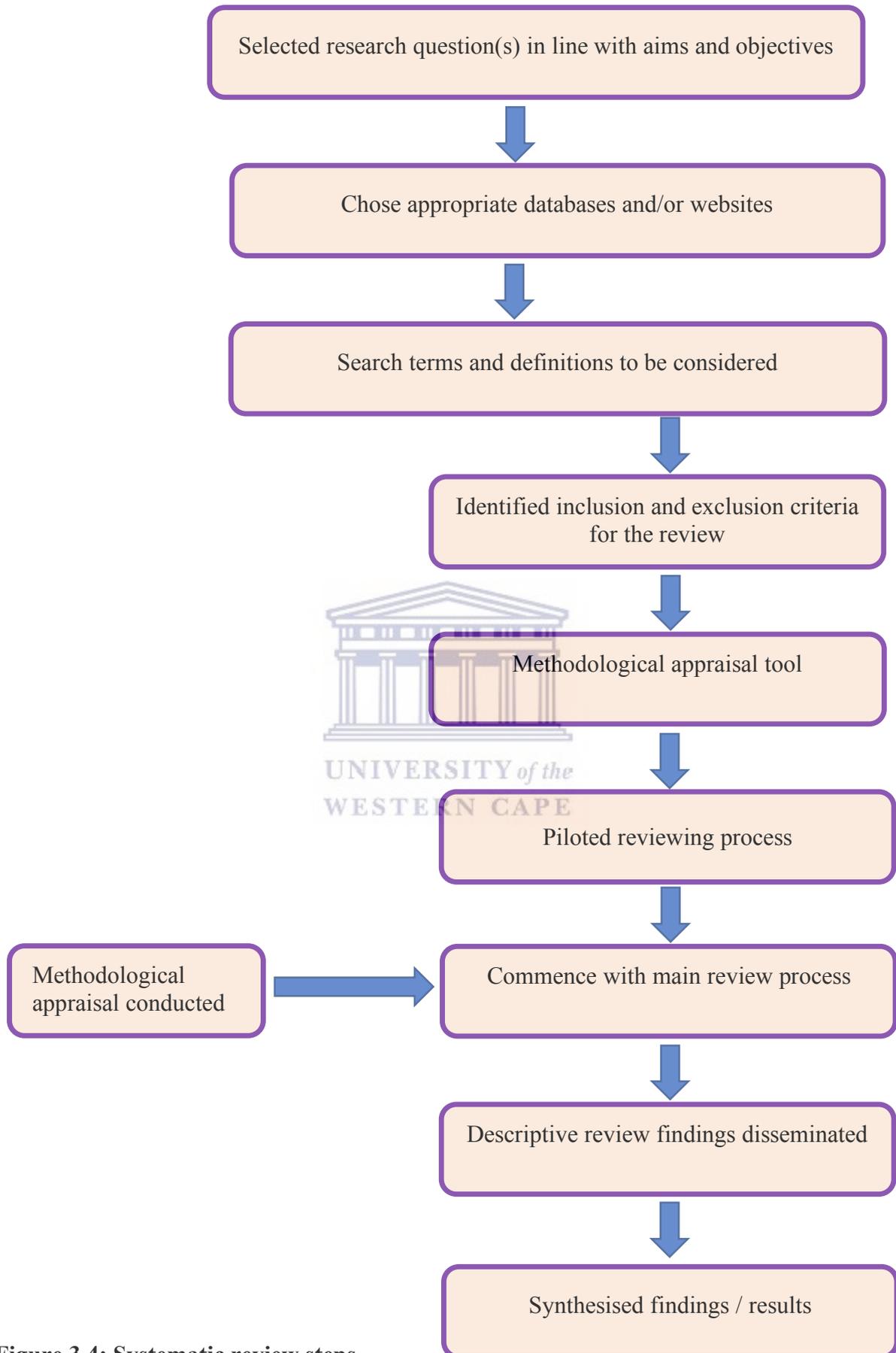


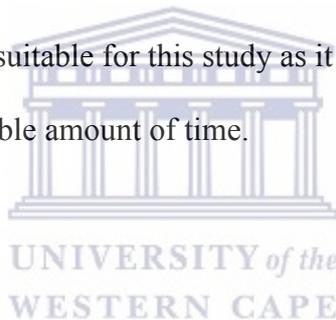
Figure 3.4: Systematic review steps

### **3.6.2. Cross-sectional survey: Chapter Five – Study 2**

A cross-sectional survey was conducted to assess the undergraduate nursing students' perceptions of their educational environment, which addressed objective 2 of the study.

#### **3.6.2.1. Research design**

A quantitative, cross-sectional, descriptive study was employed to understand the undergraduate nursing students' perceptions of their educational environment at the university selected for this study. According to Sedgwick (2014), a cross-sectional study is a non-experimental design that investigates a phenomenon at one point in time that is in the immediate present. The application of cross-sectional studies allows the researcher to carry out scientific research more quickly and cost-effectively (Setia, 2016). A cross-sectional descriptive design was therefore suitable for this study as it allowed the researcher to collect a large amount of data in a reasonable amount of time.



#### **3.6.2.2. Population**

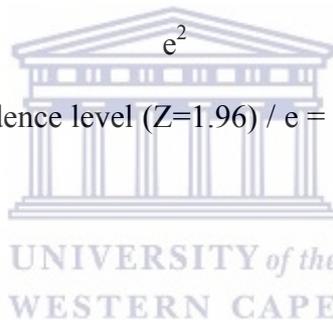
Grove et al. (2012) define population as all elements, individuals, objects or substances that meet the criteria for inclusion in a study. Therefore, the population refers to the entire group of people or objects that are of interest to the researcher. For this cross-sectional study, the population included all undergraduate nursing students enrolled in a four-year programme and the five-year Extended Curricular Programme (ECP) for the 2017 academic year. The total population of undergraduate nursing students at the SoN was 1 131 in 2017, when the study was conducted.

### 3.6.2.3. Sample and sampling techniques

Stratified random sampling was used to ensure that all levels of the four-year programmes and the five-year Extended Curricular Programme (ECP) were adequately represented (see Table 3.2). According to Macnee and McCabe (2008), in stratified random sampling “the population of interest is first divided into two or more groups based on characteristics that are important to the study, and then members within each group are randomly selected”. The required sample for this stage of the research was 287 undergraduate nursing students. Three formulas were used to calculate the required sample that is representative of the population group (Dean, Sullivan & Soe, 2014). The first formula applied states:

$$n = \frac{(p)(1-p)(Z)^2}{e^2}$$

$n$  = sample size /  $Z$  = 95% confidence level ( $Z=1.96$ ) /  $e$  = an error rate (5%) /  $p$  = proportion of the target population (50%)



The second formula was used to calculate the adjusted sample size of 287. The second formula states:

$$n_a = \frac{n}{(1 + (n - 1)/N)}$$

$n_a$  = adjusted sample size /  $N$  = population size (1 131)

The third formula was used to calculate the sample size within each stratum. This formula states:

$$\chi = (N_s/N) n_a$$

$\chi$  = the sample size for stratum /  $N_s$  = the population size for stratum /  $N$  = total population size /  $n_a$  = adjusted sample size

**Table 3.2: Summary of study population and sample size**

Year level	Population (N)	Sample size (n)
BNF/ ECP	74	19
BNF/ECP 2	45	11
BN 1	221	56
BN 2	303	77
BN 3	240	61
BN 4	248	63
Total	1 131	287

Note. First-year Bachelor of Nursing Foundation: BNF/ECP 1, second-year Bachelor of Nursing Foundation: BNF/ECP 2, first-year Bachelor of Nursing: BN 1, second-year Bachelor of Nursing: BN 2, third-year Bachelor of Nursing: BN 3 and fourth-year Bachelor of Nursing: BN 4.



#### 3.6.2.4. Data collection tool

To address objective 2 of the study (To explore the undergraduate nursing students' perception of their educational environment at the school of nursing (SoN) selected for this study), the researcher developed a questionnaire (see Appendix 7). The questionnaire comprised of demographic factors and eight (8) subscales that were used to measure the perception of nursing students with respect to the educational environment at the SoN. The subscales and items within the subscales were derived from extensive review of literature (Soemantri, Herrera & Riquelme, 2010; Miles, Swift & Leinster, 2012; Swift, Miles & Leinster, 2013; Herrington, Reeves & Oliver, 2014)

The instruments' subscales and measurements were:

- physical classroom environment (PCE) – 11 items; maximum score = 44
- skills laboratory (SL) (on campus) – 6 items; maximum score = 24
- skills laboratory (SL) (off campus) – 6 items; maximum score = 24
- university library (UL) – 5 items; maximum score = 20
- digital resources (DR) – 7 items; maximum score = 28
- teaching and learning climate (TLC) – 9 items; maximum score = 36
- teaching and learning strategies (TLS) – 11 items; maximum score = 44
- nursing curriculum (NC) – 12 items; maximum score = 48.

The questionnaire has a total score of 268 for 67 items on a four-point Likert scale (where 1 = strongly disagree, 2 = disagree, 3 = agree and 4 = strongly agree). Once the questionnaire was completed, a pilot test was conducted. Polit and Beck (2012) describe a pilot test as a “small-scale version, or trial run, done in preparation for a major study”. The pilot test may also be conducted as a measure of testing and validating the instruments that form part of the quantitative data collection tool (Nardi, 2018). In this study, a pilot test of the data collection tool was done to examine the reliability and validity of the instrument.

#### **a) Reliability of research instrument**

To ensure reliability of the questionnaire, the researcher performed a test-retest assessment. Polit and Beck (2010) describe test-retest reliability as “assessment of the stability of an instrument by correlating the scores obtained on two administrations with the same people”. Questionnaires were administered to 30 undergraduate nursing students who were not included in the main study. The questionnaire was then administered to the same group two weeks later

to ensure test-retest reliability (Polit & Beck, 2010). The test-retest reliability revealed an intraclass correlation coefficient of 0.954, indicating an excellent correlation coefficient (Field, 2013). Finally, the reliability process involved calculating the internal consistency reliability, which revealed a Cronbach alpha coefficient of 0.945. This Cronbach alpha coefficient confirms that the items being measured were internally reliable (Field, 2013).

#### **b) Validity of the instrument**

Polit and Beck (2010) describe validity of the instrument as a measurement of the degree to which an instrument measures what it is intended to measure. Validity of the instrument was ensured in terms of content validity and face validity. Content validity examines “the objectives of the instrument, the content areas and the level of difficulty of the questions” (Creswell, 2014). Face validity measures the degree to which, on its face, the instrument is measuring what it is intended to measure (Polit & Beck, 2010). In this study, the content and face validity of the questionnaire were established by the research supervisor (an expert in learning and teaching) and a statistician. Furthermore, content validity was established by 30 undergraduate nursing students during the pilot test of the instrument to ensure accurate interpretation of the content.

#### **3.6.2.5. Data analysis**

Data were analysed by means of the IBM Statistical Package for Social Sciences (IBM SPSS-24). The data were then coded, “cleaned” and checked for errors. Missing values were dealt with by replacing them with the median of nearby points to avoid errors and skewness of the data. Descriptive statistics were performed by means of frequencies, standard deviations (SDs) and percentages, while inferential statistics were performed by means of a series of independent-sample T-tests, one-way analyses of variance (ANOVAs) and Welch ANOVA (Data analysis is deliberated in more detail in Chapter Five – Study 2).

### **3.6.3. Focus group discussions: Chapter Six - Study 3**

Focus group discussions (FGDs) were conducted with undergraduate nursing students at the university used in this study. According to Rubin and Rubin (2011) a FGD is a type of in-depth interview which involves a moderator facilitating and engaging a small group discussion between selected individuals regarding the proposed topic to generate qualitative data. The application of the FGD allows the researcher to collect sufficient data in a short period of time (Rubin & Rubin, 2011). This technique is well-suited to the aim and objectives of the study as it encourages direct interaction with students, permitting them to respond more freely due to the more relaxed environment (Hennink, (2017).

#### **3.6.3.1. Research approach**

A qualitative research approach was implemented to obtain insight and understanding with respect to the phenomenon of academic performance and success of undergraduate nursing students. Holloway and Galvin (2016) define qualitative research as a structured way of describing the life experiences and the meaning thereof. Grove et al. (2014) argue that a qualitative research approach provides an in-depth understanding of some aspects of the phenomenon.

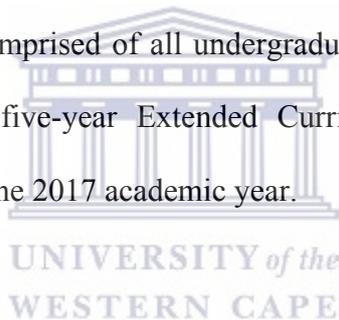
#### **3.6.3.2. Research design**

An exploratory-descriptive research design with an interpretive view was employed. An explorative-descriptive design is used to expand theory, to determine current problems in practice and to identify what others in similar situations are doing (Grove et al., 2014). According to Grove et al. (2012), descriptive research is designed to provide a representation of a situation as it naturally happens. Grove et al. (2014) note that a descriptive research design is used to obtain information concerning the current status of the phenomena and to describe

"what exists" with respect to variables or conditions in a situation. This design is appropriate for this study as it was within the main aim of this study to explore and describe the perceptions and experiences of undergraduate nursing students regarding the challenges they experience at the SoN while endeavouring to attain satisfactory academic performance and success. The explorative dimension allowed the researcher to ask follow-up questions to gain more insight and clarity regarding the students' experiences, while the descriptive aspect allowed the researcher to describe and analyse the participants' descriptions in themes and concluding statements in phases one, two and three of the study. Additionally, the descriptive aspect allowed for interpretations and discussions of the findings with reference to existing literature.

### **3.6.3.3. Population**

The population for this study comprised of all undergraduate nursing students enrolled in a four-year programme and the five-year Extended Curricular Programme (ECP) at the university used in this study for the 2017 academic year.



### **3.6.3.4. Sampling method and sample size**

Grove et al. (2012) define sampling as a process of selecting a group of people, events, behaviours or elements that are representative of the population. This implies that a sample is a subset of members who belong to the population and are selected by the researcher for the study. For the purpose of FGDs, a stratified purposive sampling technique was employed. According to Hays and Singh (2011), the purpose of stratified purposeful sampling is "to capture major variations" even though "a common core may also emerge in the analysis". Stratified sampling entails the researcher dividing the population group into deferent subgroups, or strata (Grove et al., 2012). The year levels of study represented the strata. Hennink, (2017) suggests that an average focus group consist of four to six groups with five to

ten participants in each group. For the present study, the first-year BN (foundation) stratum comprised nine (9) participants and the second-year BN (foundation) stratum comprised ten (10) participants. In the mainstream, the first-year BN stratum comprised seven (7) participants, the second-year BN stratum comprised eight (8) participants, the third-year BN stratum comprised seven (7) participants, and the fourth-year BN stratum comprised nine (9) participants. Data saturation was reached by the end of the sixth focus group discussion. Therefore, the total sample size was 50.

### **3.6.3.5. Data collection process and instrument**

Six focus group discussions (FGDs) with the respective year levels were conducted, each lasting approximately 60 minutes. This method was selected since it allowed the researcher to pose open-ended questions, to gain an understanding about the experiences of the participants as is suitable in exploratory research (Creswell, 2014). The development of the data collection instrument (see Appendix 8) was informed by objective 3. The broad research question posed to the participants was “Describe your experiences (whether negative or positive) in the nursing programme that have an impact on your academic performance and success and what measures you put in place to ensure satisfactory academic performance and success”. Elaboration probes were used to obtain the depth as well as to verify and clarify what the participants were saying (Greef, 2011). The probes that were used included but were not limited to the following: “Please give me an example”, “can you elaborate on that idea?”, “would you explain that further?” and “is there anything else?”. Paraphrasing and clarification probes were used to check the accuracy of the researcher’s comprehension of what the participants shared (Holloway & Galvin, 2016).

### **3.6.4. Individual interviews: Chapter Seven – Study 4**

Individual in-depth interviews were conducted with the nurse educators at the SoN selected for this study. According to Creswell (2014), in-depth interviews are a form of conversation which produces knowledge about a phenomenon. A total of eight (8) interviews were conducted with nurse educators during April and July 2017.

#### **3.6.4.1. Research approach**

A qualitative research approach was implemented to obtain insight and understanding with respect to the phenomenon of academic performance and success of undergraduate nursing students as perceived by nurse educators.

#### **3.6.4.2. Research design**

An exploratory and descriptive research design allowed for an in-depth understanding of the challenges and restorative measures used by nurse educators to ensure satisfactory academic performance and success of nursing students.



#### **3.6.4.3. Population**

The population included all nurse educators involved in the undergraduate nursing programme (the four-year programmes and the five-year ECP) at the identified university. The total population of nurse educators was 20, with each of the six year levels of the programmes having 1 to 5 nurse educators.

#### **3.6.4.4. Sampling method and sample size**

A stratified purposive sampling technique was employed to ensure that each of the year levels of the four-year programmes and the five-year ECP were represented. A total of eight (8) nurse

educators were interviewed. The sample size for the in-depth interviews was determined by data saturation. Data saturation was reached after eight in-depth interviews with the nurse educators of all six year levels of the undergraduate nursing programmes at the university used in this study.

#### **3.6.4.5. Data collection process and instrument**

Individual, face-to-face in-depth interviews, which lasted from 45 to 60 minutes, were conducted with undergraduate nurse educators. The development of the data collection instrument (see Appendix 9) was informed by objective 1.4 of the main study. The broad research question posed to the participants was “What are the challenges faced by nurse educators at the selected SoN regarding ensuring satisfactory academic performance, success and retention of nursing students and what measures do they implement to achieve this?”. The elaborative probes that were used included but were not limited to the following: “Please give me an example”, “can you elaborate on that idea?”, “would you explain that further?” and “is there anything else?”. Paraphrasing and clarification probes were also used.

#### **3.6.4.6. Qualitative data management (Study 3 and Study 4)**

Data were collected with the assistance of a research assistant. A series of practice workshops and practice interviews were conducted to ensure that the research assistant was adequately prepared. The primary researcher as well as the study supervisor oversaw the process and the quality of the data collected. All interviews were conducted in English and the discussions were digitally recorded to ensure accurate verbatim transcription. Audio recordings and transcripts were saved in a password-protected file. According to Onwuegbuzie, Dickinson, Leech and Zoran (2009), when the researcher can predict what will be said in the next group discussion

or individual interview, this state is referred to as data saturation. Data collection was concluded when data saturation was reached.

#### **3.6.4.7. Qualitative data analysis (Study 3 and Study 4)**

All qualitative data in Study 3 and Study 4 were analysed qualitatively using ATLAS.ti for Mac, version 1.6. According to Creswell (2014), ATLAS.ti is useful for the organisation of text, graphics, audio, data files that are visual, along with coding and memos. After the audio recordings were transcribed verbatim, the data were analysed inductively (Thomas, 2003) using Braun and Clark's (2006; 2013) thematic analysis steps and organised using the Perna and Thomas (2006) framework. The thematic analysis steps by Braun and Clark (2006; 2013), which are on-going with data collection, are as follows:

- Step 1: **Familiarise yourself with the data** – listen to the audio recordings, and read the transcripts.
- Step 2: **Generate initial codes** – the researcher codes the interesting features of the data in a systematic fashion across the entire data set.
- Step 3: **Discovering themes / searching for themes** – an active process whereby the analysis of data becomes broader and the researcher develops themes and sub-themes from the codes.
- Step 4: **Reviewing themes** – themes are reviewed and with the aim of assessing internal coherence in the themes and distinctions between the themes. This may allow the researcher to merge or separate data or even remove certain themes.
- Step 5: **Defining and naming themes** – the researcher describes the themes in a way that captures the essence of the themes.
- Step 6: **Writing the analysis** – the researcher provides an **analytic narrative** of the collected data.

The procedure followed in the qualitative data analysis is further discussed in Chapter Six – Study 3 and Chapter Seven – Study 4)

#### **3.6.4.8. Rigor for qualitative research (Study 3 and Study 4)**

Rebar and Macnee (2010) define rigor as “a strict process of data collection and analysis as well as a term that reflects the overall quality of that process in qualitative research”. They further state that rigor is established in the consistency of data analysis and interpretation, the trustworthiness of the data collected, the transferability of the findings, and the credibility of the data (Rebar & Macnee, 2010).

##### **a) Credibility**

Credibility refers to the degree to which findings and the research methods that are used can be trusted (De Vos et al., 2011). To ensure credibility, the research assistant rephrased and repeated questions during data collection. The study findings were discussed with the study supervisor to establish peer review. Thomas, Silverman and Nelson (2015) state that it is important for the researcher to fully understand the research context, the participants and the setting when interpreting the results of qualitative research. The researcher had been a lecturer for two years at the SoN used in this study and thus had a full understanding of the research context. It was, however, pivotal for the researcher to be aware and to reflect on the influence of his experience on the interpretation of the study findings. In this study, truth value was also established by using multiple methods of data collection, as described above. Member checking was also done to assess the accuracy of the interpretation of the data, by allowing the participants to read the draft of the article, which ensured credibility. No changes were required after member checking was done.

### **b) Transferability**

Transferability addresses whether the results would be useful in other settings or conducting research in a similar setting would yield similar findings (Thomas et al., 2015). Furthermore, De Vos et al. (2011) describe transferability as the extent to which findings can be applied or generalised in other research studies. Therefore, to ensure transferability, the researcher provided a detailed description of the research setting, all participants, as well as the method of data collection and data analysis used.

### **c) Dependability**

Dependability refers to how data remains stable over time and conditions (Polit & Beck, 2012). In data collection, the dependability was ensured by use of in-depth interviews which allowed the researcher to ask a question and change the follow-up question depending on the answer (Thomas et al., 2015). Dependability of the study requires an audit. The enquiry auditor – generally a peer – verifies the processes and procedures used by the researcher in the study and determines whether they are acceptable, that is, dependable (Polit & Beck, 2012). Dependability was also heightened by collaboration between the researcher and study supervisor for the full duration of the study. The supervisor verified and confirmed all the coding and generation of themes, which enhanced the dependability of the study.

### **d) Confirmability**

According to Thomas et al. (2015), confirmability deals with the issues of researcher's bias. An audit trail was kept to ensure that the conclusions, interpretations and recommendations could be traced back to the source of the data. This was done through keeping field notes, memos, transcripts and the researcher's reflective report, which can be made available upon request.

### e) Reflexivity

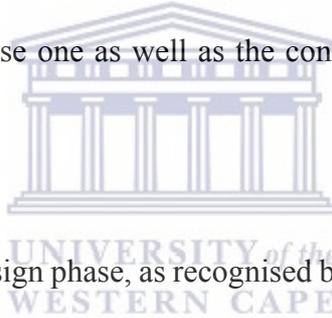
Reflexivity refers to the process whereby the researcher constantly reflects on his/her own actions, values and perceptions about the research project, which may have a significant impact on data collection and analysis (Rebar & Macnee, 2010). To ensure reflexivity, it was very important for the researcher to remain cognisant of the purpose of this study throughout the project. Power dynamics that may have existed between the researcher and the participants, due to the position of the main researcher being a lecturer at the SoN at the time of data collection, were minimised by utilising an independent research assistant to ensure that the researcher's presence, participation and personality did not prejudice the data collection process.

## 3.7. PHASE TWO: DESIGN AND EARLY DEVELOPMENT OF THE INTERVENTION

The second phase of the study involved the design and early development of the intervention. It aimed at presenting a detailed intervention design process using the steps prescribed by Rothman and Thomas (2013). This phase realises the final objective of this study, namely to develop an intervention towards the improvement of academic performance, success and retention among undergraduate nursing students at a university in the Western Cape, South Africa. During this phase, the findings in phase one of the study that informed the intervention plan were processed. The researcher adapted two events (designing an observational system and specification of procedural elements) in order to generate an innovative intervention that seeks to improve the academic performance, success and retention of nursing students at a university in the Western Cape, South Africa.

### **3.7.1. The design phase**

Intervention research (IR) design simply means the formulation of intervention constructs. Thomas (2003) argues that “design is the plan and systematic application of relevant scientific, technical, and practical information to the creation and assembly of innovations appropriate in human service intervention”. According to Monette et al., cited in De Vos et al. (2011), designing interventions necessitates that they are organised in a way that is “deliberate, structured, sustainable, valid and reliable in order to lead to clearly identifiable outcomes and benefits for the participants in the programme”. This supports Peebles-Wilkins & Amodeo (2003), who express that researchers within practice guideline development should design processes which “1) relies heavily on research related to outcomes, 2) results in consensus and 3) ensures uniform implementation of the guidelines”. Thus, the design stage of this study draws on contributions from phase one as well as the consensus to be achieved through the Delphi process in the next phase.



The two primary events of the design phase, as recognised by Fawcett et al. (1994) in Rothman and Thomas’s intervention D&D, which are discussed in detail in this phase, are designing an observational system and specification of procedural elements in the intervention.

#### **3.7.1.1. Designing an observational system**

Designing an observational system is an abstract procedure, and could range from micro to meso to macro interventions. The design phase addresses operational elements such as what the researcher did, to whom, when, how often and where. Marlow (2005) alludes to this process as monitoring interventions, while Fawcett et al. (1994) and Mullen (1994) allude to it as designing of the observational system. The fundamental sub-events that are discussed further under the observational system are design objective, design domain, and design requirements.

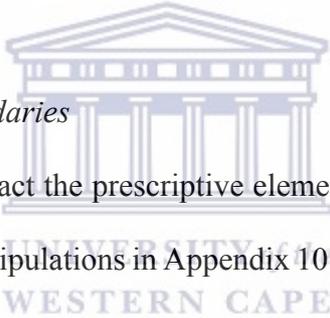
### **a) Design objective**

In intervention design, the design objective is the task to be achieved in the design work (Rothman & Thomas, 2013). Thomas (2003) refers to design objective as change objectives indicating “the goals toward which the efforts of helping should be directed”. The design objective in IR is the “development of a social technology to ameliorate a social problem” (Mullen, 1994) and to attain desired results (Rosen, 2003). The design objective in this study was to develop an intervention towards improving the academic performance, success and retention of undergraduate nursing students. The design objective for the current study is an example of a differential goal whereby there is a specific aim for a specific problem condition (Loewenberg, 1983). The design objective statement infers a problem (i.e. academic performance, success and retention), the client (i.e. undergraduate nursing students), and the desired change (i.e. improving the academic performance, success and retention among undergraduate nursing students). For the development of the intervention, the researcher drew on the challenges faced by undergraduate nursing students and nurse educators as identified in studies 1, 2, 3 and 4 in an attempt to create set practice guidelines to improve the academic performance, success and retention of undergraduate nursing students at the university used in this study.

### **b) Design domain**

The design domain within IR refers to “intervention elements that may be fixed and therefore, design is not required or they may be flexible and needing design work” (Mullen, 1994). The singling out of fixed and/or flexible elements when designing an intervention is assumed to make the design task less complicated.

The conceptual model discussed in detail in Chapter Two, as adapted from Perna and Thomas (2006), suggests that student success is a result of interaction between the multiple layers of context (internal context, family context, school context and social, economic, and policy context) (see Figure 2.2). These layers of context are interrelated in such a way that each layer has an impact on the other within a given system (Perna & Thomas, 2006). This implies that every layer of context is reticulated with other layers of the system; thus, an alteration in one layer of the system will have an impact on whole systems. The layers applied in design work to structure areas for design activity are the internal (student) context, family context, school context and social, economic, and policy context. Appendix 10 - Text box 1 illustrates the intervention elements identified within the layers of context as adapted from Perna and Thomas (2006).



*Specification of the domain boundaries*

The process that was used to extract the prescriptive elements from the analysis of phase one is illustrated in Appendix 2. The stipulations in Appendix 10 – Text box 2 provide the necessary attention to the design events of the intervention plan (Mullen, 1994).

**c) Design requirements**

According to Rothman & Thomas (2013), establishing design requirements is the process of determining the conditions that the intervention needs to satisfy. Furthermore, Mullen (1994) refers to this sub-event as the “identification of innovation requirements”. Formulating design requirements involves outlining measurable features of the guidelines. The design requirements say what the intervention will do. The requirements must link with the previously determined end results and they need to be measurable. The aim of this IR was to develop an

intervention towards improving the academic performance, success and retention of undergraduate nursing students.

In accordance with the aim of the study, the design requirements that were developed are broad.

It is imperative that the intervention not be restricted to what has been stated below:

- i. help students and their families to see their role in ensuring the students' academic performance, success and retention in the undergraduate nursing programme;
- ii. inform and build capacity of lecturers (including nurse educators, clinical supervisors as well as educators providing service modules from other departments) on matters regarding academic performance, success as well as retention of undergraduate nursing students;
- iii. inform the selection criteria and/or the admission requirements of prospective students into the undergraduate nursing programme;
- iv. inform early identification of undergraduate nursing students that are at risk of unsatisfactory academic performance and ultimately “drop out” of the undergraduate nursing programme; and
- v. inform the university and the School of Nursing (SoN) of their role in providing an educational environment that promotes quality learning and teaching.

### **3.7.2. Specifying procedural elements**

At this stage, the researcher provides the evidence that sufficient detail was provided on the development of the intervention. This is to enable other researchers to replicate the design of the intervention (Rothman & Thomas, 2013). The information gathered during phase one of the study was manipulated, transformed and organised in a manner that produced practical

design concepts. According to Rothman & Thomas (2013), the design concepts are articulated through the conversion and intervention design process, which is discussed in detail in 3.7.2.2. Rothman & Thomas (2013) state that “information retrieval, conversion and design with many social intervention problems can be conducted by an individual researcher, although most efforts would be enriched when a group of designers work together”. In line with Rothman & Thomas (2013), the researcher and the study supervisor were actively involved in the design work. In addition to the researcher and the study supervisor’s efforts, experts in the field were consulted for their input into and confirmation of the designed intervention.

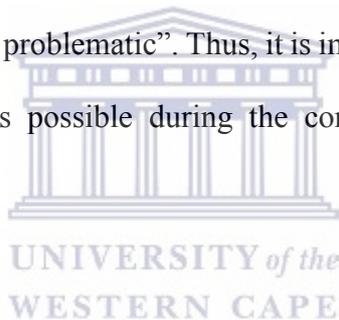
### **3.7.2.1. Information retrieval by source and type**

In this sub-event, the researcher presents a summary of the information gathered during the information gathering phase of this study. In line with Rothman & Thomas (2013), it is important to note that the information retrieved will not only be limited to the imperial research findings during phase one of the study, but will extend to additional sources, such as published reviews, experts in the fields of nursing and nursing education, as well as experts in learning and teaching. The purpose of this section, however, is to capture the findings of the systematic review, the perceptions of undergraduate nursing students towards their educational environment and the perceptions of undergraduate nursing students and nurse educators regarding the challenges they are faced with while endeavouring to promote satisfactory academic performance, success and retention among nursing students. To draw conclusions according to the conceptual model adapted from Perna and Thomas (2006) and ultimately arrive at the key components that formed the core of the intervention, findings from studies 1 to 4 were rigorously cross-referenced and triangulated (see Appendix 2). Statements were developed that conclude the problem analysis and information gathering phase of the study. This is in line with the description of the information retrieval stage by Rothman & Thomas

(2013), which alludes to the fact that additional analysis is tolerable during this stage of design work.

### **3.7.2.2. Conversion and intervention design processes**

Conversion and intervention design processes appear to be interconnected. In light of this, the researcher sought to discuss conversion with reference to the design process and vice versa. Without discarding the fact that both processes are information-based, it was important that the researcher is innovative, creative, imaginative and flexible during the conversion and intervention design process, based on the fact that the successful development of an intervention is not only dependent on the information gathered (Warria, 2014). Mullen (1994) states that “the personal creative nature of designing a guideline makes the ability to replicate the conversion process extremely problematic”. Thus, it is important that the researcher remain objective and as much detail as possible during the conversion and intervention design processes.



As mentioned earlier, the conversion and intervention design processes were intertwined, which allowed for data to be manipulated meaningfully, giving rise to the intervention, which focused on the promotion of academic performance, success and ultimately the retention of undergraduate nursing students. In this stage, the concluding statements were manipulated and transformed in a manner that produced practical design concepts. A clear example of data manipulation was evident in a study conducted by Beytell (2008) which made reference to “factor isolating theory”, followed by “factor relating and structuring”. The purpose of data manipulation is to generate possible design concepts. During the process of data manipulation, data “is converted into basic action constructs and through design processes, these basic action constructs are used to formulate more specific situational concepts”, which then form the

conceptual plan for development (Mullen, 1994) (see Appendix 10 – Text box 2).

The nature of this study was applied research, which necessitated borrowing and adapting concepts. Therefore, through continuous reflection and brainstorming, the researcher constantly modified concepts during the design process. Fraser and Galinsky (2010) suggest that the intervention design involves “delineating a problem theory in which potentially malleable risk factors are identified and then in programme theory matching these risk factors, sometimes conceptualised as mediators with change strategies, such as the provision of psychoeducation”. Thus, the appropriateness of an intervention can be measured by the degree to which the identified problems are paired with change strategies of adequate strength to deliver a positive outcome (Fraser & Galinsky, 2010). However, Thomas (2003) warns against disregarding certain ideas based on improbability or being unrealistic, but urges openness to hypothetical ideas throughout the designing process. In line with this, the researcher paid attention to developing guidelines that focused on the overall improvement of the academic performance, success and retention of undergraduate nursing students. The process of conversion and intervention design will be structured in two main parts. Firstly, generalisations were formed based on the information gathered (concluding statements). Subsequent to the process of forming generalisations, the second part involved discussion of how the intervention guidelines were developed.

#### **a) Formulation of generalisations**

As already noted, the researcher, with the help of the study supervisor, was actively involved in the design work. The information retrieved was not limited to the imperial research findings during phase one of the study, but extended to additional sources, such as recently published reviews as well as experts in the field. This is in line with Fraser and Galinsky (2010), who

suggest that the process of designing an intervention is both evaluative and creative as it requires evaluating and merging existing research with other knowledge, and successively generating innovative intervention guidelines and practice strategies.

The purpose of studying academic performance, success and retention in this study was to (1) establish the challenges experienced by undergraduate nursing students at the university under study; and (2) develop an intervention to alleviate those challenges in order to improve the academic performance, success and ultimately retention of undergraduate nursing students. Academic performance and academic success in the current study are argued to be correlated but different. Guided by the work of Naiker (2011) and Griffin and Galassi (2010), academic performance may be described as a set of variables that impact on learners' success in a school. Drawing from Chapter Two of the current study, the selected conceptual model adapted from Perna and Thomas (2006) has six typical characteristics, namely: (1) student success is a longitudinal process; (2) multiple theoretical approaches inform understanding of student success; (3) student success is shaped by multiple levels of context; (4) the relative contribution of different disciplinary and area perspectives to student success varies; (5) multiple methodological approaches contribute to the knowledge of student success; and (6) student success processes vary across groups. On the other hand, academic success refers to attainment of the minimum requirements to be promoted to the next level of study or graduate from the undergraduate nursing programme. In other words, academic success is considered as the end-product of academic performance. Satisfactory academic performance in this case may result in academic success and vice versa.

As mentioned earlier, the academic performance and success of undergraduate nursing students is shaped by multiple layers of context that share a common goal. These include

internal/student context (i.e. student profile, academic factors and psychological and emotional factors), family context (i.e. family background, family psychology and family economics) school context (i.e. school background, professional integration learning and teaching environment and funding) and social, economic and policy context (i.e. social conditions, economic conditions and public policies). This implies that to improve the academic performance and ultimate success of undergraduate nursing students, continuous assessment and modification of maladaptive variables within the “layers of context” is important. These multiple layers of context share a common set of intervention principles, as well as principles specific to each context.

#### *Quality of theoretical information factors*

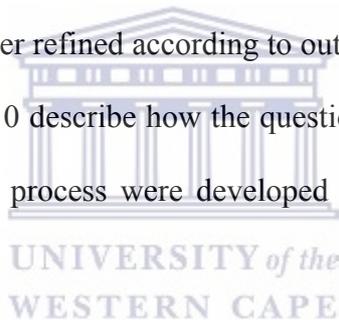
As cited earlier, the adapted model by Perna and Thomas (2006) assumes that students’ academic success cannot be comprehended without considering that student success is shaped by four contextual layers: (1) the individual’s internal context, (2) the family context, (3) the school context, and (4) the social, economic, and policy context. Despite the fact that the conceptual model for reducing the college success gap and promoting success for all by Perna and Thomas (2006) was adapted to fit the current study, the adapted model does seem adequately constructive with reference to derivability, clarity, logical consistency, simplicity, and generalisability. Its quality of forming a strong cohesion or fit with the broader body of theory is clear. Therefore, that the researcher is of the opinion that significant conclusions can be drawn from the adapted conceptual model.

#### **b) Developing intervention guidelines**

White and Raitzer (2017) define practice/intervention guidelines as a “set of systematically compiled and organised knowledge statements designed to enable practitioners to find, select,

and appropriately use the intervention that are most effective for a given task”. Guidelines have a capacity to provide significant measures for nurse educators as they encounter and manage problems in the education of nursing students.

The development of problem-solving knowledge has been advocated by Marsh and Fisher (2007). The problem-solving approach centres on the outcomes instead of the problems of the target population. The problem-solving approach was chosen when designing the guidelines because the researcher’s interests were centred on improving the academic outcomes of undergraduate nursing students (i.e. the academic performance, success and retention of undergraduate nursing students). According to Rosen (2003), in design work, “outcome-based target domains will serve as the logical beginning foci for consolidating the building block knowledge. It could then be further refined according to outcome categories within domains”. Appendix 10 – Text boxes 3 to 10 describe how the questionnaire (preliminary intervention) for the expert validation Delphi process were developed with respect to all that has been described in this phase.



### **c) From design to product**

According to Mullen (1994), the “complete intervention model is expected to include guidelines that are inclusive and compatible”. The intervention guidelines that are developed through a personal modelling process are by their very nature operational because they have been developed by the inventor who will be applying them. This implies that the design process necessitates the active participation of the intended users who are involved in the practical application of the intervention guidelines (Bhattacharyya, Reeves & Zwarenstein, 2009). Thus, through the participation of professional nurses, nurse educators and clinical supervisors in this

process, the final product will “be more acceptable, more compatible with existing methods, simpler, sustainable, and in general, more contextually appropriate” (Thomas, 2003).

### **3.8. PHASE THREE: VALIDATION**

#### **3.8.1. Delphi study: Chapter Eight – Study 5**

The last phase of the study represents the evaluation phase in Rothman and Thomas’ (2013) model. Phase three of this study involved validation of the intervention through a Delphi process. This phase involved presentation of the developed intervention to a panel of experts to determine the suitability of implementation of the intervention.

##### **3.8.1.1. Research design**

A quantitative, non-experimental Delphi technique was employed. According to Keeney McKenna and Hasson (2010), Delphi is a repetitive method of structuring communication between a group of people who can provide valuable contributions in order to resolve a complex problem. The Delphi method has been used to build consensus and consistency of opinion among a group of experts regarding an area of interest or enquiry (Smith, Brainard & Campbell, 2018).

The disadvantage of the Delphi technique is that the number of participants is usually small, which implies that even if consensus is achieved, the findings may not be generalised beyond the study (Glasper & Rees, 2016).

##### **3.8.1.2. The procedure followed**

The Delphi technique was employed in this study to refine and validate the intervention guidelines developed in phase two of the study. The intervention guidelines developed in phase

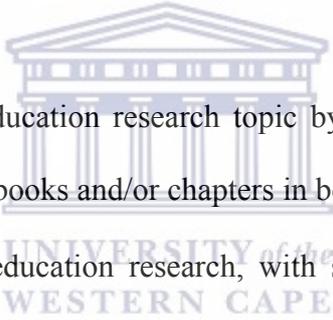
two (design and early development of the intervention) of the study informed the development of the Delphi questionnaire. The main features of the procedure followed were:

- **Step 1:** Knowledge production and idea generation. All stages thereafter involved a series of information collation and further engagement until a consensus of participant responses was reached (Glasper & Rees, 2016). The statements used during the Delphi procedure were not generated by the panel of experts. The researcher developed a priority rating Likert scale questionnaire based on the prescriptive statements generated in the design phase. The questionnaire, comprising the prescriptive statements that were developed in phase two of the study, was electronically forwarded to the panel of experts together with an invitation to participate in the Delphi and the study information sheet. The questionnaire (see Appendix 11) was presented to the panel to rate on a scale of 1 to 5, with 1 being “not at all important” and 5 being “absolutely essential” statements. The questionnaire was pre-tested on a small advisory panel with the sole intention of detecting possible misinterpretation.
- **Step 2:** The Delphi panelist received a second questionnaire (*Round 2*- Appendix 12) formulated based on the summarised information received in the first round. The information sheet of this study was attached to the questionnaire as a reminder to the panel to bear in mind the objectives of this study.
- **Step 3:** Each participant received a summarised questionnaire and information sheet that indicated the ratings of each item based on the previous round. The participants were asked to rigorously review the summary and thereafter they were given the opportunity to provide reasons if they remained outside the consensus.

- **Step 4:** In this final step of the Delphi method, the list of items that achieved consensus ( $\geq 80\%$  agreement) were distributed to the participants (see Appendix 13). This step provided the participants a final chance to revise their judgements regarding the item/statement ratings. The items remaining after consensus was reached informed the intervention that should be implemented to improve the academic performance, success and retention of undergraduate students at the identified university.

### 3.8.1.3. Identification and invitation of experts

The initial task prior to identifying the participants was to operationalise the concept of “expert” with regard to nursing education. The following determinants of expertise in the field of nursing education were used:

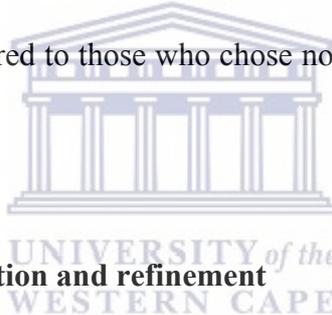
- 
- Publication on nursing education research topic by means of journal papers and/or conference papers and/or books and/or chapters in books
  - Involvement in nursing education research, with substantial experience in nursing education research, but not necessarily as an author of an academic journal paper reporting on nursing education issues
  - Affiliation with a professional association that concerns itself with issues of nursing education research
  - Involvement in the teaching of undergraduate nursing students in an academic or clinical environment

#### a) Sampling method and sample size

Purposive sampling was used to select participants who are experts, knowledgeable and were willing to provide the information and experiences the researcher sought (Rebar & Macnee,

2010). Twenty-five (25) experts were identified and invited to participate in the Delphi process that aimed to validate the intervention that was designed in phase two of the present study. These experts included experts from various provinces in South Africa, as the study wished to address a national issue. The correspondence (via email) disseminated to the 25 experts identified covered the following key points:

- Participation was voluntary.
- No compensation was offered for participating.
- Participants were reassured that anonymity would be maintained at all times.
- The Delphi procedure was briefly explained.
- The purpose of the study was briefly mentioned.
- A brief description of those invited was supplied.
- The opportunity was offered to those who chose not to participate to provide a reason for their decision.



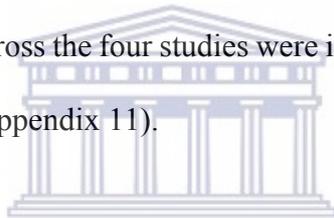
#### **3.8.1.4. Questionnaire construction and refinement**

One of the biggest limitations in recruiting Delphi participants is that there is no guarantee that participants meet the “expert level” required to form part of the Delphi panel. To overcome this limitation and to ensure rigor, the researcher made efforts to ascertain that those who agreed to participate in the Delphi study were indeed experts in nursing education. The following items were integrated into the questionnaire (see Appendix 11). Respondents were asked to specify:

- the categories that best represent them (researcher, nurse educator/lecturer, clinical facilitator, registered nurse (clinically based), learning and teaching specialist, curriculum development specialist);
- the number of years in the position;

- the qualifications they currently hold; and
- the time spent engaging with undergraduate nursing students.

In Round 1, the main body of the questionnaire focused on the intervention that should be implemented to ensure academic performance and success of undergraduate nursing students. The initial questionnaire contained 11 sections and 33 items. Content validity and face validity of the questionnaire was ensured by involving three (3) experts in nursing education as well as the supervisor of this study during the development phase of the questionnaire. In the feedback received from the experts and from the study supervisor, the main suggestion was to incorporate the findings from the preceding studies that lead to the development of the items in the questionnaire. On the strength of this advice, the concluding statements that summarises the horizontal themes that cuts across the four studies were incorporated in to the questionnaire and presented to the panel (see Appendix 11).



UNIVERSITY of the  
WESTERN CAPE

Participants were asked to indicate their level of agreement with the intervention statements in the following categories (see Appendix 11 & Appendix 12):

- Not at all important
- Slightly important
- Moderately important
- Very important
- Absolutely essential

In round 2 of the Delphi process, four (4) intervention statements that did not receive 80% consensus during round 1 were circulated and participants were given an opportunity to adjust their responses if they wish to do so. In addition, thematic analysis by Braun and Clarke (2006;

2013) was used to analyse qualitative data obtained in round 1, which resulted in the formulation of an additional 12 items (see Appendix 12). The 12 additional items (items 6, 12, 13, 21, 27, 33, 34, 35, 36, 37, 40 and 45) all achieved the consensus level ( $\geq 80\%$ ), while the four items that were resent to the panel failed to achieve the consensus level ( $\geq 80\%$ ) set for the study. Consequently, the four (4) items that failed to reach consensus were removed.

In round 3, the final round of Delphi validation was done on whether the rated intervention statements were an accurate reflection of what the participants agreed on in rounds 1 and 2 (see Appendix 13). The expert participants were asked to check the appropriateness of the consensus in relation to their rating.

#### **3.8.1.5. Processing and analysis of responses**

The responses received were captured in a Microsoft Excel spreadsheet in preparation for analysis. The information entered in the spreadsheet included the responses to the questionnaire statements as well as verbatim comments and additional suggestions made by the participants. Quantitative data were analysed by means of descriptive statistical analysis using the IBM Statistical Package for Social Sciences (IBM SPSS-24). Quantitative analysis was done by means of central tendency and mean/median analysis, which is one of the preferred consensus measures used in Delphi studies (Von der Gracht, 2012). Qualitative responses were analysed using the six steps of thematic analysis as identified by Braun and Clarke (2013) using ATLAS.ti for Mac, version 1.6. The analysis of the qualitative data (comments and recommendations) obtained in round 1 led to the formulation of 12 additional prescriptive statements (items 6, 12, 13, 21, 27, 33, 34, 35, 36, 37, 40 and 45) (see Appendix 12). The themes that emerged from the comments and recommendations went through the conversion and intervention design process as described in phase two of the study.

### **3.8.1.6. Rigor for Delphi study**

Rigor was ensured by using Rebar and Macnee's (2010), four criteria of trustworthiness:

**i. Credibility**

To ensure credibility the researcher provided detailed background information to the participants to ensure understanding of the research context that led to the development of the prescriptive intervention statements. Furthermore, member checks of data collected were done in the Delphi process by allowing the participants the opportunity to confirm the data.

**ii. Transferability**

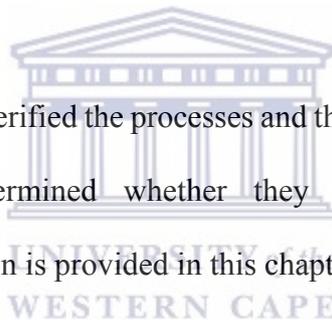
The researcher provided a detailed description of the research setting, and gave a detailed description of the phenomenon.

**iii. Dependability**

The research supervisor verified the processes and the procedure used by the researcher in the study and determined whether they were acceptable. The in-depth methodological description is provided in this chapter.

**iv. Confirmability**

Completed questionnaires, transcripts and the researcher's reflective report were kept safe and will be made available upon request.



**Table 3.3: Summary of the study phases**

Phase	Research activity	Population and sample	Data collection/extraction	Data analysis
1	<b>Systematic review:</b> A systematic review was conducted on the predictors of academic performance and success of undergraduate nursing students	Peer-reviewed papers published in scientific journals	Information about the reviewed articles: author(s) name(s), year of publication, geographical location, participants, study design, data collection instruments used and the results of the study in line with the research question, using a data extraction tool attached as Appendix 6	Data from shortlisted articles were analysed by means of textual narrative synthesis
	<b>Cross-sectional descriptive study:</b> A quantitative, cross-sectional descriptive survey was conducted to gain an understanding of the undergraduate nursing students' perceptions of their educational environment at the university selected for this study	A total of 232 undergraduate nursing students from the University used in this study, were selected by means of a stratified random sampling technique	A survey using a 67-item questionnaire	Descriptive statistics were used to calculate frequencies, standard deviations (SDs) and percentages.  Inferential statistics, independent-sample T-tests, one-way ANOVAs and Welch ANOVA, and post hoc Tukey's HSD tests were used to analyse the differences between groups
	<b>Focus group discussions (FGDs):</b> FGDs were conducted to explore and describe the challenges experienced by undergraduate nursing students at the identified SoN regarding their	A total of 50 undergraduate nursing students from the selected university, recruited by means of	In-depth FGDs	Thematic analysis by Braun and Clark (2013) was employed

	academic performance and success and the measures implemented to overcome these challenges	a stratified purposive sampling technique		
	<b>Individual interviews:</b> Individual in-depth interviews were conducted to explore and describe the challenges experienced by nurse educators at the selected SoN regarding the academic performance, success and retention of undergraduate nursing students and the measures implemented to overcome these challenges	A total of 8 undergraduate nurse educators from the identified university, selected using a stratified purposive sampling technique	In-depth interviews	Thematic analysis by Braun and Clark (2013) was employed
2	<b>Design and early development of the intervention:</b> The findings from phase 1 were synchronised by adapting two events (designing an observational system and specification of procedural elements) as recommended by Rothman and Thomas (2013)		Results from phase one	The researcher adapted two events (designing an observational system and specification of procedural elements)
3	<b>Delphi:</b> A three-round online Delphi study was conducted to refine and validate the intervention developed in phase two	A total of 8 experts in nursing and nursing education, selected using a non-probability purposive sampling technique	A 33-item online questionnaire with 11 comment boxes, developed based on the findings of phase one and phase two of this study. A follow-up questionnaire, developed from the comments and input made by the experts in the previous round	Descriptive statistics were used to calculate mean, median, percentages and interquartile range  Qualitative comments were analysed by means of thematic analysis by Braun and Clark (2013)

### **3.9. RESEARCH ETHICS**

Ethics in research is a serious matter and researchers need to adhere to strict rules (Holloway & Galvin, 2016). To ensure high ethical standards, the principles of the code of ethics for nurses were applied (Polit & Beck, 2010; Rebar & Macnee, 2010; Grove et al., 2012). The ethical principles that were implemented are informed consent, respect for participants, non-maleficence, beneficence, justice, privacy and confidentiality.

#### **3.9.1. Informed consent**

Grove et al. (2012) highlight that prospective participants who are fully informed about the nature of the study and its probable risks and benefits are in a position to make rational decisions about participating in the study. In this study, the principle of informed consent was ensured by implementing the following:

- i. Study information sheets were disseminated to the prospective research participants to ensure that they had enough time to go through the intentions of the study and the significance of their involvement in it (see Appendix 14, Appendix 15, Appendix 16 and Appendix 17).
- ii. Participants were briefed about the study prior to data collection.
- iii. Informed written consent was sought from the all participants. This included consent to use a voice recorder (see Appendix 18, Appendix 19 and Appendix 20).
- iv. Participation was voluntary, and the students were not made to feel that they were being coerced to participate. The participants were made aware of their right to withdraw from the study at any stage, without any prejudice. The right to withdraw was emphasised to

avoid power dynamics that may occur between the researcher (lecturer) and student participants (see reflexivity).

### **3.9.2. Respect for participants**

Respect for participants was ensured in the study by implementing the following:

- i. The confidentiality and anonymity of all participants involved in the study will be maintained.
- ii. The participants were treated with the greatest respect and dignity throughout the study.

### **3.9.3. Non-maleficence**

Non-maleficence is a philosophical principle based on causing no harm to the participants, whether intended or unintended, by protecting them at all times (Grove et al., 2012). This was ensured by implementing the following in the study:

- i. Permission to conduct this study was sought from Registrar, Director of the School of Nursing at UWC (see Appendix 21 and Appendix 22) and from the Research Ethics Committee of UWC (see Appendix 1).
- ii. Study participants were informed of their right to withdraw from the study at any time, without explanations or consequences, and that participation was completely voluntary.
- iii. Nursing students at risk of direct or indirect psychological harm were identified and referred for counselling at the Centre for Student Support Services (CSSS) at the identified university.
- iv. The researcher always kept the best interests of the participants in mind.

- v. Interviews were conducted during the student's "free period" to avoid interruption of learning time which may ultimately cause unintended harm to the participants.
- vi. Anonymity was assured to guard the participants from any unanticipated harm.

### **3.9.4. Beneficence**

Beneficence is one of the most fundamental ethical principles in research. Polit and Beck (2010) expressed that it is the duty of the researchers to minimise harm and maximise benefits to the participants. In this study, the principle of beneficence was ensured by implementing the following:

- i. The participants were made aware that the present study is not designed to help them personally, but the results may help the researcher to learn more about the current phenomenon.
- ii. Although this study was not designed to benefit the immediate participants, the participants were informed that the results may be of significant benefit to future nursing students, through improved academic performance and success.

### **3.9.5. Justice**

The principle of justice refers to the participants' right to fair treatment (Rebar & Macnee, 2010). This was ensured by implementing the following ethical consideration within the study:

- i. The information regarding the study as well as the consent to participate in the study was made available in the language that participants understood best.

### **3.9.6. Privacy and confidentiality**

Rebar and Macnee (2010) emphasise that researchers conducting studies that involve human beings should ensure that their research is not intrusive and that participants' privacy is maintained throughout the study. For this study, the participants' right to privacy and confidentiality was maintained by implementing the following:

- i. All data collected was kept safe in a locked cupboard and a file that is password protected to uphold confidentiality.
- ii. Participants' identification (i.e. names, contact details, student numbers and the name of the institution) was withheld to ensure anonymity.

### **3.10. SUMMARY**

This chapter presented the multimethod approach applied in this study. The methodology for phases one, two and three were described. The study context, research design, study population and sampling, data collection methods, data analysis, rigor and ethical considerations were also discussed.

### **3.11. REFERENCES**

Armijo-Olivo, S., Stiles, C.R., Hagen, N.A., Biondo, P.D., & Cummings, G.G. (2012). Assessment of study quality for systematic reviews: a comparison of the Cochrane Collaboration Risk of Bias Tool and the Effective Public Health Practice Project Quality Assessment Tool: methodological research. *Journal of Evaluation in Clinical Practice*, 18(1): 12–18.

- Barnett-Page, E., & Thomas, J. (2009). Methods for the synthesis of qualitative research: a critical review. *BMC Medical Research Methodology*, 9(1): 59.
- Bassir, S.H., Sadr-Eshkevari, P., Amirikhorheh, S., & Karimbux, N.Y. (2014). Problem-based learning in dental education: a systematic review of the literature. *Journal of Dental Education*, 78(1): 98–109.
- Beytell, A. (2008). *A community-based model for health care social work* Unpublished doctoral dissertation, University of Johannesburg, Johannesburg, South Africa.
- Bhattacharyya, O., Reeves, S., & Zwarenstein, M. (2009). What is implementation research? Rationale, concepts, and practices. *Research on Social Work Practice*, 19(5): 491–502.
- Blaauw, D., Ditlopo, P., & Rispel, L.C. (2014). Nursing education reform in South Africa: lessons from a policy analysis study. *Global Health Action*, 7(1): 26401.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2): 77–101.
- Braun, V., & Clarke, V. (2013). *Successful qualitative research: A practical guide for beginners*. sage.
- Brewer, J., & Hunter, A. (2006). *Foundations of multimethod research: Synthesizing styles*. Thousand Oaks: Sage.
- Creswell, J.W. (2014). *A concise introduction to mixed methods research*. Sage Publications.
- Dean, A. G., Sullivan, K. M., & Soe, M. M. (2014). OpenEpi: Open source epidemiologic statistics for public health, version.

De Vos, A., Strydom, H., Fouché, C., & Delpont, C. (2011). *Research at grass roots: For the social sciences and human service professions*. Pretoria: Van Schaik.

Dixon-Woods, M., Baker, R., Charles, K., Dawson, J., Jerzembek, G., Martin, G., McCarthy, I., McKee, L., et al. (2014). Culture and behaviour in the English National Health Service: Overview of lessons from a large multimethod study. *BMJ Quality and Safety*, 23(2): 106–115. DOI: 10.1136/bmjqs-2013-001947.

Edwards, D., Carrier, J., & Hopkinson, J. (2017). Assistance at mealtimes in hospital settings and rehabilitation units for patients (> 65 years) from the perspective of patients, families and healthcare professionals: A mixed methods systematic review. *International Journal of Nursing Studies*, 69: 100–118.

Fawcett, B. S., Suarez-Balcazar, Y., Balcazar, E. F., White, W. G., Paine, L. A., Blanchard, A. K. & Embree, G. M. (1994). Conducting intervention research: The design and development process. In J. Rothman & J. E. Thomas (Eds.), *Intervention research: Design and development for human service*. (pp. 25–54). New York: The Haworth Press.

Field, A. (2013). *Discovering statistics using IBM SPSS statistics*. sage.

Fink, A. (2013). *Conducting research literature reviews: From the Internet to paper*. SAGE Publications.

Fraser, M. W., & Galinsky, M.J. (2010). Steps in intervention research: Designing and developing social programs. *Research on Social Work Practice*, 20(5), 459–466.

Glasper, A., & Rees, C. (Eds.). (2016). *Nursing and Healthcare Research at a Glance*. John Wiley & Sons.

Gough, D., Oliver, S., & Thomas, J. (Eds.). (2017). *An introduction to systematic reviews*. Sage.

- Greef, M. (2011). Information collection: interviewing. In A. S. De Vos, H. Strydom, C. B. Fouche & C. S. L. Delport (Eds.), *Research at grassroots: For the social services and professions* (4th ed., pp. 341-375). Cape Town: Van Schaik Publishers.
- Griffin, D., & Galassi, J. (2010). Parent perceptions of barriers to academic success in a rural middle school. *Professional School Counseling, 14*(1), 87–100.
- Grove, S.K., Burns, N., & Gray, J. (2012). *The practice of nursing research: Appraisal, synthesis, and generation of evidence*. Elsevier Health Sciences.
- Grove, S.K., Burns, N., & Gray, J. (2014). *Understanding nursing research: Building an evidence-based practice*. Elsevier Health Sciences.
- Hays, D. G., & Singh, A. A. (2011). *Qualitative inquiry in clinical and educational settings*. Guilford Press.
- Hennink, M. M. (2017). Cross-Cultural Focus Group Discussions. In *A New Era in Focus Group Research* (pp. 59-82). Palgrave Macmillan, London.
- Herrington, J., Reeves, T. C., & Oliver, R. (2014). Authentic learning environments. In *Handbook of research on educational communications and technology* (pp. 401-412). Springer, New York, NY.
- Hesse-Biber, S.N., & Johnson, R.B. (2015). *The Oxford handbook of multimethod and mixed methods research inquiry*. New York: Oxford University Press.
- Holloway, I., & Galvin, K. (2016). *Qualitative research in nursing and healthcare*. John Wiley & Sons.
- Keeney, S., McKenna, H., & Hasson, F. (2010). *The Delphi technique in nursing and health research*. John Wiley & Sons.

Littell, J.H., Corcoran, J., & Pillai, V. (2008). *Systematic reviews and meta-analysis*. Oxford University Press.

Loewenberg, F.M. (1983). *Fundamentals of social intervention: Basic concepts, intervention activities, and core skills*. Columbia University Press.

Macnee, C. L., & McCabe, S. (2008). *Understanding nursing research: Using research in evidence-based practice*. Lippincott Williams & Wilkins.

Marlow, C. R. (2005). *Research methods for generalist social work*. London: Thomson Brooks/Cole.

Marsh, P., & Fisher, M. (2007). The development of problem-solving knowledge for social care practice. *British Journal of Social Work*, 38(5), 971–987.

Miles, S., Swift, L., & Leinster, S. J. (2012). The Dundee Ready Education Environment Measure (DREEM): a review of its adoption and use. *Medical teacher*, 34(9), e620-e634.

Mullen, E.J. (1994). Design of social intervention. In Thomas. E.J. (ed.), *Intervention research: Design and development for human services*, pp. 163–193.

Nardi, P. M. (2018). *Doing survey research: A guide to quantitative methods*. Routledge.

Onwuegbuzie, A. J., Dickinson, W. B., Leech, N. L., & Zoran, A. G. (2009). Toward more rigor in focus group research: A new framework for collecting and analyzing focus group data. *International Journal of Qualitative Methods-ARCHIVE*, 8(3), 1-21.

Peebles-Wilkins, W. & Amodeo, M. (2003). Performance standards and quality control: Application of practice guidelines to service delivery. In A. Rosen & K. E Proctor (Eds.),

*Developing practice guidelines for social work intervention: Issues, methods and research agenda* (pp. 207-220). New York: Columbia University Press.

Perna, L. W., & Thomas, S. L. (2006). A framework for reducing the college success gap and promoting success for all.

Polit, D. F., & Beck, C. T. (2010). *Essentials of nursing research: Appraising evidence for nursing practice*. Lippincott Williams & Wilkins.

Polit, D. F., & Beck, C. T. (2012). Resource manual for nursing research. *Generating and Assessing evidence for nursing practice. Ninth Edition. China: Wolters Kluwer Health*.

Puertas, E. B., Arósquipa, C., & Gutiérrez, D. (2013). Factors that influence a career choice in primary care among medical students from high-, middle-, and low-income countries: a systematic review. *Revista Panamericana de Salud Pública, 34*: 351–358.

Rebar, C. L., & Macnee, C. L. (2010). *Understanding nursing research: Reading and using research in evidence-based practice*. Philadelphia, PA: Lippincott Williams & Wilkins.

Rosen, A. & Proctor, E. K. (2003). Practice guidelines and the challenge of effective practice. In A. Rosen & E. K. Proctor (Eds.), *Developing practice guidelines for social work intervention: Issues, methods and research agenda* (pp. 1-14). New York: Columbia University Press.

Rothman, J., & Thomas, E. J. (1994). *Intervention research: Design and development for human service*. Psychology Press.

Rothman, J., & Thomas, E. J. (2013). *Intervention research: Design and development for human service*. Routledge.

Rubin, H. J., & Rubin, I. S. (2011). *Qualitative interviewing: The art of hearing data*. Sage.

- Sedgwick, P. (2014). Cross sectional studies: advantages and disadvantages. *BMJ*, 348: g2276 doi: 10.1136/bmj.g2276.
- Setia, M.S. (2016). Methodology series module 3: Cross-sectional studies. *Indian Journal of Dermatology*, 61(3): 261.
- Smith, A., Brainard, J., & Campbell, K. (2018). 360: Development Of A Content Outline For Ume Critical Care Education Using A Modified Delphi Method. *Critical Care Medicine*, 46(1), 163.
- Smith, P.G., Morrow, R.H., & Ross, D.A. (eds.). (2015). *Field trials of health interventions: a toolbox*. Oxford: Oxford University Press.
- Soemantri, D., Herrera, C., & Riquelme, A. (2010). Measuring the educational environment in health professions studies: A systematic review. *Medical teacher*, 32(12), 947-952.
- Swift, L., Miles, S., & Leinster, S. J. (2013). The analysis and reporting of the Dundee Ready Education Environment Measure (DREEM): some informed guidelines for evaluators. *Creative Education*, 4(05), 340.
- Thomas, D.R. (2003). A general inductive approach for analysing qualitative evaluation data. *American Journal of Evaluation*, 27(2): 237–246.
- Thomas, J. R., Silverman, S., & Nelson, J. (2015). *Research methods in physical activity*, 7E. Human kinetics.
- Venkatesh, V., Brown, S.A., & Bala, H. (2013). Bridging the qualitative-quantitative divide: Guidelines for conducting mixed methods research in information systems. *MIS Quarterly*, 37(1).

von der Gracht, H. A. (2012) Consensus measurement in Delphi studies: Review and implications for future quality assurance. *Technological Forecasting & Social Change*, 79, 1525-1536. Doi: 10.1016/j.techfore.2012.04.013.

Warria, A. (2014). *Development of psychosocial intervention guidelines for transnational trafficked children*.

White, H., & Raitzer, D. A. (2017). *Impact Evaluation of Development Interventions: A Practical Guide*. Asian Development Bank.



## RESULTS: OVERVIEW OF CHAPTERS / ARTICLES

This overview introduces the results chapters four to eight (Studies 1 to 5), which are presented in an article format. The articles have been submitted to various academic journals for publication. The format of each article is in accordance with the relevant journal requirements. The title, aim and submission details are highlighted.

### Chapter Four (Study 1)

**Title:** Predictors of academic performance, success and retention amongst Undergraduate Nursing students: A systematic review

**Aim:** To determine the predictors of academic performance among undergraduate nursing students.

**Submission:** This manuscript was submitted to South African Journal of Higher Education on the 26<sup>th</sup> September 2017 and was accepted for publication on the 15<sup>th</sup> November 2017.

UNIVERSITY of the  
WESTERN CAPE

### Chapter Five (Study 2)

**Title:** Student nurses' perceptions of their educational environment at a school of nursing in Western Cape Province, South Africa: A cross-sectional study

**Aim:** (1) To evaluate the educational environment as perceived by undergraduate nursing students at a school of nursing in Western Cape Province; (2) To investigate whether the educational environment, or components thereof, is perceived negatively or positively amongst undergraduate nursing students of different year level, gender, home language and ethnicity.

**Submission:** This manuscript was submitted to the Journal of the Democratic Nursing Organisation of South Africa on the 19<sup>th</sup> February 2018 and was accepted for publication on the 11<sup>th</sup> December 2018.

### Chapter Six (Study 3)

**Title:** Exploring the challenges and corresponding measures implemented to improve academic performance and success of undergraduate nursing students at a university in the Western Cape, South Africa.

**Aim:** To explore and describe the impact of challenges experienced by undergraduate nursing students at the identified school of nursing and to highlight measures put in place to ensure satisfactory academic performance and success

**Submission:** This manuscript was submitted to the Journal of the Democratic Nursing Organisation of South Africa on the 2<sup>nd</sup> November 2018 (In review Round 1)

### Chapter Seven (Study 4)

**Title:** Nurse educator's challenges and corresponding measures to improve the academic performance, success and retention of undergraduate nursing students at a university in the Western Cape, South Africa.

**Aim:** To explore and describe the challenges experienced by nurse educators at a selected School of Nursing regarding the academic performance, success and retention of undergraduate nursing students and the measures implemented to overcome these challenges

**Submission:** This manuscript was submitted to the Independent Journal of Teaching and Learning on the 2<sup>nd</sup> November 2018 and was accepted for publication on the 5<sup>th</sup> March 2019.

### Chapter Eight (Study 5)

**Title:** An intervention for the improvement of academic performance, success and retention of nursing students at the university in the western cape, South Africa

**Aim:** To develop and validate the intervention for improving the academic performance, success and retention of undergraduate nursing students at a university in Western Cape, South Africa

**Submission:** This manuscript was submitted to the International Journal of Educational Research on the 6<sup>th</sup> November 2018

# **CHAPTER FOUR**

## **PREDICTORS OF ACADEMIC PERFORMANCE, SUCCESS AND RETENTION: STUDY 1**

### **4.1 INTRODUCTION**

This chapter presents the findings from Phase 1, referred to as study 1: A systematic review to determine the predictors of academic performance, success and retention among undergraduate nursing students. The following is a summary of the objectives, methodology, study outcome and article 1.



### **4.2 OBJECTIVE**

The objective of the study was to conduct a systematic review to determine the predictors of academic performance, success and retention among undergraduate nursing students.

### **4.3 METHODOLOGY**

A search was carried out using various databases and journals (Science Direct, Escohost, BioMed Central, PubMed, SAGE Journals and Directory of Open Access Journals) for the period from 2006 to 2016. Four instruments (Title Reading and Extraction Tool – TRET, Abstract Reading Extraction Tool – ARET, Quality Assessment Tool – QAT and Data Extraction Tool – DAT) were used to ensure rigorous screening and data collection. Textual narrative synthesis was used to synthesise the data collected from the short-listed studies.

#### 4.4 STUDY OUTCOME

The article has been accepted for publication in a national open access peer reviewed journal (see Appendix 24).

**Mthimunye, K.D.T., & Daniels, F.M. (2019).** Predictors of academic performance, success and retention amongst Undergraduate Nursing students: A systematic review: *South African Journal of Higher Education*. (In press)



# Predictors of academic performance, success and retention amongst Undergraduate Nursing students: A systematic review

K.D.T Mthimunye<sup>a</sup> & F. M. Daniels<sup>a</sup>

<sup>a</sup>School of Nursing, University of the Western Cape, Robert Sobukwe Road, Bellville

[katlegomthimunye@icloud.com](mailto:katlegomthimunye@icloud.com)

[fdaniels@uwc.ac.za](mailto:fdaniels@uwc.ac.za)

**\*Article submitted to: South African Journal of Higher Education (in press 21 February 2019)**

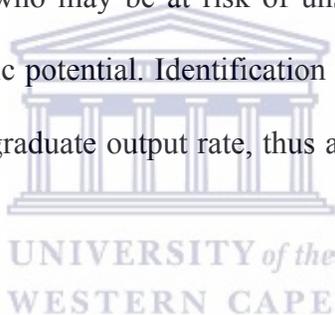
## ABSTRACT

Understanding the factors that predict academic performance of nursing students is one of the major goals of universities and schools of nursing globally. The aim of this study was to determine the predictors of academic performance among undergraduate nursing students. A search was carried out using various databases and journals (Science Direct, Escohost, BioMed Central, PubMed, SAGE Journals and Directory of Open Access Journals) for the period from 2006 to 2016. Two independent reviewers assessed the methodological quality of the shortlisted studies. The results are presented in textual narrative. The 17 studies included in this review represented five countries. The results of this review highlighted that older students, female gender, English language proficiency, majority ethnic status, pre-admission qualifications, high admission GPA, high supplemental application score, high pre-admission science GPA, selecting nursing as first choice for study, participating in organised music programmes, homework completion, lecture attendance, kinaesthetic learning approach, performance in psychology modules, emotional intelligence, self-control and resilience are significant predictors of academic performance among nursing students.

**Keywords:** academic performance, academic success, attrition, at-risk students, retention, systematic review, undergraduate nursing students

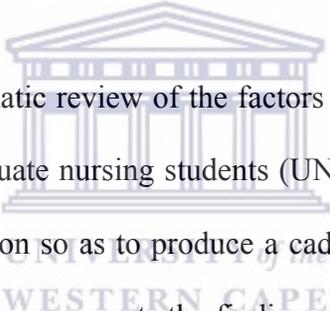
## INTRODUCTION AND BACKGROUND

Maintaining academic performance, success and retention in higher education institutions (HEIs) is a global challenge. Such challenges affect nursing education too, where the critical shortage of nurses makes the output of competent nurses crucial. Several studies have been conducted to identify predictors or indicators of academic performance as well as other factors that generally influence students' performance. Nursing education has received similar attention in this regard at both theoretical and clinical levels. It has been found that numerous factors can forecast a student's academic performance. These factors may be of vital importance to HEIs as well as to nurse educators in identifying students who may be at risk of unsatisfactory academic performance, which limits the students' academic potential. Identification of these factors may help to reduce the attrition rate and improve the graduate output rate, thus alleviating nursing staff shortages at national and global levels.



The World Health Organization (WHO) estimates that there is a worldwide shortage of approximately 4.3 million doctors, midwives, nurses and other healthcare professionals (World Health Organization 2010). Buerhaus, Auerbach, and Staiger (2009, w657-668) reported that the demand for qualified nurse practitioners was increasing at a rate of 2%–3% per year. To alleviate the nursing workforce shortage, the intake of nursing students needs to increase. In 2015, it was estimated that the South African Nursing Council (SANC) registered a total of 20 549 nursing students for undergraduate nursing programmes at South African universities and nursing colleges. Of the 20 549 students, 3 808 (18.53%) were first admissions (first-year nursing students) and 16 471 (81.47%) were re-admissions (second-year to final-year students) (SANC 2017). Most nursing schools are dependent on specific admission criteria, based on previous studies, to select high-

quality prospective students who have high potential of academic success in the nursing profession. However, the selection criteria and admission requirements of nursing students in South Africa (SA) and worldwide have come under intense scrutiny in recent years, possibly owing to growing levels of attrition and continued global shortages (Newton and Moore 2009, 273-278; McNelis et al. 2010, 188-195; Smith 2016, 215-218). Some authors have claimed that contextual indicators and factors such as previous academic performance, age, gender and ethnicity are significant determining parameters of academic success in training nurses (Schmidt and MacWilliams 2011, 171-174; Jeffreys 2012; Beauvais et al. 2014, 918-923; Mthimunye, Daniels, and Pedro 2015).



A more comprehensive and systematic review of the factors that predict academic performance, success and retention of undergraduate nursing students (UNs) is required to ensure appropriate ways of enhancing nursing education so as to produce a cadre of nurses who will boost human resources for health. The current paper presents the findings of a systematic review based on the Nursing Universal Retention and Success (NURS) model of Jeffreys (2015).

## **METHODS**

The review aimed to systematically locate, appraise the quality of, and synthesise academic studies proposing likely predictors of academic performance amongst UNs. The main research question addressed was: What are the predictors of academic performance and success as well as the factors that may affect the retention of UNs? Cochrane guidelines for systematic reviews were used to guide this review (Higgins and Green 2011). After formulating the research question, systematic

and explicit methods were used to identify, select and critically evaluate the quality of relevant research reports from major educational databases.

### **Electronic search strategy**

In addressing the predictors of academic success and retention amongst nursing students, a search was conducted in January 2017 of databases and journals such as Science Direct, Escohost (Eric, Academic Search Complete, PsycARTICLES, Education Search Complete, Health Source: Nursing/Academic Edition), BioMed Central, PubMed, SAGE Journals and Directory of Open Access Journal (DOAJ) for the period 2006 to 2016. Keywords used in the search included *predictors of academic performance, predictors of academic success and nursing students*. The primary researcher conducted an initial search and reviewed the titles, abstracts and articles. The initial search generated 522 articles. The next phase involved eliminating duplications, which left 444 retrieved articles. Eight additional studies were considered for possible inclusion, which were obtained from other sources and from reference lists of other articles, increasing the number of studies to 452.

### **Criteria for considering studies for review (inclusion criteria)**

Studies were included if they met the following criteria: (1) full-text quantitative study in English; (2) prospective and retrospective cohort studies, case-control studies and cross-sectional studies; (3) UNs were included as part of the sample; (4) primary outcome of interest was predictors of academic performance, success and retention amongst B.Nurs students. Secondary outcomes included factors that influenced academic performance and success; and (5) the papers were published between 2006 and 2016. Globally, the major developments in nursing education over

the last decade have been in addressing nurse shortages, improving the status of nursing education, and improving the quality of nurses produced.

## **Study selection**

Three instruments were used to ensure rigorous screening of the research studies and to ensure that all relevant data were collected. Firstly, the Title Reading and Extraction Tool (TRET) was used to select journal articles for inclusion based on the relevance of the title. A sample of 42 studies was reached, based on title reading. Secondly, the Abstract Reading Extraction Tool (ARET) was used to assess the relevance of selected journal articles for inclusion based on the relevance of the abstract. Following title reading, the abstracts of the studies were reviewed for eligibility and a sample of 20 studies was identified and retrieved. Thirdly, the Quality Assessment Tool (QAT) was used by one of the reviewers after the retrieval where possible of full-text articles to investigate their quality. The same process was then followed by another reviewer to determine whether the article adequately met the criteria for inclusion in the review. Any discrepancies were adjudicated and agreement reached by consensus.

## **Methodological quality appraisal**

A quality assessment tool for quantitative studies developed by the Effective Public Health Practice Project (EPHPP) was adapted to fit the current review (Thomas 2003). The QAT was adopted from previous studies (Armijo-Olivo et al. 2012, 12-18; Puertas, Arósquipa, and Gutiérrez 2013, 351-358; Bassir et al. 2014, 98-109). This tool assesses aspects of the methodologies employed and gives scores on a Likert-type scale. Following the quality appraisal of eligible studies, three studies were excluded owing to their overall weak rating. Therefore, the final sample

consisted of 17 articles which were included in the systematic review. Figure 1 outlines the process involved in the systematic review.

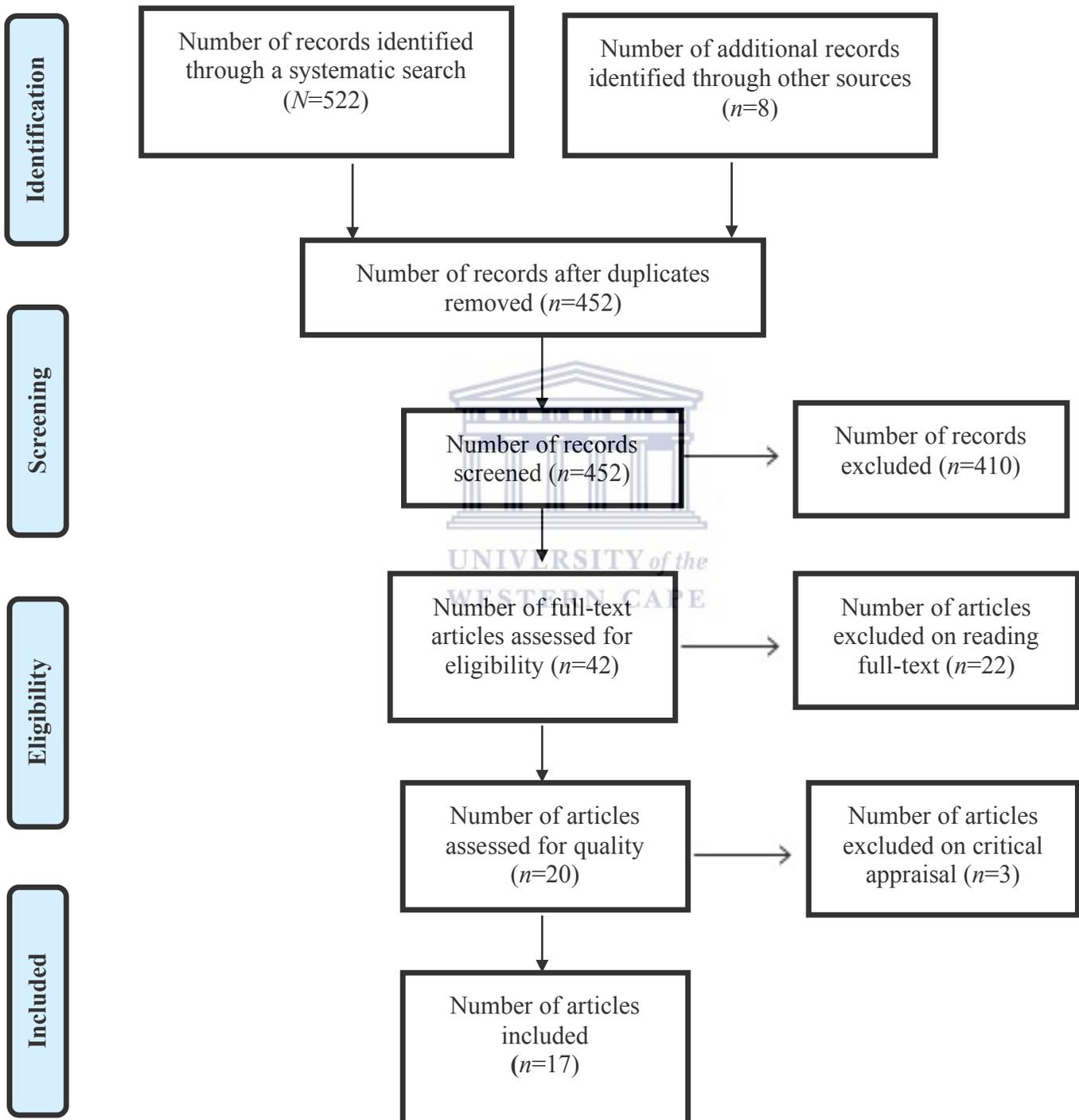


Figure 1: Flow chart of study screening process.

## **Data extraction and synthesis**

After completion of the methodological quality appraisal, studies that met the criteria for the categories of “strong” to “moderate” were reviewed, and a data extraction tool was used to ensure that all relevant data were extracted from the selected articles. Table 1 comprises relevant extracted information such as author and year of publication, geographical location, participants, study design, data collection instruments used and the results of the study. The studies that were included in the review measured academic performance and success (outcome variable) in various ways and at various levels of the undergraduate nursing programmes. Therefore, statistical methods (meta-analysis) were not used to analyse and summarise the results of shortlisted studies for two main reasons. Firstly, the shortlisted studies addressed heterogeneous outcome data, so it would not have been logical to cluster them together. Secondly, not all shortlisted studies provided required statistical data for possible meta-analysis. For these reasons, the results of the present review are presented in textual narrative synthesis.

## **RESULTS**

Of the 42 studies, 20 formed part of the methodological appraisal section of the review. The criteria used for assessing the methodological quality included selection methods, study design, data collection methods, data source, withdrawals and drop-outs as well as data analyses. Of the 20 studies that formed part of the methodological appraisal section, 11 studies reached the desired outcome in the “strong” category. The 6 studies in the “moderate” category were included in the review. These studies were included because they also examined the predictive power of independent variables on the academic performance as well as academic success of nursing students. Only 3 studies fell into the “weak” category and were excluded from the study because

they were rated “weak” in two or more sections of the QAT. Therefore, the remaining 17 studies that were methodologically appraised for quality were included in the final review.



**Table 1: Data extraction (summary included studies)**

Author (year)	Setting/ location	Participants	Study design	Instrument(s) used	Significant predictors of performance
Cesario, Cesario, and Cesario 2013, 141-146	State of Texas, USA	A total of 309 undergraduate nursing students from 78 schools; 87.4% female, 12.6% male	Exploratory study	Not clear. Online survey 18-item data collection tool (reviewed by a panel of 3 expert nurse educators and 2 experienced music educators.)	<u>Graduation</u> - Participating in a music programme, exit GPA and number of years taking music lessons. $p < 0.001$ , Nagelkerke $R^2 = 0.66$
Salamonson, Andrew, and Everett 2009, 123-132	Australian	126 second-year nursing students (mean age 24.8 years; 89% female, 11% male)	Prospective survey	Survey details not clear.	Homework completion (>50%) ( $\beta = 0.44$ , $p < 0.001$ ); lecture attendance (>80%) ( $\beta = 0.21$ , $p = 0.011$ ); hours spent in part-time employment ( $\geq 16$ hours/week) ( $\beta = -0.26$ , $p = 0.001$ ): adjusted $R^2 = 0.34$
Wan Chik et al. 2012, 387-393	North-western Peninsular Malaysia	147 first- and second-year nursing students (mean age 20.0 years; 81%	Prospective, correlational survey	- English Language Acculturation Scale (ELAS) - Malay Language Acculturation Scale (MLAS)	- Gender ( $\beta = -0.44$ , $p < 0.001$ ). - Gender, age, MCPIS-9, ELAS and MLAS (adjusted $R^2 = 0.181$ )

		female, 19% male)		- Macleod Clark Professional Identity Scale (MCPIS-9)	
Salamonson and Andrew 2006, 342-349	New South Wales, Australia	267 second-year nursing students (mean age 24.87 years; 90% female and 10% male)	Prospective, quantitative survey	Investigator-developed questionnaire (used in previous unpublished studies)	- Hours spent in part-time employment ( $p < 0.001$ ); on pathophysiology ( $\beta = -0.29$ ); on nursing practice ( $\beta = -0.26$ ) - Non-English-speaking on pathophysiology ( $\beta = -0.19$ , $p = 0.002$ ); on nursing practice ( $\beta = -0.25$ , $p < 0.001$ ) - Older age ( $\geq 25$ years old) on pathophysiology ( $\beta = 0.14$ , $p = 0.023$ ); on nursing practice ( $\beta = 0.14$ , $p = 0.036$ )
Everett et al. 2013, 709-713	Australian university	$N = 730$ ; first-year Bachelor of Nursing, standard entry ( $n = 471$ ); first-year Bachelor of Nursing, graduate entry ( $n = 259$ )	Prospective correlational	- ELAS - Motivated Strategies for Learning Questionnaire (MSLQ)	- Age: $> 21$ years was found to have a positive impact ( $p < 0.001$ ) on BNSE GPA - Lower levels of English-language proficiency were associated with poor academic performance in both BNSE ( $p = 0.001$ ) and BNGE ( $p < 0.001$ ) - Increased time spent in paid work ( $> 16$ h/week) was found to have a negative impact on BNSE ( $p = 0.001$ ) and BNGE ( $p < 0.001$ ).

<p>Glew et al. 2015, 1142-1147</p>	<p>Western Sydney, Australia</p>	<p>2669 first-year nursing students (mean age 26.8 years; 84.6% female and 15.4% male; 49.6% Australian-born, 50.4% born outside of Australia)</p>	<p>Prospective survey</p>	<p>- ELAS - Post-enrolment English language assessment (PELA): designed to assess student's literacy skills</p>	<p>- Students with Level 1 PELA grade were twice (adjusted odds ratio (AOR): 1.95, 95% confidence interval (CI): 1.63–2.34) as probable to achieve a high overall mark (&gt;63%) - PELA (Level 1) was again a significant and independent predictor of GPA (&gt;4.2)</p>
<p>Koch et al. 2011, 611-616</p>	<p>University in western Sydney, Australia</p>	<p>2009 single cohort of 62 graduate-entry nursing students 6 months post course commencement (mean age 26.5 years; 90% female and 10% male)</p>	<p>Prospective survey</p>	<p>- ELAS - Perceived Academic Control (PAC): 8 items related to influencing academic achievement outcomes - VARK (visual, aural/auditory, read/write, and kinaesthetic): 16 items used to assess learning preferences</p>	<p>- Kinesthetic sensory (<math>\beta = 0.39, p = 0.009</math>) - Age, international students, perceived academic control, ELAS and VARK score: Kinaesthetic revealed adjusted <math>R^2</math> of 0.17.</p>

Lancia et al. 2013, 1501-1505	Italy	Total of 1006 from 5 cohorts of nursing students, matriculated in consecutive academic years from 2004 to 2008 (mean age 23.36 years)	Retrospective observational	Survey details not clear.	61.2% concluded their degree within the legal duration allowed. - Age ( $\beta = 0.160, p = 0.000$ ) - Gender, age, upper-secondary school attended and grade of upper-secondary diploma revealed adjusted $R^2$ of 0.27
Pitt et al. 2014, 866-871	Australia	138 preregistration nursing students (mean age 27 years; 86% female and 14% male)	Longitudinal descriptive correlational study	- Personal Qualities Assessment (PQA): designed to explore a broad range of personal qualities in healthcare professionals - Narcissism, Aloofness, Confidence, Empathy (NACE) scale - Self-Appraisal Inventory (SAI)	<u>Clinical performance</u> - As the (self) confidence score rose by 1, the chance of being assessed as competent rose by 20% - As the score of self-control rose by 1, the chance of being assessed as competent rose by 6%. <u>Progression</u> - As the resilience score rose by 1, the chance of completing the programme study rose by 3%.



Salamonson et al. 2014, 127-131	Australia	Total of 352 participants followed up over 6-year period from beginning 2004 to end 2009 (mean age 25.7 years; 84% female and 16% male)	Longitudinal, cohort	- Survey: contained items related to students' socio-demographic characteristics, including engagement in paid employment during semester	- Students who selected nursing as their first choice for study were virtually twice as likely (odds ratio (OR): 1.99, 95% CI: 1.07–3.68) to complete their nursing programme than those who did not. - Male students (OR: 1.93, 95% CI: 1.07–3.46) and those who worked more than 16 hours per week (OR: 1.80, 95% CI: 1.09–2.99) were less likely to complete their nursing programme than their counterparts.
Ali and Naylor 2010, 157-162	Pakistan	First-year 544; second-year 500; third-year 343 (age range 15-34 years on admission to the nursing programme; 72.9% female and 27.1% male)	Exploratory co-relational	Data were collected by reviewing student records. Information on enrolment characteristics was collected from students' files in their respective institutions.	<u>Year one:</u> Pre-admission qualification, previous academic performance, and school type accounted for 36.6% ( $R^2 = 0.366$ ) of variances in the examination grade. <u>Year two:</u> Pre-admission qualification, previous academic performance, type of school, and gender explained 44.3% ( $R^2 = 0.443$ ) of variability in the examination grade distributions. <u>Year three:</u> Pre-admission qualification, previous academic performance, academic performance in year one and year two,

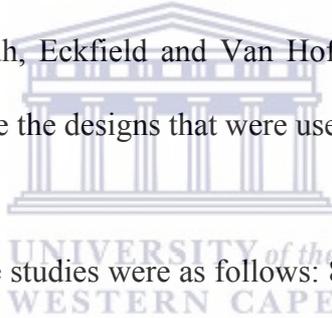
					gender, and place of domicile accounted for 50.4% ( $R^2 = 0.504$ ) of variability in the examination grade distributions.
Timer and Clauson 2011, 601-606	Canadian university, Canada	Total of 249 baccalaureate nursing students over a four-year study period (2002–2006) (mean age 27.3 years on admission; 86.3% female and 13.7% male)	Retrospective correlational study of the predictive utility	<ul style="list-style-type: none"> <li>- Supplemental application score: measures applicant's leadership capacity, ability to work with others, diversity of experience, and suitability for nursing</li> <li>- Interview score: content of interviews included assessments of motivation, nursing awareness, and problem solving</li> </ul>	<p><u>Grade for six nursing courses</u></p> <ul style="list-style-type: none"> <li>- Gender (male) (<math>\beta = -0.13</math>), age (<math>\beta = -0.26</math>), ethnic minority status (<math>\beta = -0.22</math>), and admission GPA (<math>\beta = 0.36</math>) were significant predictor variables.</li> <li>- The model (<math>_{adj}R^2 = 0.26</math>) was statistically significant (<math>p &lt; 0.001</math>).</li> </ul> <p><u>Final GPA at graduation</u></p> <ul style="list-style-type: none"> <li>- Age (<math>\beta = -0.30</math>), ethnic minority status (<math>\beta = -0.24</math>), admission GPA (<math>\beta = 0.36</math>) and supplemental score (<math>\beta = 0.13</math>) were significant predictors.</li> <li>- The model (<math>_{adj}R^2 = 0.36</math>) was statistically significant (<math>p &lt; 0.001</math>).</li> </ul>
Wambuguh, Eckfield, and Van Hofwegen 2016,	San Francisco Bay, USA	513 final-year nursing students from 2009–2014.	Not clear	<ul style="list-style-type: none"> <li>- Test of Essential Academic Skills (TEAS). A standardized, multiple-</li> </ul>	<p><u>Graduation</u></p> <ul style="list-style-type: none"> <li>- Students with TEAS score <math>\geq 82</math> increased their odds of graduation by a factor of 2.14 (<math>p = 0.01</math>).</li> </ul> <p><u>Nursing programme GPA</u></p>

10.1515/ijnes-2015-0088				choice exam for prospective nursing in the USA.	<ul style="list-style-type: none"> <li>- Students with TEAS score of at least 82 have a 60% probability of attaining a GPA of 3.25. Likewise, TEAS scores &lt;82 give a probability of 47% (lower by 13%).</li> <li>- Student with a pre-admission science GPA score of at least 3.8 has a 61% probability of attaining a graduation GPA of 3.25. Similarly, pre-admission science GPA &lt;3.8 gives a probability of 47% (lower by 14%).</li> </ul>
Kowitlawakul, Brenkus, and Dugan 2013, 38-43		56 female and 4 male students enrolled for first-semester, second-degree Bachelor of Science in Nursing	Descriptive	Pre-existing data from academic records were used.	<ul style="list-style-type: none"> <li>- Positive correlations between first semester GPAs and previous degree GPAs (<math>r = 0.348</math>, <math>p &lt; 0.005</math>), prerequisite GPAs (<math>r = 0.380</math>, <math>p &lt; 0.05</math>) and admissions test scores (<math>r = 0.678</math>, <math>p &lt; 0.05</math>).</li> <li>- Previous GPAs (<math>\beta = 0.242</math>) and admissions tests scores (<math>\beta = 0.612</math>) were significant predictors (<math>p = 0.01</math>). Previous degree GPAs, prerequisite GPAs, and admissions test scores revealed <math>R^2</math> of 0.54.</li> </ul>
Abele, Penprase, and	USA	327 students placed on probation or	Retrospective review of an existing	Review of an existing student database: Student records provided data.	<ul style="list-style-type: none"> <li>- PSY 225 (<math>\beta = 0.47</math>, <math>p &lt; 0.05</math>) as well as the total number of courses failed (<math>\beta = -1.03</math>, <math>p &lt; 0.001</math>) had a significant impact in</li> </ul>

Ternes 2013, 258-261		dismissed from a Midwest school of nursing between 2002 and 2010 (mean age 27.2 years; 249 female and 78 male)	student database		determining whether or not probationary students eventually completed the programme.
Fernandez, Salamonson, and Griffiths 2012, 3485-3492	Australian university	81 first-year nursing students, a cohort from 2010 (mean age 29.0 years; 80% female and 20% male)	Prospective survey	<ul style="list-style-type: none"> <li>- Trait Emotional Intelligence Questionnaire-Short Form (TEIQue-SF)</li> <li>- Motivated Strategies for Learning Questionnaire (MSLQ)</li> </ul>	<ul style="list-style-type: none"> <li>- Trait EI (TEIQue-SF) (<math>\beta = 0.25, p = 0.023</math>)</li> <li>- MSLQ (extrinsic goal orientation) had a negative impact on academic performance (<math>\beta = -0.23, p = 0.035</math>).</li> </ul>
Goff 2011, 1-1	USA	53 BN students (mean age 24.8 years; 92.5% female; 84.9% Caucasian)	Explanatory correlational study	<ul style="list-style-type: none"> <li>- Student-life Stress Inventory (SSI); used to measure college student stress</li> </ul>	<ul style="list-style-type: none"> <li>- Age was a significant predictor (<math>\beta = 0.417, p &lt; 0.01</math>) and accounted for 16% (<math>R^2 = 0.16</math>) of variances in the GPA distributions.</li> </ul>

## Overview of the reviewed studies

The final sample of 17 studies included in the systematic review consisted of 5 prospective survey studies (Salamonson, Andrew, and Everett 2009, 123-132; Salamonson and Andrew 2006, 342-349; Glew et al. 2015, 1142-1147; Koch et al. 2011, 611-616; Fernandez, Salamonson, and Griffiths 2012, 3485-3492); 6 studies with an explanatory and correlational component (Goff 2011, 1-1; Ali and Naylor 2010, 157-162; Cesario, Cesario, and Cesario 2013, 141-146; Kowitlawakul, Brenkus, and Dugan 2013, 38-43; Pitt et al. 2014, 866-871; Timer and Clauson 2011, 601-606); 2 prospective correlational studies (Wan Chik et al. 2012, 387-393; Everett et al. 2013, 709-713); 1 study with a retrospective observational design (Lancia et al. 2013, 1501-1505); 1 longitudinal, cohort study (Salamonson et al. 2014, 127-131); and 1 retrospective review of an existing database (Abele, Penprase, and Ternes 2013, 258-261). One study (Wambuguh, Eckfield and Van Hofwegen 2016, 10.1515/ijnes-2015-0088) did not completely describe the designs that were used.



The geographical locations of the studies were as follows: 8 studies in Australia (Salamonson and Andrew 2006, 342-349; Salamonson, Andrew, and Everett 2009, 123-132; Koch et al. 2011, 611-616; Fernandez, Salamonson, and Griffiths 2012, 3485-3492; Everett et al. 2013, 709-713; Pitt et al. 2014, 866-871; Salamonson et al. 2014, 127-131; Glew et al. 2015, 1142-1147), 4 studies in the USA (Goff 2011, 1-1; Abele, Penprase, and Ternes 2013, 258-261; Cesario, Cesario, and Cesario 2013, 141-146; Wambuguh, Eckfield, and Van Hofwegen 2016, 10.1515/ijnes-2015-0088), 1 study in Canada (Timer and Clauson 2011, 601-606), 1 study in Italy (Lancia et al. 2013, 1501-1505), 1 study in Malaysia (Wan Chik et al. 2012, 387-393) and 1 study in Pakistan (Ali and Naylor 2010, 157-162). Of all the studies included in the review, geographic location was not specified for 1 study (Kowitlawakul, Brenkus, and Dugan 2013,

38-43). Participants in the studies were all nursing students enrolled in various undergraduate nursing programmes at their respective institutions.

### **Measures of academic performance and success**

A number of outcome variables were used to assess academic performance and success amongst nursing students. Furthermore, the results revealed that 5 of the shortlisted studies had 2 or more outcome variables. Eleven studies addressed academic performance as grade point average (GPA) at various levels of undergraduate programmes (Cesario, Cesario, and Cesario 2013, 141-146; Wan Chik et al. 2012, 387-393; Everett et al. 2013, 709-713; Glew et al. 2015, 1142-1147; Koch et al. 2011, 611-616; Pitt et al. 2014, 866-871; Timer and Clauson 2011, 601-606; Wambuguh, Eckfield, and Van Hofwegen 2016, 10.1515/ijnes-2015-0088; Kowitlawakul, Brenkus, and Dugan 2013, 38-43; Fernandez, Salamonson, and Griffiths 2012, 3485-3492; Goff 2011, 1-1), 2 studies addressed academic performance as the score obtained by nursing students in pathophysiology (Salamonson and Andrew 2006, 342-349; Salamonson, Andrew, and Everett 2009, 123-132), 2 studies addressed academic performance as the score obtained in clinical practice modules (Salamonson and Andrew 2006, 342-349; (Pitt et al. 2014, 866-871), 1 study addressed academic performance as grades in nursing theory (Pitt et al. 2014, 866-871), and 1 study addressed academic performance as grades awarded by nursing examination boards from respective countries (Ali and Naylor 2010, 157-162).

Of the 17 studies included in the present systematic review, 6 studies addressed academic success (promotion to next level of study or completing the programme) or failure/attrition amongst various levels of undergraduate nursing programmes (Cesario, Cesario, and Cesario 2013, 141-146; Lancia et al. 2013, 1501-1505; Abele, Penprase, and Ternes 2013, 258-261;

Salamonson et al. 2014, 127-131; Pitt et al. 2014, 866-871; Wambuguh, Eckfield, and Van Hofwegen 2016, 10.1515/ijnes-2015-0088).

## **Factors that predict academic performance and success**

To provide assistance with analysis across all 17 shortlisted studies in this review, the factors that predict academic performance and success were categorized into 6 groups: (1) student profile characteristics; (2) student affective factors; (3) academic factors; (4) environmental factors (5) academic outcomes; and (6) psychological outcomes. This categorization was presented by Jeffreys (2015) and is based on the Nursing Universal Retention and Success (NURS) model.

### **Student profile characteristics**

Age, gender and language proficiency were the most consistent student profile characteristics that displayed significant predictive powers for academic performance and success. Female and older students were found to be more associated with higher academic performance and academic success, and their male and younger counterparts were associated with unsatisfactory academic performance and a high attrition rate. Selection of nursing as first choice for study was also consistent in determining academic performance and success of UNs. In contrast, ethnicity as a characteristic of nursing students revealed inconsistent findings.

Age was a significant predictor of academic performance and success (Salamonson and Andrew 2006, 342-349; Everett et al. 2013, 709-713; Lancia et al. 2013, 1501-1505; Timer and Clauson 2011, 601-606; Goff 2011, 1-1). The results indicated that the older the student, the higher the probability of achieving the desired outcome.

Gender was identified as a significant predictor of academic performance and success (Wan Chik et al. 2012, 387-393; Salamonson et al. 2014, 127-131; Ali and Naylor 2010, 157-162; Timer and Clauson 2011, 601-606). Female nursing students were more likely to outperform their male counterparts.

Language proficiency was tested in various ways for different studies (English-speaking at home, ELAS and PELA) and found to be a significant predictor of academic performance (Salamonson and Andrew 2006, 342-349; Everett et al. 2013, 709-713; Glew et al. 2015, 1142-1147). Low English language proficiency was associated with unsatisfactory academic performance. Timer and Clauson (2011, 601-606) found ethnic minority status to be a negative ( $\beta = -0.24$ ) and significant predictor of academic performance.

Only one study tested the predictive validity of selecting nursing as first study choice on academic success (Salamonson et al. 2014, 127-131), and revealed that students who selected nursing as their first study choice were nearly twice as likely (OR: 1.99 95% CI: 1.07–3.68) to complete their nursing programme as those who did not.

Four studies shortlisted for the present systematic review indicated that prior educational experiences are a significant predictor of academic performance, success and retention of nursing student (Ali and Naylor 2010, 157-162; Timer and Clauson 2011, 601-606; Wambuguh, Eckfield, and Van Hofwegen 2016, 10.1515/ijnes-2015-0088; Kowitlawakul, Brenkus, and Dugan 2013, 38-43). Prior educational experiences were denoted in various ways including pre-admission qualifications, admission GPA, supplemental application score and pre-admission science GPA. Ali and Naylor (2010, 157-162) reported that pre-admission qualifications as well as previous academic performance (measured by the percentages

obtained in previous programmes) had a significant influence on academic performance. Admission GPA ( $\beta = 0.36$ ), and supplemental application score ( $\beta = 0.13$ ) were also found to be significant predictor variables of nursing students' performance and success (Timer and Clauson 2011, 601-606). Likewise, a student with a pre-admission science GPA score of at least 3.8 had a 61% probability of attaining a graduation GPA of 3.25 (Wambuguh, Eckfield, and Van Hofwegen 2016, 10.1515/ijnes-2015-0088). Kowitlawakul, Brenkus, and Dugan (2013, 38-43) indicated that previous GPAs ( $\beta = 0.242, p = 0.01$ ), admission tests scores ( $\beta = 0.612, p = 0.00$ ) and prerequisite GPAs accounted for 54% ( $R^2 = 0.54$ ) of the variances in the Bachelor of Nursing (BN) first semester GPA distributions.

### **Student affective factors**

Of the 17 studies shortlisted for this review, only 3 tested the components of student affective factors. Pitt et al. (2014, 866-871) reported that aloofness and confidence (measured by the Narcissism, Aloofness, Confidence, Empathy (NACE) scale) had a significant impact on nursing students' academic performance. They found that aloofness score was negatively correlated ( $p < 0.05$  to  $p < 0.01$ ) with academic performance. In contrast, confidence scores ( $p < 0.05$ ) were positively correlated with academic performance. Self-control and resilience (measured by the Self-Appraisal Inventory (SAI)) were reported to be positive and significant predictors ( $p < 0.05$  to  $p < 0.01$ ) of academic performance and success (Pitt et al. 2014, 866-871).

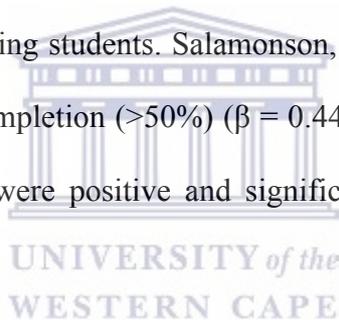
Fernandez, Salamonson, and Griffiths (2012, 3485-3492) found that emotional intelligence (Trait Emotional Intelligence Questionnaire-Short Form (TEIQue-SF)) and motivation (Motivated Strategies for Learning Questionnaire (MSLQ)) were significant predictors of academic performance. The results indicated positive and significant relationships ( $\beta = 0.25, p = 0.023$ ) between emotional intelligence and academic performance. The results also indicated

that extrinsic goal orientation had an inverse impact ( $\beta = -0.23, p = 0.035$ ) on academic performance.

Partaking in organised music programmes and number of years taking music lessons were identified as positive and significant predictors of graduating (Cesario, Cesario, and Cesario 2013, 141-146). They explained 66% (Nagelkerke  $R^2 = 0.66, p < 0.001$ ) of variances in completing the nursing programme distributions.

### **Academic factors**

Homework completion, lecture attendance, kinaesthetic learning preference and Test of Essential Academic Skills (TEAS) were found to have a significant impact on the academic performance and success of nursing students. Salamonsen, Andrew, and Everett (2009, 123-132) reported that homework completion (>50%) ( $\beta = 0.44, p < 0.001$ ) and lecture attendance (>80%) ( $\beta = 0.21, p = 0.011$ ) were positive and significant predictors of performance in pathophysiology subjects.



A study by Koch et al. (2011, 611-616) testing the predictive power of visual, aural/auditory, read/write and kinaesthetic (VARK) learning preferences indicated that kinaesthetic sensory mode was a positive and significant predictor ( $\beta = 0.39, p = 0.009$ ) of academic performance at the 6-month follow-up in graduate entry nursing. Kinaesthetic sensory mode accounted for 17% ( $R^2 = 0.17$ ) of variability in the first semester GPA distribution.

TEAS was identified to be a statistically significant ( $p = 0.01$ ) and positive predictor of graduating and high nursing programme GPA (Wambuguh, Eckfield, and Van Hofwegen 2016, 10.1515/ijnes-2015-0088). Wambuguh, Eckfield, and Van Hofwegen (2016, 10.1515/ijnes-

2015-0088) found that a TEAS score  $\geq 82$  increased the odds of graduation by a factor of 2.14. Furthermore, a student with a TEAS score of at least 82 had a 60% likelihood of attaining a GPA of 3.25.

### **Environmental factors**

Two shortlisted studies by Salamonson, Andrew, and Everett (2009, 123-132) and Everett et al. (2013, 709-713) reported that hours of part-time employment ( $\geq 16$  hours/week) had a significant and negative impact ( $p \leq 0.001$ ) on academic performance of nursing students. Students engaged in  $> 16$  hours/week of employment (OR 1.80 95% CI: 1.09–2.99) were less likely to complete their nursing programme than were their counterparts (Salamonson et al. 2014, 127-131). Place of domicile (whether rural or urban) as well as type of nursing school (public or private) were found to be significantly associated with academic success (Ali and Naylor 2010, 157-162).



### **Academic outcomes**

Academic outcome in previous levels has displayed consistent results. Academic performance in year one as well as academic performance in year two were found to be significant predictors of academic performance and success of nursing students (Ali and Naylor 2010, 157-162). Abele, Penprase, and Ternes (2013, 258-261) conducted a study aiming to identify undergraduate courses that serve as predictors of success for nursing students completing a BSN programme. The findings for this study revealed that not only background in science predicts performance in nursing but also that psychology modules may hold predictive powers. Abele, Penprase, and Ternes (2013, 258-261) reported that PSY 225 ( $\beta = 0.47, p < 0.05$ ) was a positive and significant predictor of completing a nursing programme.

### **Psychological outcomes**

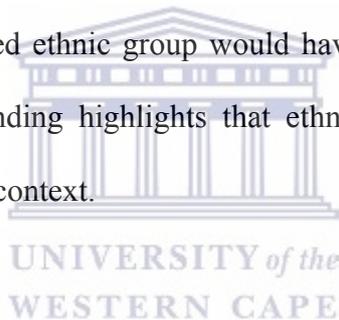
Of the 17 shortlisted studies, only one tested the effect of psychological outcomes on nursing student performance (Goff 2011, 1-1). This study examined the link between learned resourcefulness, stressors and academic performance in baccalaureate nursing students using the Student-life Stress Inventory (SSI). The results revealed that there was no significant relationship between personal stress levels and academic stress levels on the academic performance of nursing students (Goff 2011, 1-1).

## **DISCUSSION**

The aim of this study was to determine the predictors of academic performance among undergraduate nursing students. The findings from the present study suggest potential factors that might have significant predictive validity on academic performance, success and, ultimately, retention of UNs. Jeffreys (2015) suggests that retention, success and optimal performance of UNs is a result of interaction between student profile characteristics, student affective factors, academic factors, environmental factors, academic outcomes, psychological outcomes, outside surrounding factors as well as the professional integration factors.

Jeffreys (2015) describes student profile characteristics as the qualities of the students prior to commencing the undergraduate programme. According to the NURS model by Jeffreys (2015), student profile characteristics are attributes of the students prior to entering the nursing programme. Furthermore, Jeffreys (2015) proposes that being aware of the student profile characteristics can assist nurse educators in developing proactive and ongoing strategies to capitalize on student strength and improve weakness. It has been demonstrated in the literature that student profile characteristics such as age, gender, language proficiency, ethnicity, educational experience and programme choice were significant predictors of academic

performance and success amongst nursing students (Ali and Naylor 2010, 157-162; Oducado and Penuela 2014, 21-28; Mthimunye, Daniels, and Pedro 2015); Alshammari et al. 2017, 60). The present review revealed parallel findings by identifying older students, female gender, English language proficiency, majority ethnic status, pre-admission qualifications, high admission GPA, high supplemental application score, high pre-admission science GPA and selecting nursing as first choice for study, as significant predictors of academic performance. In contrast, a surprising finding from a study conducted by Mthimunye, Daniels, and Pedro (2015) in SA to determine the predictive power of ethnicity in predicting academic performance amongst nursing students reported that ethnic minority status was a positive and significant predictor of academic performance (Kruskal-Wallis,  $p < 0.05$ ). Given the racial and ethnic history as well as current racial and ethnic inequalities in SA, it might be expected that students belonging to a privileged ethnic group would have more advantage than their less privileged counterparts. This finding highlights that ethnicity as a predictor of academic performance may depend on the context.



According to Jeffrey (2015) students' affective factors are factors related to students' attitudes, motivation, self-efficacy, cultural values and beliefs (CVB) about learning. CVB in the NURS conceptual model acknowledges that all nursing students enroll in nursing programmes with values and beliefs that directly or indirectly influence their thought process, decision making as well as their actions throughout their student life and in all dimensions of the nursing profession. Furthermore, the NURS model recognizes that conflict between CVB, nursing profession, academic environment and nursing education may contribute towards an increase in nursing students' stress levels and ultimately lead to unsatisfactory academic performance, lack of motivation and attrition. The literature validated that students' affective factors such as motivation and self-efficacy have a significant impact on their academic

performance (McLaughlin, Moutray, and Muldoon 2008, 211-221). The present study demonstrated that affective factors such as emotional intelligence, self-control and resilience were predictors of satisfactory academic performance. In contrast, this study indicated that students who are extrinsic goal orientated are at risk of unsatisfactory academic performance and ultimately dropping out of nursing programmes. Extrinsic goal orientated students have a tendency to focus on achieving higher grades and obtaining rewards. Although this type of motivation may not appear to be absolutely negative, it may have inverse effects in nursing programmes owing to its clinical nature. A possible explanation for this finding might be that nursing as a profession poses various challenges to students and thus requires a high level of perseverance to overcome challenges.

An interesting finding in this category was the impact that organised music programmes and number of years taking music lessons had on the performance of nursing students. Previous research has emphasised the impact of music on the cognitive development of children and adults with cognitive disabilities (Moreno et al. 2011, 1425-1433). This finding should be interpreted with caution as there is marginal scientific evidence to back it up. A possible account for this finding could be that extended exposure to music might improve listening skills and therefore be advantageous for partaking students.

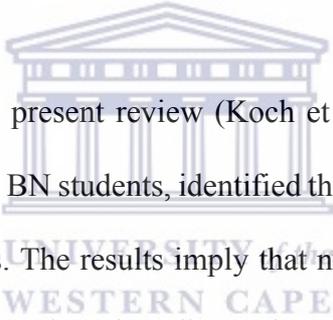
The NURS model proposes that external environmental factors to the academic process such as financial support, family emotional support, family responsibilities, childcare arrangements, employment hours, employment responsibilities, transport arrangements and living arrangements have a significant influence on the academic performance, success and retention of nursing students. Employment hours has been shown to be a consistent predictor of academic performance (Salamonson and Andrew 2006, 342-349; Salamonson, Andrew, and

Everett 2009, 123-132; Everett et al. 2013, 709-713; Salamonson et al. 2014, 127-131; Reyes et al. 2012, 218-221; Beerkens, Mägi, and Lill 2011, 679-692) reported that in Colombia, Australia, USA and Europe approximately 50.3%, 50%, 49% and 47% of nursing students engage in some form of employment respectively. These percentages could be drastically high in developing countries such as South Africa given the poor socioeconomic status. The result of this review reported that hours of part-time employment has a negative impact ( $p \leq 0.001$ ) on academic performance of nursing students. The possible explanation for this finding could be the fact that the more hours spent in employment and employment responsibilities, the less time spent engaging with academic responsibilities.

Place of domicile (whether rural or urban) was found to be significantly associated with academic success (Ali and Naylor 2010, 157-162). In the contrary, a study conducted by Oducado and Penuela (2014, 21-28) in the Philippines aiming to discover and identify whether or not the students' academic and non-academic factors predict academic performance of nursing students found that the place of residence is not a significant predictor of academic performance. This finding could be explained by the fact that students that are residing in urban areas may have easy access to a variety of services such as reliable internet connection as well as library services.

Somewhat expectedly, Ali and Naylor (2010, 157-162) found that students registered at private nursing schools outperformed their counterparts at public nursing schools. This finding could be explained by the fact that private nursing schools ordinarily provide various learning opportunities and exceptional facilities, more so than do public schools.

The NURS model proposes that academic factors such as personal study skill (reading, writing, listening, note-taking, literature search, preparation for examination, time management, and clinical judgment), study hours, class attendance, class schedule/ timetable arrangements, and general academic services (such as library services, counseling services, electronic-learning support services) are vital variables that have a significant impact on academic performance, successes and retention of nursing students (Jeffreys, 2015). In the current study, academic engagement (homework completion and lecture attendance), academic disengagement (engaging in part-time employment during the study course) and TEAS were found to be significant predictors of academic performance. These results provide supplementary evidence that the issues relating to academic engagement and disengagement as well as acquiring essential academic skills in higher academic institutions should be addressed.



Only one study shortlisted in the present review (Koch et al. 2011, 611-616), conducted in Australia with a total sample of 62 BN students, identified that a kinaesthetic learning approach is preferred amongst BN students. The results imply that nursing students retain information best through practical sessions, case-based studies and computer simulations, which may be explained by the fact that nursing is a practical profession. However, owing to a small sample size and lack of recent literature, these findings should be interpreted and generalized beyond their setting with caution.

NURS model by Jeffreys (2015) suggests that academic outcomes (grades obtained by the student during the programme, cumulative GPA for nursing programme, and overall GPA) and psychological outcomes such as satisfaction and stress can have a positive or negative influence on the retention, performance, progression and success of nursing students. Consistent with the present review, the value of academic outcomes in predicting academic performance,

success and retention of nursing students has been demonstrated in previous studies (Newton, Smith, & Moore, 2009; Newton, Smith, Moore, & Magnan, 2007; Mthimunye, Daniels, and Pedro 2015). The present review reveals that the academic outcome of previous years is a significant predictor of performance in subsequent year levels of undergraduate nursing programmes. The explanation for this finding could be a high level of articulation between the year levels of the undergraduate nursing programme. Interestingly, Abele, Penprase, and Ternes (2013, 258-261) revealed that not only outcome in science modules predicts performance in subsequent year levels but also that psychology modules may hold predictive value for nursing programme completion. Study findings indicated that a non-nursing and non-science module can also significantly predict academic success.

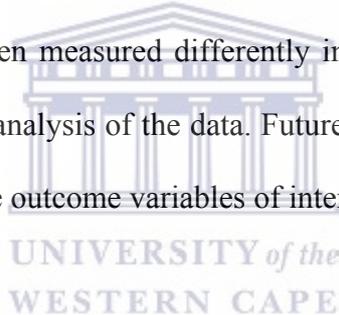
Moscaritolo (2009, 17-23) reported that nursing students experience high levels of stress and anxiety in undergraduate programmes. High levels of academic stress and anxiety may have a negative impact on the academic performance of nursing students and ultimately increase the attrition (Hughes 2005, 21-36). The results of this review revealed that stress levels and academic stress levels had no significant influence on the academic performance of nursing students (Goff 2011, 1-1). This result cannot be generalizable beyond the setting as the sample size (N = 53) was too small.

The NURS model proposes that professional integration as well as outside surrounding factors also contribute towards the success and retention of nursing students. Jeffreys (2015) described professional integration factors as “factors that enhance student interaction with the social system of the college environment within the context of professional socialization and career development”. These factors include peer mentoring, enrichment programmes, advisements and helpfulness. Outside surrounding factors however, is described as factors that are beyond

the student's or educator's control. For the present systematic review, none of the shortlisted studies addressed these categories.

## **Limitations**

The review was initiated as a part of a major PhD project entitled "An intervention towards the improvement of academic performance, success and retention among Bachelor of Nursing students at a higher education institution in the Western Cape". The present systematic review not only gathers, appraises and recapitulates data but also analyses it and interprets it within a conceptual model. This approach has allowed the researcher to explore the factors that predict academic performance and success of nursing students, identify gaps in the literature and highlight directions for future research. Owing to the complexity of the topic, academic performance and success has been measured differently in different parts of the world and therefore does not allow a meta-analysis of the data. Future studies could be strengthened by being more specific regarding the outcome variables of interest.



Another limitation was that none of the studies employed a randomized controlled trial (RCT) and controlled clinical trial (CCT) design. Therefore, none of the shortlisted studies had a "strong" research design. Future studies could be strengthened by searching and shortlisting research studies that employed RCT and CCT design.

## **CONCLUSION AND RECOMMENDATIONS**

Identifying significant predictors of academic performance, success and retention of nursing student is of utmost importance. The results of this review can assist nursing schools in early identification of students who are at risk of unsatisfactory academic performance and ultimately failing to complete their nursing programme.

## **Nursing education**

The results of this review suggest that male students, students with low English language proficiency and those who are younger in age should be given support throughout the nursing programme. Likewise, students with low admission scores and those who did not select nursing as first choice of study should be identified and monitored.

Assessments should be held to examine emotional intelligence, self-control, resilience, academic skills and motivational characteristics of students prior to, or at the beginning of, the programme to identify at-risk students and those who are extrinsically motivated, so that their progress can be monitored.

The present review highlights the importance of implementing innovative measures to improve academic engagement. It is therefore recommended that students be given tasks allowing them to interact with their schoolwork, and these tasks should be rewarded with marks to ensure compliance. It is also most important that nurse educators encourage learning approaches that promote academic engagement, such as classroom presentations, case-based learning, cellphone applications and role playing. Encouraging and monitoring class attendance may also assist in promoting academic engagement.

Lastly, it is of vital importance that the academic outcome of students at each and every year level be monitored closely to identify underperforming students. Once these students are identified, remedial action should be implemented as early as possible to ensure retention and low attrition.

## **Implications for nursing programmes in South Africa**

The findings of this study may be important in terms of understanding the predictors of academic performance in a South African context. The implication of this results could result in a rise in throughput rate of nursing students, thus increasing the number of much needed BN graduates to alleviate the shortage of nursing workforce. Furthermore, addressing this these challenges will result in improvement in quality of nursing programmes offered in South Africa as government subsidies are dependent on the throughput of students.

## **Future research**

Academic performance, success and retention of nursing students is a diverse topic that needs further investigation to verify findings and discover new factors that may predict performance. This systematic review reveals that there is a need for research focusing on the impact of professional integration factors, outside surrounding factors, psychological outcomes, learning approach and teaching strategies on the academic performance of nursing students. It would also be interesting for future research to confirm the influence of psychology modules as well as the type of nursing school (private/public) on the performance of nursing students.

## **REFERENCES**

- Abele, C., B. Penprase, and R. Ternes. 2013. A closer look at academic probation and attrition: What courses are predictive of nursing student success? *Nurse Education Today* 33(3):258-261.
- Ali, Parveen Azam, and Paul B. Naylor. 2010. Association between academic and non-academic variables and academic success of diploma nursing students in Pakistan. *Nurse Education Today* 30(2):157-162.

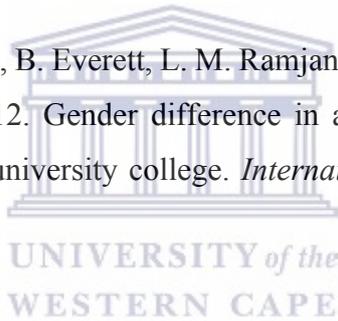
- Alshammari, Farhan, Reynita Saguban, Eddieson Pasay-an, Ahmed Altheban, and Layla Al-Shammari. 2017. Factors affecting the academic performance of student nurses: A cross-sectional study. *Journal of Nursing Education and Practice* 8 (1): 60.
- Armijo-Olivo, Susan, Carla R. Stiles, Neil A. Hagen, Patricia D. Biondo, and Greta G. Cummings. 2012. Assessment of study quality for systematic reviews: A comparison of the Cochrane Collaboration risk of bias tool and the Effective Public Health Practice Project quality assessment tool: Methodological research. *Journal of Evaluation in Clinical Practice* 18(1):12-8.
- Bassir, S. H., P. Sadr-Eshkevari, S. Amirikhorreh, and N. Y. Karimbux. 2014. Problem-based learning in dental education: A systematic review of the literature. *Journal of Dental Education* 78(1):98-109.
- Beauvais, Audrey M., Julie G. Stewart, Susan DeNisco, and John E. Beauvais. 2014. Factors related to academic success among nursing students: A descriptive correlational research study. *Nurse Education Today* 34(6):918-923.
- Beerkens, Maarja, Eve Mägi, and Liis Lill. 2011. University studies as a side job: Causes and consequences of massive student employment in estonia. *Higher Education* 61 (6): 679-92.
- Buerhaus, P. I., D. I. Auerbach, and D. O. Staiger. 2009. The recent surge in nurse employment: Causes and implications. *Health Affairs (Project Hope)* 28(4): w657-668.
- Cesario, S. K., R. J. Cesario, and A. R. Cesario. 2013. Organized music instruction as a predictor of nursing student success. *Nurse Educator* 38(4):141-146.
- Everett, Bronwyn, Yenna Salamonson, Suza Trajkovski, and Ritin Fernandez. 2013. Demographic and academic-related differences between standard-entry and graduate-entry nursing students: A prospective correlational survey. *Nurse Education Today* 33(7):709-713.

- Fernandez, Ritin, Yenna Salamonson, and Rhonda Griffiths. 2012. Emotional intelligence as a predictor of academic performance in first-year accelerated graduate entry nursing students. *Journal of Clinical Nursing* 21(23):3485-3492.
- Glew, Paul J., Sharon P. Hillege, Yenna Salamonson, Kathleen Dixon, Anthony Good, and Lien Lombardo. 2015. Predictive validity of the post-enrolment English language assessment tool for commencing undergraduate nursing students. *Nurse Education Today* 35(12):1142-1147.
- Goff, Anne-Marie. 2011. Stressors, academic performance, and learned resourcefulness in baccalaureate nursing students. *International Journal of Nursing Education Scholarship* 8:1.
- Higgins, Julian PT, and Sally Green. 2011. *Cochrane handbook for systematic reviews of interventions*. Vol. 4. Hoboken: John Wiley & Sons.
- Hughes, Brian M. 2005. Study, examinations, and stress: Blood pressure assessments in college students. *Educational Review* 57 (1): 21-36.
- Jeffreys, Marianne R. 2015. *Jeffreys's Nursing Universal Retention and Success Model: Overview and action ideas for optimizing outcomes A–Z*.
- Jeffreys, Marianne R. 2012. *Nursing student retention: Understanding the process and making a difference*. New York City: Springer.
- Koch, Jane, Yenna Salamonson, John X. Rolley, and Patricia M. Davidson. 2011. Learning preference as a predictor of academic performance in first year accelerated graduate entry nursing students: A prospective follow-up study. *Nurse Education Today* 31(6)(8):611-616.
- Kowitlawakul, Y., R. Brenkus, and N. Dugan. 2013. Predictors for success for first semester, second-degree bachelor of science in nursing students. *International Journal of Nursing Practice* 19 Suppl 1:38-43.

- Lancia, Loreto, Cristina Petrucci, Fabio Giorgi, Angelo Dante, and Maria Grazia Cifone. 2013. Academic success or failure in nursing students: Results of a retrospective observational study. *Nurse Education Today* 33(12):1501-1505.
- McLaughlin, Katrina, Marianne Moutray, and Orla T. Muldoon. 2008. The role of personality and self-efficacy in the selection and retention of successful nursing students: A longitudinal study. *Journal of Advanced Nursing* 61 (2): 211-21.
- McNelis, Angela M., Debra S. Wellman, Joyce Splann Krothe, Deborah D. Hrisomalos, Jennifer L. McElveen, and Rebecca J. South. 2010. Revision and evaluation of the Indiana University School of Nursing baccalaureate admission process. *Journal of Professional Nursing* 26(3):188-195.
- Moreno, S., E. Bialystok, R. Barac, E. G. Schellenberg, N. J. Cepeda, and T. Chau. 2011. Short-term music training enhances verbal intelligence and executive function. *Psychological Science* 22(11):1425-1433.
- Moscaritolo, Linda M. 2009. Interventional strategies to decrease nursing student anxiety in the clinical learning environment. *Journal of Nursing Education* 48 (1): 17-23.
- Mthimunye, K. D. T., F. M. Daniels, and A. Pedro. 2015. Predictors of academic performance and throughput among second-year nursing students at a university in the Western Cape. Master of Nursing Education; Master's Dissertation, University of the Western Cape, Cape Town.
- Newton, Sarah E., and Gary Moore. 2009. Use of aptitude to understand bachelor of science in nursing student attrition and readiness for the National Council Licensure Examination-Registered Nurse. *Journal of Professional Nursing* 25(5):273-278.
- Newton, Sarah E., Lauren H. Smith, Gary Moore, and Morris Magnan. 2007. Predicting early academic achievement in a baccalaureate nursing program. *Journal of Professional Nursing* 23 (3): 144-9.

- Oducado, Ryan Michael F., and Ayesha C. Penuela. 2014. Predictors of academic performance in professional nursing courses in a private nursing school in kalibo, aklan, philippines. *Asia Pacific Journal of Education, Arts, and Sciences* 1 (5): 21-8.
- Pitt, Victoria, David Powis, Tracy Levett-Jones, and Sharyn Hunter. 2014. The influence of personal qualities on performance and progression in a pre-registration nursing programme. *Nurse Education Today* 34(5):866-871.
- Puertas, E. Benjamín, Carlos Arósquipa, and Daniela Gutiérrez. 2013. Factors that influence a career choice in primary care among medical students from high-, middle-, and low-income countries: A systematic review. *Revista Panamericana De Salud Pública* 34(5): 351-358.
- Salamonson, Yenna, and Sharon Andrew. 2006. Academic performance in nursing students: Influence of part-time employment, age and ethnicity. *Journal of Advanced Nursing* 55(3):342-349.
- Salamonson, Yenna, Sharon Andrew, and Bronwyn Everett. 2009. Academic engagement and disengagement as predictors of performance in pathophysiology among nursing students. *Contemporary Nurse: A Journal for the Australian Nursing Profession* 32(1-2):123-132.
- Salamonson, Yenna, Bronwyn Everett, Melissa Cooper, Lien Lombardo, Roslyn Weaver, and Patricia M. Davidson. 2014. Nursing as first choice predicts nursing program completion. *Nurse Education Today* 34(1):127-131.
- Schmidt, B., and B. MacWilliams. 2011. Admission criteria for undergraduate nursing programs: A systematic review. *Nurse Educator* 36(4):171-174.
- Smith, Virginia A. 2016. Nursing student attrition and implications for pre-admission advisement. *Journal of Nursing Education* 29(5):215-218.
- South African Nursing Council. 2017. South African Nursing Council statistics. Accessed 13 April 2017. <http://www.sanc.co.za/stats.htm>.

- Reyes, H., V. Hartin, C. Loftin, D. Davenport, and V. Carter. 2012. The impact of employment on nursing students' academic performance. *Nurse Educator* 37 (5) (Sep-Oct): 218-21.
- Thomas, H. 2003. Quality assessment tool for quantitative studies. *Effective Public Health Practice Project*. Toronto: McMaster University.
- Timer, Jennifer E., and Marion I. Clauson. 2011. The use of selective admissions tools to predict students' success in an advanced standing baccalaureate nursing program. *Nurse Education Today* 31(6): 601-606.
- Wambuguh, O., M. Eckfield, and L. Van Hofwegen. 2016. Examining the importance of admissions criteria in predicting nursing program success. *International Journal of Nursing Education Scholarship* 13(1):10.1515/ijnes,2015-0088.
- Wan Chik, W. Z., Y. Salamonson, B. Everett, L. M. Ramjan, N. Attwood, R. Weaver, Z. Saad, and P. M. Davidson. 2012. Gender difference in academic performance of nursing students in a Malaysian university college. *International Nursing Review* 59(3):387-393.
- World Health Organization. 2010. *Increasing access to health workers in remote and rural areas through improved retention: Global policy recommendations*. Geneva: World Health Organization.



## CHAPTER FIVE

### EDUCATIONAL ENVIRONMENT AT THE SCHOOL OF NURSING:

#### STUDY 2

##### 5.1 INTRODUCTION

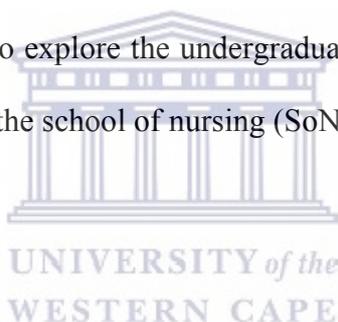
This chapter presents the findings from Phase 1, referred to as study 2: A cross-sectional study on the perceptions of undergraduate nursing students' regarding their educational environment. The following is a summary of the objectives, methodology, study outcome and article 2.

##### 5.2 OBJECTIVE

The objective of this study was to explore the undergraduate nursing students' perception of their educational environment at the school of nursing (SoN) selected for this study

##### 5.3 METHODOLOGY

A cross-sectional study was undertaken to (1) evaluate the educational environment as perceived by undergraduate nursing students at a school of nursing in Western Cape Province; and (2) to investigate whether the educational environment, or components thereof, is perceived negatively or positively amongst undergraduate nursing students of different year level, gender, home language and ethnicity. A 67-item researcher developed questionnaire was used to collect data from the undergraduate nursing students. IBM SPSS-24 was used to analyse data by generating descriptive and inferential statistics.



## 5.4 STUDY OUTCOME

The article has been accepted for publication in a national open access peer reviewed journal. It is currently in final editing for publication (see Appendix 25).

**Mthimunye, K.D.T., & Daniels, F.M. (2019).** Student nurses' perceptions of their educational environment at a school of nursing in Western Cape Province, South Africa: A cross-sectional study: *Curationis*. (In press)



# Student nurses' perceptions of their educational environment at a school of nursing in Western Cape Province, South Africa: A cross-sectional study

K.D.T Mthimunye<sup>a</sup> & F. M. Daniels<sup>a</sup>

\* School of Nursing, University of the Western Cape, Robert Sobukwe Road, Bellville

[katlegomthimunye@icloud.com](mailto:katlegomthimunye@icloud.com)

[fdaniels@uwc.ac.za](mailto:fdaniels@uwc.ac.za)

\*Article submitted to: **Journal of the Democratic Nursing Organisation of South Africa.**  
(In press 08 February 2019)

## ABSTRACT

**Background:** Educational environments have been found to bear a substantial relationship with the academic performance and success, as well as the retention, of students. **Objective:** The objectives were to (1) evaluate the educational environment as perceived by undergraduate nursing students at a school of nursing in Western Cape Province; and (2) to investigate whether the educational environment, or components thereof, is perceived negatively or positively amongst undergraduate nursing students of different year level, gender, home language and ethnicity. **Methods:** A quantitative research method with a cross-sectional design was implemented. Data was collected from 232 undergraduate nursing students from a school of nursing at a university in Western Cape Province, South Africa. The subscales as well as the items of the educational environment questionnaire were compared amongst undergraduate nursing students. Data were analysed by means of the Statistical Package for Social Sciences (SPSS-24; IBM) using analysis of variances (ANOVAs), independent-sample T-tests, mean scores, standard deviations and percentages. **Results:** The mean score attained for the entire participant group was 195 (SD=24.2) out of 268 (equivalent to 72.8% of maximum score) which indicated that the educational environment was perceived substantially more positively than negatively. The overall mean score was significantly higher ( $p<0.05$ ) for male students (M=202; SD=21) and for black students (M=202; SD=21). The digital resources (DR) subscale was the only subscale with a statement/item that was rated as absolute negative (M=1.9; SD=0.9). **Conclusions:** The educational environment at the institution concerned was perceived as predominantly positive by its undergraduate nursing students. Although the educational environment was predominantly perceived as positive, the results of this study also

indicated that enhancements are required to improve the physical classroom conditions, skills laboratories, digital resources and the implemented teaching and learning strategies. It is vital for university management to prioritise the creation of an educational environment which ensures that quality learning takes place.

**Keywords:** student's perceptions, educational environment, nursing education, South Africa

## INTRODUCTION

Teaching and learning in nursing education is undergoing substantial transformation worldwide (Aiken 2011; Benner 2012; World Health Organization 2013). These transformations challenge schools of nursing to implement new strategies to facilitate high-quality teaching and learning (Benner 2012). The educational environment in particular plays a central role in the process of teaching and learning (Arzuman, Yusoff & Chit 2010, Korucu & Alkan 2011; Davies, Jindal-Snape, Collier, Digby, Hay & Howe 2013; Cleveland & Fisher 2014). The educational environment in nursing comprises both practical and theoretical learning settings (Billings & Halstead 2015). It also incorporates a variety of basic provisions such as the physical infrastructure, the teaching and learning processes, school resources/materials, and the teacher-student relationship (Miles, Swift & Leinster 2012). In addition, for nursing students, an ideal educational environment should promote critical thinking and lifelong learning (Billings & Halstead 2015; Davis & Kimble 2011). However, it is also necessary to be aware that 'demotivating elements such as perceived bias, poor role models, information overload, teacher-centered or disorganized teaching need to be identified and eliminated' (Veerapen & McAleer 2010, p. 2). As a further cautionary observation, Bruce, Klopper and Mellish (2011) suggest that nursing education requires a modern education environment which is focused more on the learning paradigm than on the teaching paradigm.

## BACKGROUND

The literature reveals that education environments have an impact on students' levels of success, achievement, contentment and motivation (Arzuman *et al* 2010). Furthermore, Till (2005) and Arzuman *et al.* (2010) have suggested that students' satisfaction with their education environment is associated with the depth and quality of learning. Arzuman *et al.* (2010) and Al Ayed and Sheik (2008) reported that education environment domains correlate positively with the academic success and ultimately the retention of students. Therefore, students' perceptions of their educational environment serve as a valuable foundation for transforming and improving the quality of the educational environment. In addition, Baeten, Kyndt, Struyven and Dochy (2010) and Cheon, Lee, Crooks and Song (2012) reported that students' perceptions of their learning environment have a significant impact on the learning strategies which they may adopt. For example, Baeten *et al.* (2010) reported that students in the community and health sciences faculty exhibited a deep learning approach towards their learning. Therefore, an environment that promotes quality and deep learning is vitally significant in ensuring successful teaching of, and learning by, nursing students. Moreover, the improvement of the overall education environment is likely to have a significant influence on the academic performance and retention of the nursing student (Till 2005; Al Ayed & Sheik 2008; Arzuman *et al.* 2010).

Evaluation of the student's perception towards their educational environment at the School of Nursing (SoN) would aid nurse educators and faculty staff in measuring the quality of the teaching and learning taking place (Denz-Penhey & Murdoch 2009). Although numerous studies have been conducted globally evaluating the perceptions of medical as well as nursing students' perceptions on their educational environment (Ostapczuk, Hugger, De Bruin, Ritz-Timme & Rothhoff 2012; Yusoff 2012; Colbert-Getz, Kim, Goode, Shochet, & Wright 2014;

Rahman, Aziz, Zulkifli, Haj, Mohd Nasir, Pergalathan 2015), we are not aware of any studies evaluating nursing student's perceptions of their educational environments, either in south Africa or at the identified university in the Western Cape province.

## **OBJECTIVES OF THE STUDY**

The objectives of this study were to:

- evaluate the education environment as perceived by undergraduate nursing students at a school of nursing in the Western Cape Province of South Africa.
- investigate whether the educational environment, or components thereof, was perceived negatively or positively among undergraduate nursing students of different year level, gender or ethnicity.

## **METHODOLOGY**

### **Research design**

A quantitative research method with a cross-sectional design, using a researcher-developed survey, was employed.

### **Context of the study**

The present study was conducted in the School of Nursing (SoN) at a university in the Western Cape Province of South Africa (SA). The SoN offers a range of under- and postgraduate programmes. The undergraduate programmes offered by the SoN were the main focus of this study, and these include the four-year Bachelor of Nursing (BN) and five-year Bachelor of Nursing Foundation (BNF) programmes.



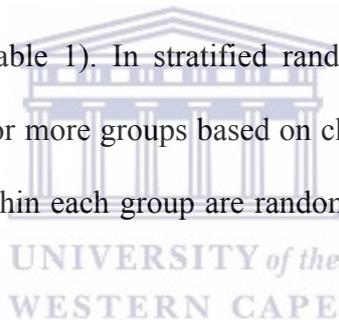
## **Population, sample and sampling technique**

### **Inclusion criteria**

As a result of the former apartheid system and segregation policies in SA, the racial<sup>1</sup> classification of population groups differs slightly from general classifications used around the world (Cornell & Hartmann 2007). For example, the term ‘coloured’ in a South African context refers to a population group of mixed race (Moultrie & Timæus 2003). In SA, the predominant racial groupings are classified as black, white, coloured and Indian. The study population included all students registered for the BN and BNF programme at the university concerned.

### **Sampling technique**

Stratified random sampling was used to ensure that all levels of the BN and BNF programmes were adequately represented (Table 1). In stratified random sampling, ‘the population of interest is first divided into two or more groups based on characteristics that are important to the study, and then members within each group are randomly selected’ (Macnee & McCabe 2008).



---

<sup>1</sup> \*Statistics South Africa continues to classify people into population groups, since moving away from the pre-1994 apartheid-based system. This classification uses a population group-based classification system that is no longer based on a legal definition, but rather on self-classification (Statistics South Africa 2016).

**Table 1: Summary of study population and sample and response rate**

Year level	Population (N)	Sample (n)	Response (n) (%)
BNF/ ECP	74	19	14 (4.88)
BNF/ECP 2	45	11	9 (3.14)
BN 1	221	56	49 (17.07)
BN 2	303	77	62 (21.60)
BN 3	240	61	48 (16.72)
BN 4	248	63	50 (17.42)
Total	1131	287	232 (80.84)

Note. First year Bachelor of Nursing Foundation: BNF/ECP 1, second year Bachelor of Nursing Foundation: BNF/ECP 2, first year Bachelor of Nursing: BN 1, second year Bachelor of Nursing: BN 2, third year Bachelor of Nursing: BN 3 and fourth year Bachelor of Nursing: BN 4.



### Sample size

The sample size equation  $n = \frac{p(1-p)(Z)^2}{e^2}$  with a 95% confidence level ( $Z=1.96$ ), an error rate ( $e$ ) of 5% and a proportion of the target population ( $p$ ) equals 50% revealed that a sample of 384 is required to represent the population (Dean, Sullivan & Soe 2014). An adjusted sample size of 287 was derived using the equation  $n_a = \frac{n}{1 + (n - 1)/N}$  where the population ( $N$ ) is 1131 (Dean *et al.* 2014). Furthermore, the equation  $\chi = \frac{N_s}{N}n_a$  was used to calculate the sample size within each strata, where  $\chi$  is the sample size for stratum,  $N_s$  is the population size for stratum,  $N$  is total population size, and  $n_a$  is total sample size (Dean *et al.* 2014). Table 1 summarises the study population sample as well as the response rate.

### Research instrument and data collection

Data were collected using a researcher-developed questionnaire that was administered to the

sampled undergraduate (BN and BNF) nursing students. The questionnaire has a total score of 268 for 67 items on a four-point Likert scale (where 1 = strongly disagree, 2 = disagree, 3 = agree and 4 = strongly agree). For interpretation of the overall survey score, the following overall scores were considered based on quadrant parameters: 0 – 67 = very poor; 68 – 134 = poor; 135 – 201 = good; 202 – 268 = excellent.

The survey consisted of demographic factors and 8 subscales that were used to measure the perception of nursing students of the educational environment. The instruments' subscales and measurements included:

- i. physical classroom environment (PCE) – 11 items; maximum score = 44
- ii. skills laboratory (SL) (on campus) – 6 items; maximum score = 24
- iii. skills laboratory (SL) (off campus) – 6 items; maximum score = 24
- iv. university library (UL) – 5 items; maximum score = 20
- v. digital resources (DR) – 7 items; maximum score = 28
- vi. teaching and learning climate (TLC) – 9 items; maximum score = 36
- vii. teaching and learning strategies (TLS) – 11 items; maximum score = 44
- viii. nursing curriculum (NC) – 12 items; maximum score = 48.

In the present study, TLC refers to professional relationships among students and educators whereas TLS refers to the teaching and learning methodologies implemented at the SoN.

Items with a mean score of 3.0 or more indicate absolute positive aspects. Items with a mean score of 2.0 or below indicate absolute negative aspects and needing immediate intervention. Items with a mean score of between 2.0 and 3.0 are aspects of the educational environment that warrant improvement.

### **Reliability of research instrument**

A pilot test of the instrument preceded the actual data collection to ensure reliability of the data collection instrument. Perneger, Courvoisier, Hudelson and Gayet-Ageron (2015) suggested that, in order to produce significant results from a pre-test, a minimum sample size of 30 participants is recommended. Questionnaires were administered to 30 undergraduate nursing students (selected via convenience sampling) who were not included in the main study. The questionnaire was then administered to the same group 2 weeks later to ensure test-retest reliability (Polit & Beck 2010). The test-retest reliability revealed an intraclass correlation coefficient of 0.954, indicating an excellent correlation coefficient (Field 2013). Finally, the reliability process involved calculating the internal consistency reliability which revealed a Cronbach alpha coefficient of 0.945. The individual items of the instrument revealed a Cronbach alpha coefficient ranging from 0.943 to 0.945. This Cronbach alpha coefficient confirms that the items being measured were internally reliable (Field 2013). According to Tavakol and Dennick (2011) a significant Cronbach alpha coefficient ( $\geq 0.70$ ) adds to the validity and accuracy of the instrument. Thus, an instrument cannot be valid unless it is reliable (Tavakol & Dennick 2011).

### **Validity of the instruments**

The content validity of the questionnaire was established by the research supervisor (an expert in teaching and learning) and a statistician. Their inputs were implemented to improve the items in the questionnaire. Additionally, face validity was conducted by 30 undergraduate nursing students during the pilot test of the instrument to ensure accurate interpretation of the content. During the face validity, none of the participants requested verbal assistance and they responded to all the items included in the instrument. In general, the participants in this pilot test reported that the instruction as well as the content of the instrument were well defined.

## Data processing and analysis

Data were analysed using the IBM Statistical Package for Social Sciences (IBM SPSS-24). Missing values were dealt with by replacing them with the median of nearby points to avoid errors and skewness of the data. Descriptive as well as inferential statistics were performed by means of frequencies, standard deviations (SDs) and percentages for the total score of the questionnaire and subscale scores of the whole sample as well as the specific BN and BNF groups, ethnic group and gender. For dichotomous variables (home language and gender), comparisons of overall and subscale mean scores were achieved through a series of independent-sample T-tests. For variables with more than two values (ethnicity and year level of study), a series of one-way analysis of variances (ANOVAs) were performed to compare all the groups. Where one-way ANOVAs were not possible owing to violation of the significant homogeneity of variances ( $p < 0.05$ ), the alternative statistical test – Welch ANOVA – was used. The significance level for ANOVA was established at  $p < 0.05$ . Where significant ( $p < 0.05$ ) differences between the groups were found, a post hoc Tukey's HSD test for multiple comparisons was used to verify where the variances occurred between the groups. Where no significant ( $p > 0.05$ ) differences between the groups were found (equal variances not assumed), a nonparametric Games-Howell post hoc test set for multiple comparisons was used to verify where the variances occurred between the groups.

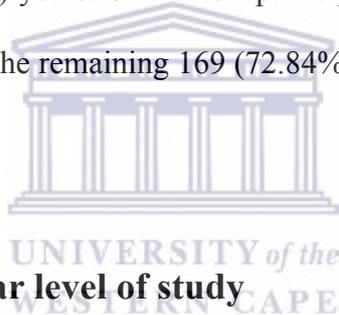
## Ethical consideration

Ethics in research is a serious matter and researchers need to adhere to strict rules (Denscombe 2014). Participation was voluntary and by participant consent. Ethics clearance was obtained from the Research Ethics Committee of the University of the Western Cape (Ethical Clearance Number: HS17/1/42).

## RESULTS

### Participants

A total of 232 (80.84%) students out of the 287 stratified random sample completed the survey. The demographic data revealed that of the 232 students, 182 (78.45%) were female and 50 (21.55%) were male. More than half ( $n=132$ ; 56.90%) of the participants were of black ethnicity, next were coloured students ( $n=74$ ; 31.90%), and the smallest ethnic groups in the current study were white ( $n=18$ ; 7.76%) and Indian ( $n=4$ ; 1.72%). The category categorised as 'other' which included all the students who did not belong to any of the 4 main categories as classified by Statistics South Africa (2016) comprised 4 (1.72%) students. The youngest participant was 18 years old and the oldest was 49 years old. The mean age of the study participants was 23.02 (SD=5.11) years. Of the 232 participants, 63 (27.16%) spoke English as their home language whereas the remaining 169 (72.84%) spoke other languages including IsiXhosa and Afrikaans.



### Overall mean scores by year level of study

A one-way between-groups ANOVA was performed to compare the nursing students' perceptions regarding their educational environment for each year level of study in the undergraduate programme. Subscale means and SDs for the whole sample as well as for each year level are summarised in Table 2. For this ANOVA, the outcome variables were found to be normally distributed and equal variances were assumed except for the university library (UL) subscale, which revealed a Levene's statistic of  $F_{(5, 226)} = 4.8$ ;  $p < 0.000$ . Since the assumption of homogeneity of variance was not met for the UL subscale, the Welch statistical test was performed and the results revealed Welch's  $F_{(5, 55.08)} = 1.81$ , which was found to be not significant ( $p=0.127$ ). The post hoc comparison Games-Howell test revealed that there was no statistical difference between all unique pairwise comparisons.

The total mean score for all the students who participated in the present study was 195 (72.8% of the maximum score) with a standard deviation of 24.2. These results indicate that, generally, the educational environment as perceived by undergraduate nursing students at the identified university was good but could be improved upon. The total scores varied significantly between year levels ( $F_{(5, 226)} = 7.098; p < 0.000$ ). Post hoc analysis using Tukey's HSD test indicated that first-year BN students had a significantly positive perception ( $p < 0.000$ ) about their overall educational environment as compared with the senior students (third- and fourth-year BN students).

SL (on-campus) scores varied significantly between the year levels of the undergraduate programme ( $F_{(5, 226)} = 6.341; p = 0.000$ ). SL (off-campus) scores varied significantly between the year levels ( $F_{(5, 226)} = 4.242; p = 0.001$ ). Likewise, taken together, the results of the post hoc Tukey's HSD statistics for both on- and off-campus skills laboratory indicated that generally first-year BN students have a significantly positive ( $p < 0.05$ ) perception about the skills laboratories compared with second-, third- and fourth-year BN students.

DR mean scores varied significantly between year levels ( $F_{(5, 226)} = 4.982, p = 0.000$ ). Post hoc Tukey's HSD statistics indicated that first- and second-year BN students had a significantly positive perception ( $p < 0.005$ ) about the digital resources, as compared with the third-year BN students.

TLC mean scores varied significantly ( $F_{(5, 226)} = 7.254, p = 0.000$ ). Post hoc Tukey's HSD statistics suggest that the first-year BN students had a significantly positive perception ( $p < 0.005$ ) about the teaching and learning climate as compared with their senior third- and fourth-year BN students. Likewise, the post hoc Tukey's HSD statistics revealed that second-

year BN students had a significantly positive perception ( $p<0.005$ ) about the teaching and learning climate as compared to fourth-year BN students.

The TLS mean score varied significantly ( $F_{(5, 226)} = 2.773, p=0.019$ ). The post hoc Tukey's HSD statistics results indicate that first-year BN students had a significantly positive perception ( $p=0.032$ ) towards the teaching and learning strategies implemented at the identified university as compared to the fourth-year BN students.

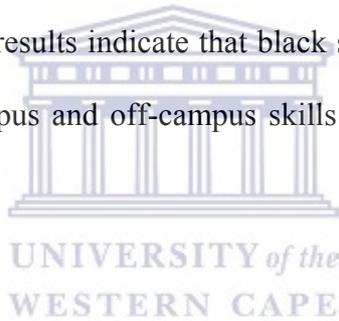
The mean score of the students' perception regarding the NC varied significantly ( $F_{(5, 226)} = 5.469, p=0.000$ ). The post hoc Tukey's HSD test results indicate that first-year BN students and second-year BN students had a significantly positive perception ( $p<0.05$ ) regarding the nursing curriculum at the identified university as compared to the fourth-year BN students.

### **Overall mean score by ethnicity**

A one-way between-groups ANOVA was performed to compare the nursing students' perceptions regarding their education environment for each ethnic group. Participants were divided into five groups based upon their ethnic demographics (black, coloured, Indian, white and other). Subscale means and SDs for ethnicity are displayed in Table 3. For this ANOVA, the outcome variables were found to be normally distributed and equal variances were assumed except for PCE, NC and total score, which revealed the following Levene's statistics respectively:  $F_{(4, 227)} = 2.59, p=0.038$ ;  $F_{(4, 227)} = 3.36, p=0.011$ ; and  $F_{(4, 227)} = 4.25, p=0.002$ . Since the assumption of homogeneity of variance was not met for PCE, NC and overall score, Welch statistics were performed. The results for PCE revealed Welch statistic  $F_{(4, 11.15)} = 2.38$ , which was found to be not statistically significant ( $p=0.114$ ). The post hoc comparison Games-Howell test revealed that there was no statistical difference between all ethnic groups in

pairwise comparisons. The results for NC revealed Welch statistic  $F_{(4, 11.11)} = 4.93$ , which was found to be statistically significant ( $p=0.016$ ). Post hoc comparison Games-Howell statistics indicated that black students had a more positive perception ( $p<0.05$ ) towards the nursing curriculum at the university compared with their coloured counterparts. Welch statistic results for the overall score by ethnicity ( $F_{(4, 11.09)} = 5.25$ ) were found to be significant ( $p=0.013$ ). The post hoc comparison Games-Howell statistic indicated that, overall, black students had a more positive perception ( $p<0.05$ ) towards their educational environment compared with their coloured counterparts.

The mean score of the students' perception regarding the on-campus ( $F_{(4, 227)} = 4.85, p=0.001$ ) and off-campus ( $F_{(4, 227)} = 3.21, p=0.014$ ) skills laboratories by ethnicity varied significantly. The post hoc Tukey's HSD test results indicate that black students had a positive perception ( $p<0.05$ ) regarding both on-campus and off-campus skills laboratories compared with their coloured counterparts.



The mean score of the students' perceptions regarding digital resources (DR) by ethnicity varied significantly ( $F_{(4, 227)} = 2.83, p=0.026$ ). The post hoc Tukey's HSD test results revealed that there were no significant statistical differences between all unique pairwise comparisons.

The mean score of students' perception of the teaching and learning climate (TLC) by ethnicity varied significantly ( $F_{(4, 227)} = 5.81, p=0.000$ ). Post hoc Tukey's HSD statistics indicated that black students had a more positive perception ( $p<0.05$ ) regarding the TLC at the identified university compared with their coloured counterparts as well as the category classified as 'other'. The post hoc Tukey's HSD results also revealed that white students had a more positive

perception ( $p < 0.05$ ) regarding the teaching and learning climate compared with students classified in the category of 'other'.

The mean score of students' perceptions regarding the teaching and learning strategies (TLS) implemented at the identified university varied significantly ( $F_{(4, 227)} = 6.24, p=0.000$ ). The post hoc Tukey's HSD statistics indicated that black students had a significantly positive perception ( $p < 0.05$ ) of the teaching and learning strategies compared with coloured students and those classified as 'other'.



**Table 2: Mean (SD) and overall scores by year level**

Domains	BNF 1	BNF 2	BN 1	BN 2	BN 3	BN 4	All	F	<i>p</i>	Tukey's HSD <0.05
PCE	32 (3.3)	33 (3.2)	32 (4.8)	31 (5.4)	30 (5.9)	30 (5.9)	31 (5.4)	1.303	0.264 NS	
SL (on campus)	18 (2.0)	18 (2.3)	19 (3.2)	16 (3.7)	15 (3.7)	16 (3.2)	17 (3.6)	6.341	0.000	BN1-BN2, BN1-BN3, BN1-BN4
SL (off campus)	18 (3.0)	18 (2.5)	18 (3.1)	16 (3.3)	16 (3.8)	16 (3.2)	17 (3.4)	4.242	0.001	BN1-BN2, BN1-BN3, BN1-BN4
UL	16 (2.1)	15 (2.3)	16 (2.5)	16 (2.7)	14 (4.0)	16 (2.8)	16 (3.0)	1.81	0.127 NS	
DR	20 (3.0)	19 (2.7)	21 (3.6)	19 (3.4)	17 (3.6)	19 (3.7)	19 (3.7)	4.982	0.000	BN3-BN1, BN3-BN2
TLC	28 (3.7)	27 (3.7)	30 (3.8)	28 (4.7)	26 (5.3)	25 (5.4)	27 (3.7)	7.254	0.000	BN1-BN3, BN1-BN4, BN2-BN4
TLS	34 (3.3)	44 (4.7)	34 (4.6)	33 (5.6)	31 (5.3)	31 (6.4)	32 (5.5)	2.773	0.019	BN1- BN4
NC	38 (5.0)	37 (6.5)	39 (4.1)	37 (5.5)	36 (5.4)	33 (6.4)	37 (5.7)	5.469	0.000	BN4-BN1, BN4-BN2
Total	202 (12)	201 (22)	208 (19)	197 (23)	186 (25)	186 (26)	195 (24.2)	7.098	0.000	BN1-BN3, BN1-BN4
<i>N</i>	14	9	49	62	48	50	232			

First-year Bachelor of Nursing Foundation = BNF 1; second-year Bachelor of Nursing Foundation = BNF 2; first-year Bachelor of Nursing = BN 1; second-year Bachelor of Nursing = BN 2; third-year Bachelor of Nursing = BN 3; fourth-year Bachelor of Nursing = BN 4; physical classroom environment = PCE; skills laboratory = SL; university library = UL; digital resources = DR; teaching and learning climate = TLC; teaching and learning strategies = TLS; nursing curriculum = NC; not significant = NS.

**Table 3: Mean (SD) and overall score by ethnicity**

Domains	Black	Coloured	Indian	White	Other	F	<i>p</i>	Tukey's HSD <0.05
PCE	32 (5)	30 (5)	24 (7)	30 (6)	24 (10)	2.382	0.114 NS	
SL (on campus)	18 (3)	16 (4)	16 (6)	16 (2)	15 (5)	4.847	0.001	black- coloured
SL (off campus)	18 (3)	16 (3)	15 (6)	17 (2)	15 (6)	3.208	0.014	black- coloured
L	16 (3)	16 (3)	17 (2)	15 (2)	14 (3)	0.361	0.836 NS	
DR	19 (4)	19 (3)	15 (6)	19 (4)	16 (4)	2.827	0.026	
TLC	28 (5)	26 (5)	26 (6)	27 (6)	20 (6)	5.809	0.000	black- coloured, black- other, white-other
TLS	33 (5)	31 (5)	27 (6)	30 (6)	25 (7)	6.235	0.000	black- coloured, black-other
NC	38 (5)	35 (5)	30 (11)	37 (7)	28 (8)	4.927	0.016	black- coloured
Overall	202 (21)	188 (22)	169 (45)	190 (26)	156 (46)	5.249	0.013	black- coloured
<i>N</i>	132	74	4	18	4			

Physical classroom environment = PCE; skills laboratory = SL; university library = UL; digital resources = DR; teaching and learning climate = TLC; teaching and learning strategies = TLS; nursing curriculum = NC; not significant = NS

### Gender differences

An independent-samples *t*-test was performed to compare the nursing students' perceptions regarding their educational environment among male and female undergraduate nursing

students. The overall mean score was significantly ( $p < 0.05$ ) higher for male students than for female students ( $t(230) = 2.3, p = 0.022$ ). These results indicate that male students' perceptions regarding their teaching and educational environment was more positive compared with their female counterparts. A summary of the independent-sample  $t$ -test for comparison of the subscale scores and gender is presented in Table 4.

**Table 4: Mean score (SD) and overall scores by gender ( $N = 232$ )**

Domains	Female	Male	$T$	$p$
PCE	31 (5)	32 (5)	2.089	0.038
SL (on campus)	16 (4)	18 (3)	2.100	0.037
SL (off campus)	17 (3)	18 (3)	1.789	0.075 (NS)
UL	16 (3)	16 (3)	0.481	0.631 (NS)
DR	19 (4)	19 (4)	0.506	0.614 (NS)
TLC	27 (5)	28 (4)	1.390	0.166 (NS)
TLS	32 (6)	33 (5)	1.624	0.106 (NS)
NC	36 (6)	38 (5)	1.994	0.047
Overall	193 (25)	202 (21)	2.302	0.022
$N$	183	50		

Physical classroom environment = PCE; skills laboratory = SL; university library = UL; digital resources = DR; teaching and learning climate = TLC; teaching and learning strategies = TLS; nursing curriculum = NC; not significant = NS.

### Overall mean scores for undergraduate students

The mean scores for UL was the highest (3.1 out of 4) followed by TLC and NC (3.0 out of 4 for both subscales). The remaining 5 subscales (PCE, SL (on campus), SL (off campus), DR and TLS) revealed mean scores below 3 out of 4. The results revealed that the weakest subscale was DR with a mean score of 2.7 out of 4. Furthermore, the DR subscale was the only subscale with a statement/item that was rated an absolute negative. Table 5 summarises the mean scores and interpretation of items under investigation.

**Table 5: Mean score (out of 4) of the items under study domains**

Items	M (SD)	Interpretation
<b>Physical classroom environment</b>		
1. Classrooms are pleasant places to work	2.8 (0.8)	Could be improved
2. Lighting is adequate and there is no glare	3.0 (0.8)	Absolute positive
3. Ventilation is sufficient and the temperature is appropriate	2.7 (0.9)	Could be improved
4. There is adequate space for movement	3.1 (0.8)	Absolute positive
5. Furniture is arranged to best effect for different activities	2.6 (0.8)	Could be improved
6. Equipment and materials are easily accessible (computer, lighting system, projector, overhead projector)	2.6 (0.9)	Could be improved
7. Adequate seating arrangements for students	2.9 (0.8)	Could be improved
8. Students have adequate personal workspace	2.9 (0.7)	Could be improved
9. Students can easily see the teacher and the black/white board	3.1 (0.7)	Absolute positive
10. Furniture is suitable and well maintained	2.4 (0.8)	Could be improved
11. Sound level in classroom is conducive/favourable to learning	2.8 (0.8)	Could be improved
Mean score	2.8 (0.5)	Could be improved
<b>Skills laboratory: on campus</b>		
12. Adequate in size	2.6 (0.9)	Could be improved
13. Adequate lighting	3.2 (0.6)	Absolute positive
14. Adequate ventilation	2.8 (0.8)	Could be improved
15. Equipped with appropriate and sufficient equipment necessary for students' practice of required clinical skills	2.8 (0.8)	Could be improved
16. Equipped with appropriate and sufficient supplies (stock) necessary for student's practice of required clinical skills	2.8 (0.8)	Could be improved
17. Accessible to students outside regularly scheduled class times	2.6 (0.9)	Could be improved
Mean score	2.8 (0.6)	Could be improved
<b>Skills laboratory: off campus</b>		
18. Adequate in size	2.8 (0.8)	Could be improved
19. Adequate lighting	3.1 (0.7)	Absolute positive
21. Adequate ventilation	2.9 (0.8)	Could be improved
22. Equipped with appropriate and sufficient equipment necessary for student's practice of required clinical skills	2.9 (0.7)	Could be improved
23. Equipped with appropriate and sufficient supplies (stock) necessary for student's practice of required clinical skills	2.8 (0.7)	Could be improved
23. Accessible to students outside regularly scheduled class times	2.2 (0.9)	Could be improved
Mean score	2.8 (0.6)	Could be improved
<b>University library</b>		
24. Institutional library personnel offer orientation and demonstration of the library services	3.2 (0.8)	Absolute positive

25. Library personnel provide assistance to students when needed	3.1 (0.8)	Absolute positive
26. Library is user friendly for nursing students	3.0 (0.8)	Absolute positive
27. Library has sufficient materials to support programme /classroom assignments	3.1 (0.8)	Absolute positive
28. Library operating hours are convenient for students	3.3 (0.8)	Absolute positive
Mean score	3.1 (0.6)	Absolute positive
<b>Digital resources</b>		
29. Computer laboratories are adequate to support learning (research, assignment completion etc.)	2.9 (0.8)	Could be improved
30. Effective use of various mediums such as online teaching and learning (Ikamva)	3.1 (0.7)	Absolute positive
31. Adequate resources for students during online assessments	2.9 (0.8)	Could be improved
32. E-learning support services are readily accessible to all students	2.9 (0.7)	Could be improved
33. Computer laboratories are available outside regular classroom hours	2.8 (0.9)	Could be improved
34. Off-campus internet connectivity (Wi-Fi) is readily accessible	1.9 (0.9)	Absolute negative
35. On-campus internet connectivity (Wi-Fi) is readily accessible	2.6 (0.9)	Could be improved
Mean score	2.7 (0.5)	Could be improved
<b>Teaching and learning climate</b>		
36. Lecturers/clinical facilitators are approachable	3.2 (0.7)	Absolute positive
37. Lecturers/clinical facilitators are concerned with developing my competence	3.2 (0.7)	Absolute positive
38. Lecturers/clinical facilitators are able to communicate well with students	3.0 (0.8)	Absolute positive
39. Lecturers/clinical facilitators have shown patience towards students	3.0 (0.8)	Absolute positive
40. Lecturers/clinical facilitators provide good feedback to students	2.9 (0.8)	Could be improved
41. Lecturers/clinical facilitators give students constructive criticism	3.0 (0.8)	Absolute positive
42. Lecturers/clinical facilitators are well prepared for classes	3.2 (0.8)	Absolute positive
43. I feel free to ask whatever question I want in class	2.9 (0.8)	Could be improved
44. The environment encourages me to learn	2.9 (0.8)	Could be improved
Mean score	3.0 (0.6)	Absolute positive
<b>Teaching and learning strategies</b>		
45. I am stimulated to actively participate in classroom	2.9 (0.7)	Could be improved
46. The teaching strategy stimulates my thinking	2.9 (0.7)	Could be improved
47. Teaching is student-centered (teaching addresses learning needs of individual students)	2.9 (0.7)	Could be improved
48. Teaching is well-integrated and focused	3.0 (0.6)	Absolute positive

49. The teaching method develops my confidence	2.9 (0.8)	Could be improved
50. The time for teaching is sufficient	3.0 (0.7)	Absolute positive
51. My learning needs are addressed	2.9 (0.8)	Could be improved
52. Teaching is focused on the teacher	2.5 (0.8)	Could be improved
53. I can understand the lecturers in classrooms	3.0 (0.7)	Absolute positive
54. I am able to meet the learning outcomes through the teaching and learning strategies used	3.0 (0.7)	Absolute positive
55. Clinical training activities prepare the student to perform effectively in the clinical setting	3.2 (0.7)	Absolute positive
Mean score	2.9 (0.5)	Could be improved
<b>Nursing curriculum</b>		
56. I am sure about the programme learning outcomes	3.0 (0.7)	Absolute positive
57. The teaching and learning experience of the previous year prepared me well for this year	3.0 (0.9)	Absolute positive
58. Time table arrangement allows for academic engagement	2.7 (0.9)	Could be improved
59. Assessments are aligned to the outcomes provided in module guides	3.1 (0.7)	Absolute positive
60. The curriculum provides an appropriate balance between theory and practice	2.9 (0.8)	Could be improved
61. The learning outcomes are appropriate for the year level	3.1 (0.7)	Absolute positive
62. The curriculum is organised in a way that facilitates my learning	3.0 (0.7)	Absolute positive
63. The learning material, including module guides, work books etc. are clear	3.1 (0.7)	Absolute positive
64. The programme thus far developed my ability to apply theory to practice	3.2 (0.6)	Absolute positive
65. The programme thus far improved my problem-solving skills	3.1 (0.7)	Absolute positive
66. The programme thus far developed my ability to think critically about the subject matter	3.2 (0.6)	Absolute positive
67. The programme thus far helped me understand current issues in the nursing profession	3.2 (0.7)	Absolute positive
Mean score	3.0 (0.5)	Absolute positive
<b>Total mean score</b>	<b>195.2 (24.2)</b>	<b>Good</b>

## DISCUSSION

The aim of the present study was to evaluate the educational environment as perceived by undergraduate nursing students at a school of nursing. It also aimed to investigate whether the educational environment, or parts thereof, were perceived negatively or positively among undergraduate nursing students of different year level, gender or ethnicity.

### **Perception of education environment for the entire sample of undergraduate nursing students**

Recent studies conducted across the world have been conclusive in finding that the majority of undergraduate nursing students perceive their educational environment as predominantly positive (Brown, Williams & Lynch 2011; Hamid, Faroukh & Mohammadhosein 2013; Imanipour, Sadooghiasl, Ghiyasvandian & Haghani 2015; Victor, Ishtiaq & Parveen 2016). A more positive perception (high mean overall score) of the education environment by nursing students indicates a more student-centered approach to teaching and learning (Roff 2005). The present study revealed similar results. The total mean score for the entire sample of undergraduate nursing students was 195.2 (72.8%) which was well between 135 – 201, indicating that generally the students' perception of the educational environment was more positive than negative. In addition, the results were fairly consistent across the study subscales, ranging from 67.9% to 80%. However, these results fell short of achieving the 'excellent' ranking (total mean score of between 202 and 268). A conclusion that can be drawn from these results is that although the overall students' perception is more positive and the identified educational environment is student-centered, the environment can nevertheless be further improved. The enhancement of the education environment is likely to have a significant impact on the academic performance and retention of nursing student (Till 2005; Al Ayed, Sheik 2008; Arzuman *et al.* 2010). The findings in Table 5 provide an overview of subscales for potential

interventions to improve the quality of the educational environment as perceived by the undergraduate nursing students.

### **Perception of educational environment by year level**

A positive perception of the education environment was mutual for participants in all year levels of the undergraduate nursing programme. The total score per year level ranged from 186 to 202, indicating that the perception of the educational environment fell in the category of 'good'. The subscale means scores ranging between 60.7% and 100% of the maximum scores also indicated a positive perception towards the education environment. These results are consistent with majority of the studies conducted around the world (Brown *et al* 2011; Hamid *et al* 2013; Imanipour *et al* 2015; Victor *et al* 2016)

A few trends were noted between the year levels. Particularly, first-year BN students appeared to view their education environment as more satisfactory than did second-, third- and fourth-year BN students in regard to both the on-campus and off-campus skills laboratories. Papathanasiou, Tsaras and Sarafis (2014) suggests that “students generally wish for a more positive clinical learning environment than what they have experienced, especially when it comes to issues related to satisfaction, individualisation and innovation”. Therefore, is pivotal for the skills laboratories where simulated clinical learning takes place are improved to ensure development of critical thinking among nursing students (Henderson, Creedy, Boorman, Cooke & Walker 2010).

First- and second-year BN students viewed digital resources, more favourably than did third- and fourth-year BN students. A comparative study conducted by He, Wu, Yue, Fu, and Thien Vo (2012) comparing participants from two universities in the United States of America (USA) and China with the aim of “identifying the opinions of undergraduate students on the

importance of internet-based information sources when they undertake academic tasks” revealed that students use various digital resources including but not limited to search engines and social networking. Similarly, the findings of cross-sectional study conducted in Sweden by Johansson, Petersson, Saveman and Nilsson (2014) revealed that most nursing students regarded smart mobile devices to be useful in providing easy access to essential information to improve evidence based practice, record keeping, planning their work and saving time. A conclusion that can be drawn is that improving access to efficient and reliable digital resources will ensure a positive educational environment that promote quality teaching and learning (He *et al.* 2012; Thongmak 2013; Johansson, Petersson *et al.* 2014)

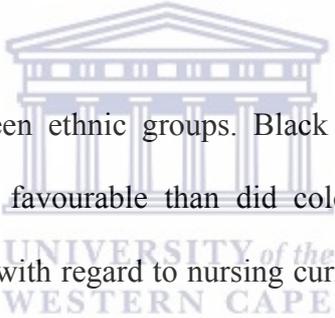
Likewise, the result of this study revealed that junior students (First- and second-year BN students) viewed nursing curriculum as more favourably than did the senior students (third- and fourth-year BN students). According to previous studies, students of innovative curriculum tend to show more contentment with their educational environments, compared to students of the traditional curriculum. The higher scores in the undergraduate nursing students’ perceptions towards their curriculum indicates a more student-centered curriculum (Wang, Zang and Shan 2009; Aghamolaei, & Fazel 2010). Fourth-year BN students also appeared to rate the teaching and learning strategies implemented as less favourable. A mixed-method study conducted by Sinclair and Ferguson (2009) revealed that “nursing students reported higher levels of satisfaction, effectiveness and consistency with their learning style when exposed to the combination of lecture and simulation than the control group, who were exposed to lecture as the only method of teaching and learning”. Furthermore, a descriptive study conducted by (Ozturk, Muslu & Dicle 2008) using the California critical thinking disposition inventory (CCTDI) which aimed at determining the critical thinking levels of undergraduate nursing students revealed that nursing students that were exposed to Problem based learning (PBL) had higher critical thinking disposition scores as compared to their counterparts that were

exposed to the traditional model. Therefore, it is vital that nurse educators integrate various teaching strategies that are problem-based and encourage self-directed learning (Ozturk *et al.* 2008; Kong, Qin, Zhou, Mou & Gao 2014.).

A general trend that emerged from the students' perception of their educational environment by year level, was that senior (third- and fourth-year) BN students viewed the educational environment at the selected university as less satisfactory than the junior (first- and second-year) BN students. The findings are consistent with those of Said, Rogayah and Hafizah (2009) and Hamid *et al* (2013) who revealed reduced scores for senior students. Hamid *et al* (2013, p. 61) suggest that “this trend could be due to the fact that students genuinely believed that their learning environment was deteriorating, and thus were psychologically tired of being a student and looking forward to leaving student life”. Conversely, contradictory findings were noted in a study conducted by Till (2005) and Sayed and El-Sayed (2012) in Canada and United Kingdom respectively, revealed that third-year students had a more positive perception towards their education environment than did the first- and second-year students, who generally had a less positive perception. It is, however, very important to acknowledge that first-year BN students have year-long modules, and therefore their assessments were yet to happen. Furthermore, it is also essential to note that service department teaching essentially occurs from second-year. The same factors similarly apply to third- and fourth-year students by virtue of them having been studying longer. Junior students (first- and second-year) may be unable to give full account of the educational environment at the SoN due to not having experienced the challenges that are faced by third- and fourth-year students at this stage of their training programme. This point may have implications for the interpretation of this result, and therefore it must be interpreted with caution.

## Perception of education environment by ethnicity

Previous studies evaluating the perceptions of students towards their education environment categorised students based on their immigrant background (Avalos, Freeman & Dunne 2007; Palmgren and Chandratilake 2011). Some studies identified students of minority ethnic status to be at risk of experiencing difficulties in to new educational environments (Ostapczuk *et al.* 2012; Maduwanthi, Mudalige & Atapattu 2015). This variations in the calcifications of ethnicity made it difficult to compare previous studies with the ethnic background of students as categorised in the present study. In the present study, a positive perception of the education environment was mutual for all ethnic groups. The total score per ethnic group ranged from 169 to 202, indicating that the perception of the education environment across all racial groups fell in the category of ‘good’.



A few trends were noted between ethnic groups. Black students appeared to view their education environment as more favourable than did coloured students and the category classified as ‘other’, particularly with regard to nursing curriculum, both on-campus and off-campus skills laboratories, teaching and learning climate, as well as implemented teaching and learning strategies. These results provide evidence that it is imperative for the SoN identified in this study to adopt a multicultural learning environment (Giddens 2008).

The present study revealed that the category classified as ‘other’ viewed the teaching and learning climate less favourably than did white students. Interestingly, a study conducted in Ireland conducted by Avalos *et al.* (2007) reported a statistically significant difference between Irish and non-Irish students in perceptions on the teaching and learning climate. In addition, the findings of a study conducted by Palmgren and Chandratilake (2011) in the Sweden revealed similar finding between students of Swedish and non-Swedish ethnic background.

These results should be interpreted with caution as due to the vast contextual differences between the present study and previous studies. Furthermore, the sample size for the categories that were found to be statistically different were relatively small.

Taken together, it can be concluded that the black students viewed their educational environment as more favourable than did other ethnic groups. This finding could be explained by the fact that the majority of black students at the selected university are predominantly from previously disadvantaged educational backgrounds and consequently might be more appreciative of anything that was better than what they had previously experienced (University of the Western Cape 2018).

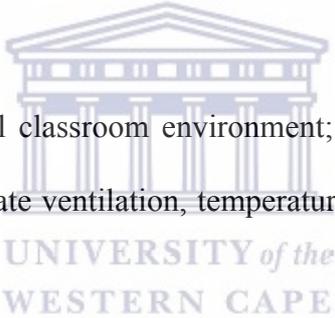
### **Perception of education environment by gender**

Previous studies conducted in the medical field comparing gender differences revealed that female students were more positive than their male counterparts about their educational environment (Riquelme, Oporto, Oporto, Mendez, Viviani & Salech 2009; Nahar, Talukder, Khan, Mohammad & Nargis 2010; Lokuhetty Warnakulasuriya, Perera, De Silva & Wijesinghe 2010; Jawaid, Raheel, Ahmed, & Aijaz 2013). However, the same cannot be said of the nursing field. Similar to the study conducted by Victor, Ishtiaq and Parveen (2016) in Pakistan, the results of the present study revealed that male students viewed the educational environment more favourably than did their female counterparts. However, it must be acknowledged that the trend was not statistically significant for all subscales of the education environment (off-campus SL, UL, DR, TLC and TLS) at the identified SoN. These findings may result from the fact that male nursing students are a minority group and are known to receive special treatment from educators as well as clinical supervisors, and therefore they might have a preponderance of positive experiences (Moss-Racusin, Dovidio, Brescoll, Graham & Handelsman 2012).

Kouta and Kaite (2011) indicated that gender bias in nursing education could have an influence on perceptions of the education environment.

## **IMPLICATIONS FOR NURSING EDUCATION**

Whilst it is acknowledged that academic performance and success is unquestionably a complex phenomenon with various contributing factors (Jeffreys 2015; Mthimunye, Daniels & Pedro 2018), schools of nursing need to take steps to ensure that the educational environment in which they expect nursing students to thrive, promotes a quality learning process. The findings of the present study are vital in terms of understanding the environmental needs of undergraduate nursing students in a South African educational context. The implications for nursing education emerging from this study include the necessity of improving the following:

- 
- conditions of the physical classroom environment; this includes creating a pleasant place to work with adequate ventilation, temperature regulation and adequate seating arrangements
  - conditions of the skills laboratory environment; this includes ensuring adequate ventilation, temperature regulation, accessibility and ensuring appropriate and sufficient equipment necessary for practice of required clinical skills
  - digital resources as well as making provision for internet access for students who reside off-campus
  - teaching and learning strategies adopted at the identified SoN.

## **LIMITATIONS AND RECOMMENDATIONS**

Although the present study provides crucial evidence regarding the education environment at the SoN, it would be invaluable to conduct a similar study that includes students from other

departments in the community and health science faculty. The limitation that should be acknowledged in this study is that, due to financial reasons and time constraints an adjusted sample size of 287 participants was calculated to ensure a sample that is representative of the study population (Dean *et al.* 2014). similar studies could be conducted with larger samples at other universities and schools of nursing in South Africa and around the world to increase generalisability of the findings beyond the investigated university. For future studies, we recommend a qualitative follow-up study with the participants to gain deeper understanding of the aspects that need to be improved. In addition, it would be interesting for future studies to evaluate the relationship between students' perceptions of their education environment and their academic performance.

## CONCLUSION

The present study's findings conclude that the selected participants at the identified university generally perceived their education environment as being more positive than negative. Regarding students' general perceptions of the subscales, enhancements are required in the physical classroom environment, skills laboratories (both on-campus and off-campus), digital resources and the implemented teaching and learning strategies. In contrast, and completing the range of subscales, the students' perceptions of the subscales university library, teaching and learning climate and nursing curriculum appear to require minimal enhancements, if any. It is essential for university management and the SoN to prioritise the suggested improvements based on the results of the present study, thus creating an educational environment that promotes quality learning.

## REFERENCES

- Aghamolaei, T. and Fazel, I., 2010. Medical students' perceptions of the educational environment at an Iranian Medical Sciences University. *BMC medical education*, 10(1), p.87.
- Aiken, L.H., 2011. Nurses for the future. *New England Journal of Medicine*, 364(3), pp.196-198.
- Al Ayed, I.H. & Sheik, S.A., 2008, 'Assessment of the educational environment at the College of Medicine of King Saud University, Riyadh', *East Mediterr Health J* 14(4):953-9.
- Arzuman, H., Yusoff, M.S. & Chit, S.P., 2010, 'Big Sib Students' Perceptions of the Educational Environment at the School of Medical Sciences, Universiti Sains Malaysia, using Dundee Ready Educational Environment Measure (DREEM) Inventory', *Malaysian Journal of Medical Sciences* 17(3), 40-47.
- Avalos, G., Freeman, C. and Dunne, F., 2007. Determining the quality of the medical educational environment at an Irish medical school using the DREEM inventory. *Irish medical journal*, 100(7), pp.522-525.
- Baeten, M., Kyndt, E., Struyven, K. & Dochy, F. 2010, 'Using student-centred learning environments to stimulate deep approaches to learning: Factors encouraging or discouraging their effectiveness', *Educational Research Review* 5(3), 243-260.
- Benner, P., 2012. Educating nurses: A call for radical transformation—how far have we come?. *Journal of Nursing Education*, 51(4), pp.183-184.
- Billings, D.M. and Halstead, J.A., 2015. *Teaching in Nursing-E-Book: A Guide for Faculty*. Elsevier Health Sciences.

- Brown, T., Williams, B. & Lynch, M., 2011, 'The Australian DREEM: evaluating student perceptions of academic learning environments within eight health science courses, *International Journal of Medical Education*, vol. 2, 94.
- Bruce, J.C., Klopper, H. & Mellish, J., 2011, *Teaching and learning the practice of nursing*, Heinemann, Portsmouth NH, USA.
- Cheon, J., Lee, S., Crooks, S.M. & Song, J., 2012, 'An investigation of mobile learning readiness in higher education based on the theory of planned behavior, *Computers & Education* 59(3), 1054-1064.
- Cleveland, B. and Fisher, K., 2014. The evaluation of physical learning environments: A critical review of the literature. *Learning Environments Research*, 17(1), pp.1-28.
- Colbert-Getz, J.M., Kim, S., Goode, V.H., Shochet, R.B. & Wright, S.M., 2014, 'Assessing medical students' and residents' perceptions of the learning environment: exploring validity evidence for the interpretation of scores from existing tools', *Academic Medicine : Journal of the Association of American Medical Colleges* 89(12), 1687-1693.
- Cornell, S. and Hartmann, D., 2007. *Ethnicity and race: Making identities in a changing world*. Pine Forge Press.
- Davis, A.H. and Kimble, L.P., 2011. The essentials of baccalaureate education for professional nursing practice. *Journal of Nursing Education*, 50(11), p.605.
- Davies, D., Jindal-Snape, D., Collier, C., Digby, R., Hay, P. and Howe, A., 2013. Creative learning environments in education—A systematic literature review. *Thinking Skills and Creativity*, 8, pp.80-91
- Dean, A., Sullivan, K. & Soe, M., 2014, *OpenEpi: Open source epidemiologic statistics for public health, version 3.01a*.

- Denscombe, M. 2014, *The good research guide: for small-scale social research projects*, McGraw-Hill Education, London.
- Denz-Penhey, H. and Murdoch, J.C., 2009, A comparison between findings from the DREEM questionnaire and that from qualitative interviews. *Medical teacher*, 31(10), pp.e449-e453.
- Field, A., 2013, *Discovering statistics using IBM SPSS statistics*, Sage, Thousand Oaks.
- Giddens, J.F., 2008. Achieving diversity in nursing through multicontextual learning environments. *Nursing Outlook*, 56(2), pp.78-83.
- Hamid, B., Faroukh, A. & Mohammadhosein, B., 2013, 'Nursing Students' Perceptions of their Educational Environment Based on the DREEM Model in an Iranian University', *The Malaysian Journal of Medical Sciences* 20(4), 56-63.
- He, D., Wu, D., Yue, Z., Fu, A. and Thien Vo, K., 2012, November. Undergraduate students' interaction with online information resources in their academic tasks: A comparative study. In *Aslib Proceedings* (Vol. 64, No. 6, pp. 615-640). Emerald Group Publishing Limited.
- Henderson, A., Creedy, D., Boorman, R., Cooke, M. and Walker, R., 2010. Development and psychometric testing of the clinical learning organisational culture survey (CLOCS). *Nurse education today*, 30(7), pp.598-602.
- Imanipour, M., Sadooghiasl, A., Ghiyasvandian, S. & Haghani, H., 2015, 'Evaluating the Educational Environment of a Nursing School by Using the DREEM Inventory', *Global Journal of Health Science* 7(4), 211-216.
- Jawaid, M., Raheel, S., Ahmed, F. & Aijaz, H., 2013, 'Students' perception of educational environment at Public Sector Medical University of Pakistan', *Journal of Research in Medical Sciences : The Official Journal of Isfahan University of Medical Sciences* 18(5), 417-421.

- Johansson, P., Petersson, G., Saveman, B.I. and Nilsson, G., 2014. Using advanced mobile devices in nursing practice—the views of nurses and nursing students. *Health informatics journal*, 20(3), pp.220-231.
- Jeffreys, M.R., 2015. Jeffreys's Nursing universal retention and success model: overview and action ideas for optimizing outcomes A–Z. *Nurse Education Today*, 35(3), pp.425-431.
- Kong, L.N., Qin, B., Zhou, Y.Q., Mou, S.Y. and Gao, H.M., 2014. The effectiveness of problem-based learning on development of nursing students' critical thinking: A systematic review and meta-analysis. *International journal of nursing studies*, 51(3), pp.458-469.
- Korucu, A.T. and Alkan, A., 2011. Differences between m-learning (mobile learning) and e-learning, basic terminology and usage of m-learning in education. *Procedia-Social and Behavioral Sciences*, 15, pp.1925-1930.
- Kouta, C. & Kaite, C.P., 2011, 'Gender discrimination and nursing: A literature review', *Journal of Professional Nursing* 27(1), 59-63.
- Lokuhetty, M.D., Warnakulasuriya, S.P., Perera, R.I., De Silva, H.T. & Wijesinghe, H.D., 2010, 'Students' perception of the educational environment in a medical faculty with an innovative curriculum in Sri Lanka', *South-East Asian Journal of Medical Education* 9(4), 9-16.
- Macnee, C.L. & McCabe, S., 2008, *Understanding nursing research: Using research in evidence-based practice*, Lippincott Williams & Wilkins, Philadelphia, USA.
- Maduwanthi, W.T.S., Mudalige, S.K.K. and Atapattu, N.S.B.M., 2015. Academic performance and the perception about the educational environment: a comparison between ethnic minority and majority students following three degree programs. *Tropical Agricultural Research and Extension*, 18(3).

- Miles, S., Swift, L. and Leinster, S.J., 2012. The Dundee Ready Education Environment Measure (DREEM): a review of its adoption and use. *Medical Teacher*, 34(9), pp.e620-e634.
- Moss-Racusin, C.A., Dovidio, J.F., Brescoll, V.L., Graham, M.J. & Handelsman, J., 2012, 'Science faculty's subtle gender biases favor male students', *Proceedings of the National Academy of Sciences of the United States of America* 109(41), 16474-16479.
- Moultrie, T.A. & Timæus, I.M., 2003, 'The South African fertility decline: Evidence from two censuses and a Demographic and Health Survey', *Population Studies* 57(3), 265-283.
- Mthimunye, K.D.T., Daniels, F.M. and Pedro, A., 2018. Predictors of academic performance among second-year nursing students at a university in the Western Cape. *South African Journal of Higher Education*, 32(1), pp.192-215.
- Nahar, N., Talukder, M.H.K., Khan, M.T.H., Mohammad, S. & Nargis, T., 2010, 'Students' perception of educational environment of medical colleges in Bangladesh', *Bangabandhu Sheikh Mujib Medical University Journal* 3(2), 97-102.
- Ostapczuk, M., Hugger, A., De Bruin, J., Ritz-Timme, S. & Rotthoff, T., 2012, 'DREEM on dentists! Students' perceptions of the educational environment in a German dental school as measured by the Dundee Ready Education Environment Measure', *European Journal of Dental Education* 16(2), 67-77.
- Ozturk, C., Muslu, G.K. and Dicle, A., 2008. A comparison of problem-based and traditional education on nursing students' critical thinking dispositions. *Nurse education today*, 28(5), pp.627-632.
- Papathanasiou, I.V., Tsaras, K. and Sarafis, P., 2014. Views and perceptions of nursing students on their clinical learning environment: Teaching and learning. *Nurse education today*, 34(1), pp.57-60.

- Palmgren, P.J. and Chandratilake, M., 2011. Perception of educational environment among undergraduate students in a chiropractic training institution. *Journal of Chiropractic Education*, 25(2), pp.151-163.
- Perneger, T. V., Courvoisier, D. S., Hudelson, P. M., & Gayet-Ageron, A., 2015. Sample size for pre-tests of questionnaires. *Quality of Life Research*, 24(1), 147–151.
- Polit, D.F. & Beck, C.T., 2010, *Essentials of nursing research: Appraising evidence for nursing practice*, Lippincott Williams & Wilkins, Philadelphia, USA.
- Rahman, N.I., Aziz, A.A., Zulkifli, Z., Haj, M.A., Mohd Nasir, F.H., Pergalathan, S., *et al.*, 2015, 'Perceptions of students in different phases of medical education of the educational environment: Universiti Sultan Zainal Abidin', *Advances in Medical Education and Practice* 6, 211-222.
- Riquelme, A., Oporto, M., Oporto, J., Mendez, J.I., Viviani, P., Salech, F., *et al.*, 2009, 'Measuring students' perceptions of the educational climate of the new curriculum at the Pontificia Universidad Catolica de Chile: Performance of the Spanish translation of the Dundee Ready Education Environment Measure (DREEM)', *Education for Health (Abingdon, England)* 22(1), 112.
- Roff, S., 2005, 'The Dundee Ready Educational Environment Measure (DREEM)—a generic instrument for measuring students' perceptions of undergraduate health professions curricula', *Medical Teacher* 27(4), 322-325.
- Said, N.M., Rogayah, J. and Hafizah, A., 2009. A study of learning environments in the Kulliyah (Faculty) of Nursing, International Islamic University Malaysia. *The Malaysian journal of medical sciences: MJMS*, 16(4), p.15.
- Sayed, H. and El-Sayed, N., 2012. Student's Perceptions of the educational environment of the nursing program in Faculty of Applied medical Sciences at Umm-Al-Qura University, KSA. *J Am Sci*, 8(14), pp.69-75.

- Sinclair, B. and Ferguson, K., 2009. Integrating simulated teaching/learning strategies in undergraduate nursing education. *International Journal of Nursing Education Scholarship*, 6(1).
- Tavakol, M., & Dennick, R. 2011. Making sense of Cronbach's alpha. *International journal of medical education*, 2, 53.
- Thongmak, M., 2013. Social network system in classroom: Antecedents of edmodo© adoption. *Journal of e-Learning and Higher Education*, 2013(1), pp.1-15.
- Till, H., 2005, 'Climate studies: Can students' perceptions of the ideal educational environment be of use for institutional planning and resource utilization?', *Medical Teacher* 27(4), 332-337.
- Veerapen, K. & McAleer, S., 2010, 'Students' perception of the learning environment in a distributed medical programme', *Medical Education Online* 15(1), 5168.
- Victor, G., Ishtiaq, M. & Parveen, S., 2016, 'Nursing students' perceptions of their educational environment in the bachelor's programs of the Shifa College of Nursing, Pakistan', *Journal of Educational Evaluation for Health Professions* 13, 43.
- Wang, J., Zang, S. and Shan, T., 2009. Dundee ready education environment measure: Psychometric testing with Chinese nursing students. *Journal of advanced nursing*, 65(12), pp.2701-2709.
- World Health Organization, 2013. *Transforming and scaling up health professionals' education and training: World Health Organization guidelines 2013*. World Health Organization.
- Yusoff, M.S.B., 2012, 'The Dundee ready educational environment measure: A confirmatory factor analysis in a sample of Malaysian medical students', *Int J Humanit Soc Sci* 2(16), 313-321.

University of the Western Cape. 2018. About UWC. [ONLINE] Available at:  
<https://www.uwc.ac.za/Pages/History.aspx>. [Accessed 25 June 2018].



# **CHAPTER SIX**

## **NURSING STUDENTS' CHALLENGES AND MEASURES TO OVERCOME CHALLENGES: STUDY 3**

### **6.1 INTRODUCTION**

This chapter presents the findings from Phase 1, referred to as study 3: A qualitative study to explore and describe the challenges experienced by undergraduate nursing students and the measures implemented to overcome these challenges. The following is a summary of the objectives, methodology, study outcome and article 3.

### **6.2 OBJECTIVE**

This chapter realises objective 3 of the current study which was to explore and describe the challenges experienced by undergraduate nursing students at the identified SoN regarding their academic performance and success, and the measures implemented to overcome these challenges.

### **6.3 METHODOLOGY**

A qualitative research approach with exploratory-descriptive research design was implemented. Stratified random sampling technique was used to select the study participants. Data was collected by means of Focus Group Discussion (FGDs). Data analysis was done using the thematic analysis steps by Braun and Clarke (2013).

## 6.4 STUDY OUTCOME

The article has been submitted for publication in a national open access peer reviewed journal (see Appendix 26).

**Mthimunye, K.D.T., & Daniels, F.M. (2018).** Exploring the challenges and corresponding measures implemented to improve academic performance and success of undergraduate nursing students at a university in the Western Cape, South Africa: *Curationis*.



# Exploring the challenges and corresponding measures implemented to improve academic performance and success of undergraduate nursing students at a university in the Western Cape, South Africa.

K.D.T Mthimunye<sup>a</sup> & F. M. Daniels<sup>a</sup>

<sup>a</sup>School of Nursing, University of the Western Cape, Robert Sobukwe Road, Bellville

[katlegomthimunye@icloud.com](mailto:katlegomthimunye@icloud.com)

[fdaniels@uwc.ac.za](mailto:fdaniels@uwc.ac.za)

\*Article submitted to: **Journal of the Democratic Nursing Organisation of South Africa.**  
(Submitted for review)

## ABSTRACT

**Background:** Satisfactory academic performance and success of undergraduate nursing students is a fundamental goal for schools of nursing worldwide. However, many students are confronted with various challenges that may hinder this endeavour. **Aim:** The purpose of this study was to explore and describe the impact of challenges experienced by undergraduate nursing students at the identified school of nursing and to highlight measures put in place to ensure satisfactory academic performance and success. **Participants/Settings:** The study comprised of six focus group discussions with undergraduate nursing students from a university in the Western Cape, South Africa. **Methods:** An in-depth qualitative research approach with an explorative and descriptive design was implemented. Stratified random sampling technique was implemented to select the study participants. Data were analysed by means of thematic analysis using Atlas, ti. Mac Version 1.6. software. **Findings:** The findings of this study revealed that nursing students experience challenges related to: (1) living in an off-campus residence that is not conducive for learning, (2) participating in part-time paid employment, (3) the current structure of the curriculum, (4) inadequate academic and clinical support, and (5) unfavourable physical educational environment. The following corrective measures were identified: (1) surface approach to learning and (2) active academic engagement. **Conclusion:** The findings revealed the challenges experienced by undergraduate nursing students while striving for satisfactory academic performance and success as well as the corrective measures implemented. Based on these findings, there is a need for interventions to alleviate the challenges, particularly in the second year of the undergraduate nursing programme.

**Keywords:** academic performance, academic success, challenges, measures, nursing students

## INTRODUCTION

Theoretical and clinical education is of vital importance for undergraduate nursing students. Educational researchers worldwide are interested in studying the challenges experienced by college students in general, but more specifically the challenges hindering academic performance and success (Perna & Thomas 2006; Jeffreys 2015). Academic performance and success is a complex phenomenon that is influenced by the interaction of various factors (Perna & Thomas 2006; Jeffreys 2015). In this study, academic performance and success refers to the student's achievement of the minimum academic requirements stipulated by the university to successfully complete a module or year of study.

Jeffreys (2015) proposed that undergraduate nursing students face various challenges during their studies. These challenges may be the result of the interaction between multiple levels of context (internal context, family context, school context and social, economic and policy context) (Perna & Thomas 2006).

Internal student related challenges such as the student's profile, academic factors, psychological and emotional factors, as well as family factors such as family background and economics have been identified as some of the factors that have a negative impact on the academic performance of nursing students (Everett, Salamonson, Trajkovski & Fernandez 2013; Beauvais, Stewart, DeNisco & Beauvais 2014; Glew, Hillege, Salamonson, Dixon, Good & Lombardo 2015; Mthimunye 2015; Mthimunye & Daniels 2017; Wambuguh, Eckfield & Van Hofwegen 2016). Some studies have also found that school related factors such as professional integration and the teaching and learning environment, as well as social, economic and policy related factors have a significant impact on the academic performance of

undergraduate nursing students (Ali & Naylor 2010). The lack of in-depth understanding of the challenges faced by undergraduate nursing students prompted the current study.

In the Republic of South Africa (RSA), the dropout rate in 2005 was 50% of the total number of students registered at Higher Education Institutions (HEIs). Of the 120 000 first-year students in HEIs in 2000, 36 000 (30%) dropped out in their first year of study, and an additional 24 000 in their second year. Of this 120 000, only 26 500 (22%) ultimately completed and graduated from their respective programmes (Council on Higher Education, 2010). However, the situation in nursing education is not that devastating. In 2017, the South African Nursing Council (SANC) reported that of the 8 600 final-year undergraduate nursing students from various universities and nursing colleges in the RSA, 7 409 (86.15%) successfully completed the undergraduate nursing programme while the remaining 1 191 (13.85%) were either unsuccessful or dropped out due to various reasons (SANC 2017). Given the reported demand for qualified nurse practitioners, which is increasing at a rate of 2%–3% per year, this success rate will need to be increased (Buerhaus, Staiger & Auerbach 2009).

A study conducted by McLachlan (2010) at the Western Cape College of Nursing (WCCN) to investigate the attrition rate of nursing students reported a 34.4% attrition rate for the 2003 admission year. Another study conducted at the Cape Peninsular University of Technology (CPUT) revealed an attrition rate of 70% among the undergraduate nursing students registered for the 4 year Bachelor of Technology (B.Tech) degree in nursing (Jeptha 2008).

An unpublished masters study conducted by Mthimunye (2015) at the same university identified in this study investigated the academic success of second-year undergraduate nursing students and revealed that 118 (52.21%) of the 226 students registered for their second-year of

study in 2012 – 2013, experienced difficulties and failed to meet the minimum requirement for promotion to the next level of study at their first attempt. However, a major limitation of this study was that it only focused on the participants who matriculated with National Senior Certificate (NSC), which resulted in a limited sample size. Nevertheless, it was deemed necessary to investigate and explore the challenges facing undergraduate nursing students in their pursuit of satisfactory academic performance and success, as well as the measures they implement to overcome these challenges. The conceptual model adapted from Perna and Thomas (2006), which postulates that a student's success is influenced by multiple layers of context, guided this study.

### **Layer 1- internal context**

The framework for reducing the college success gap and promoting success for all proposes that at the core of a student's success is the cognitive and motivational aspects that shape an individual (Perna & Thomas 2006). In this study, the internal context as adapted from Perna and Thomas (2006) was operationalised to focus on the student's profile, academic factors and psychological and emotional factors (Jeffreys 2015).

### **Layer 2- Family context**

The family context acknowledges that both family and friends can contribute towards the students' cognitive experiences and promote various indicators of student success (Perna & Thomas, 2006). In this study, the family context was represented by family background, family psychology and family economics.

### **Layer 3- School context**

The conceptual model by Perna and Thomas (2006) proposes that school factors associated with educational resources, academic preparation and educational orientations influence academic successes at university level. In this study, the school context was adapted to focus on the school background, professional integration, the teaching and learning environment and funding (Jeffreys 2015).

### **Layer 4- Social, economic and policy context**

Perna and Thomas (2006) proposes that various external factors also have an impact on a student's academic performance and success, both directly and indirectly, through other layers of context. For this study, layer 4 was adapted and represented by three key categories, namely social conditions, economic conditions and public policies (Jeffreys 2015).

## **SIGNIFICANCE OF THE STUDY**

This study highlights vital information which can be used by the HEIs to provide the necessary support required by undergraduate nursing students to alleviate the challenges they face and ultimately increase their academic performance and success.

## **AIM OF THE STUDY**

The study aims to explore and describe the impact of challenges experienced by undergraduate nursing students at the identified school of nursing and to highlight measures they put in place to ensure satisfactory academic performance and success.

## RESEARCH QUESTION

- What are the challenges experienced by undergraduate nursing students at the selected school of nursing that may have an impact on their academic performance and success?
- What measures have been implemented by undergraduate nursing students to ensure satisfactory academic performance and success despite the challenges they experience?

## RESEARCH METHODS

### Research approach and design

A qualitative research approach and an exploratory-descriptive research design with an interpretive view was implemented to obtain insight and understanding regarding the phenomenon of academic performance and success of undergraduate nursing students. According to Grove, Burns & Gray (2014), a qualitative research approach provides an in-depth understanding about some aspects of the phenomenon. An explorative-descriptive design is used to expand theory, determine current problems in practice and to identify what others in similar situations are doing (Grove et al. 2014). In this study, this design was useful to explore the challenges that impact on undergraduate nursing students' academic performance and success as well as the measures they put in place to overcome these challenges.

### Context of the study

The study was conducted at a School of Nursing (SoN) at a university in the Western Cape, South Africa. The school offers a four-year Bachelor of Nursing (BN) undergraduate nursing programme with an extended curricular programme over five years (foundation programme). This programme prepares graduates to practice as a general nurse, midwife, community health and psychiatric nurse after registration with SANC. The four- and five-year programmes were the focus of the study.

## **Population and Sampling**

The population of the study included all undergraduate nursing students at the identified university. The sample comprised of 50 undergraduate nursing students from the SoN at this university. Stratified random sampling technique was used to recruit the study participants. The year level of study represented the strata. The first-year BN (foundation) strata was comprised of 9 participants; the second-year BN (foundation) strata of 10; the first-year BN strata of 7; second-year BN strata of 8; third-year BN strata of 7 and the fourth-year BN strata of 9 participants.

## **Data collection and management**

Six focus group discussions (FGDs) with the respective year levels were conducted, each lasting about 60 minutes. In qualitative research, FGDs allow participants to build on each other's thoughts and promotes comfortable group dynamics (Leung & Savithiri 2009; Rubin & Rubin 2011). Data were collected with the assistance of the study research assistant. The primary researcher as well as the study supervisor oversaw the process and the quality of the data collected. All interviews were conducted in English and the discussions were digitally recorded to ensure accurate verbatim transcription. Audio recordings and transcripts were saved on a password protected file.

## **Data analysis**

All Microsoft word transcripts were imported to Atlas, ti. Mac Version 1.6. software for data organisation and analysis. Atlas, ti is useful for the management of text, graphics, audio, data files that are visual, along with coding and memos (Creswell 2009). Six steps of data analysis as described in Braun and Clarke (2013) were adopted to guide the data analysis: (a) listening to the recordings and reading through the transcripts several times in order to become familiar

with the data, (b) generating initial codes across the entire data set to ensure that all data belonging to one code is grouped, (c) searching for themes and sub-themes through categorisation and renaming of codes, (d) reviewing of themes through collaboration with the study supervisor with the aim of assessing internal coherence in the themes and distinctions between them, (e) defining and naming the themes using some of the participants' responses and (f) writing a report by transforming the analysis into an interpretable piece of writing using vivid and compelling extracts from the participants responses. Identification (ID) codes were used to present verbatim quotes.

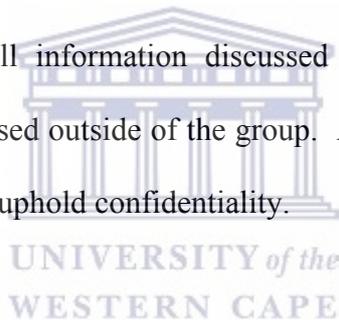
## **Rigor**

The principles of credibility, transferability, dependability, confirmability and reflexivity were employed to ensure rigor (Thomas, Silverman & Nelson 2015). Trustworthiness during data collection was ensured by conducting a pre-test FGD with 5 undergraduate nursing students to ensure the practicality of the data collection process as well as to refine the interviewer's interviewing skills. This was excluded from the study. Transferability was ensured by documenting all decisions made during the study and by providing a detailed description of the research setting, the process of sampling, data collection, data analysis as well as transcribing the findings. The use of in-depth interviews as the method of data collection increased dependability. During the in-depth interviews, the researcher asked a question and used follow-up questions, depending on the participant's response (Ritchie, Lewis, Nicholls & Ormston 2013). Dependability was also heightened by collaboration between the researcher and study supervisor during the study. Keeping accurate documentation of field notes, memos, transcripts and reflective reports, which are available upon request from the researcher, was the measure used to ensure confirmability. Member checking to assess the accuracy of the interpretation of the data, by allowing participants to read the draft of the article, ensured credibility. The use of

the conceptual model adapted from Perna and Thomas (2006) ensured transferability of the findings of this study.

## **ETHICAL CONSIDERATIONS**

Ethics clearance was obtained from the Research Ethics Committee of the University of the Western Cape (Ethical Clearance Number: HS17/1/42). Permission to conduct this study was gained from the Registrar and the Director of the SoN. Participation in the study was voluntary. After participants were made aware of their right to withdraw from the study at any stage, they gave their written informed consent. Participant's identity was not revealed during discussions and participants were identified by a code to ensure that the principle of anonymity and confidentiality was upheld. The participants were requested to complete a confidentiality binding form to declare that all information discussed (including the identity of other participants) would not be disclosed outside of the group. All data collected is kept safe in a file that is password protected to uphold confidentiality.



## **FINDINGS**

The analysis generated 238 quotations and 56 codes which were categorised. A total of 5 themes and 12 categories emerged from the data. The conceptual model adapted from Perna and Thomas (2006) guided the categorisation of the data and the clarification of the study themes.

## **Theme 1: Students' academic performance and success is adversely affected by engagement in paid part-time employment during the period of study**

Some students revealed that they are from disadvantaged backgrounds and sometimes face financial challenges that leave them with no choice but to seek part-time employment during the period of study.

### **Category 1: Engaging in paid part-time employment**

Financial challenges led students to engage in paid part-time employment, which negatively affected learning and resulted in unsatisfactory academic performance. Their struggle is evident in reports that they do not have the finances to buy textbooks or even make photocopies of texts:

*“... about the finance because most of us are coming from poor backgrounds so we can't afford to buy textbooks and paying fees” (FGD1, BNF1, P7)*



*“I made copies, but the copies weren't enough but couldn't make copies of everything I needed for the test because I had no printing credits and I didn't have enough money ...” (FGD6 BN4, P4)*

Students also reported that engagement in paid part-time employment resulted in them not having time to study:

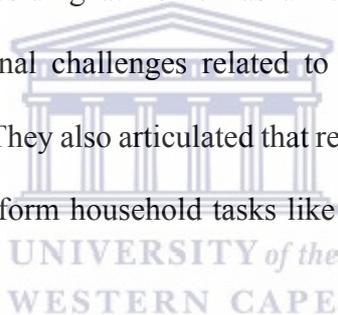
*‘... it is very difficult for me to go home, have a whole day of school then go to work and then come home and study. I know myself. I'm not going to do that.’ (FGD3, BN1, P3)*

The same sentiments were shared by another student:

*“I just struggle to find time like to go home and physically sit down and study. I’ve got another job that I have to do, as well, which is in the evenings ... it is a bit difficult. Because my other job from five to nine leaves me ... So, I get home, I shower, eat and go sleep. I don’t have study time. I just change from varsity to work and then go sleep. So, studying time at home and summarising and actually sitting down watching all those things, it is difficult”* (FGD4, BN2, P5)

## **Theme 2: Residing at home or off-campus during the period of study has a negative effect on students’ academic performance and success**

Some students expressed that residing at home has a negative impact on their academic performance. It presents additional challenges related to transportation from home to the campus and clinical placements. They also articulated that residing at home adds more pressure because they are expected to perform household tasks like everyone else, leaving them with little time to study.



### **Category 1: Unfavourable home/off-campus residence to study**

Some students’ home environment is not conducive for studying as there are too many distractions.

*“Especially like this weekend, it is just for studying. And then we are at home, and on a weekend, everyone is at home. So, it is really hard to study.”* (FGD2, BNF2, P10)

One student mentioned that added to this challenge is the burden of household tasks.

*“You have to clean. You have your duties at home that you have to do.”* (FGD2, BNF2, P2)

Another student mentioned:

*“If only I had like a residence maybe my marks would not have been this average. Maybe I would have gotten above the mark I got now.”* (FGD5, BN3, P4)

## **Category 2: Poor transport arrangements**

Students making use of off-campus accommodation shared that transport to and from campus as well as to and from clinical placements is problematic. The students expressed that they spend more time struggling with transport instead of investing the time in engaging with their studies. One student reported:



*“To study is also a struggle because you have to balance between travelling and academics”* (FGD2, BNF2, P8)

Another student mentioned:

*“Especially those who stay off campus we don’t have access to transportation.”*  
(FGD6, BN4, P1)

**Theme 3: The current structure of the undergraduate nursing programme negatively affects students' learning. However, some students exhibit a positive attitude and employ a surface approach to learning as a desperate measure that allows them to pass assessments**

The most common theme among all participant groups was centred on the challenges posed by the manner in which the programme is structured.

*“... we have to work as well as attend class in the same week. And it is really difficult. You work twice a week and you have to get up early the next day to go to class and then come home to study when you have work the next day and it is difficult and it is hard to manage especially if you have a life outside of schooling as a whole and I think that is very taxing. That is one thing that is difficult.”* (FGD4, BN2, P2)

**Category 1: Students find it challenging to maintain the balance between 12-hour clinical shifts and the theory component of the programme**

When asked to describe how their clinical placements impact on their academic performance and success in the nursing programme, students indicated that they found it challenging to work the required clinical shifts (07h00 to 19h00) and engage theoretically. Students expressed that the 12-hour shifts are lengthy and make it difficult for them to study and attend classes the following day.

*“... when I'm coming from hospital I usually get home at half past eight. So, I have to get there, I'm very tired, I have been standing the whole day. I just wash and go to bed. So, I won't be able to study for my Hub. Because the next morning I have to wake up*

*very early so that I can get up ... at six for campus for the half past eight class.” (FGD2, BNF2, P5)*

*“So, the seven to sevens in first and second year was very difficult especially if you have to do a test the next day.” (FGD5, BN3, P1)*

One student suggested that the 12-hour shifts should be reduced and rather be replaced with shorter clinical hours over a longer period.

*“They must do something about those hours ... It must be maybe five hours per day for the whole year so that it can sum up ...” (FGD6, BN4, P7)*

**Category 2: The grouping of science modules in the second level of study results in difficult content being clustered in one year of study, which negatively impacts on success in the second level of the undergraduate nursing programme**

It was quite clear from the interviews conducted with the current second, third and fourth year students that the second level, also referred to as the “death year” by the students, is the most overwhelming year of the undergraduate programme. Students expressed that this is due to the fact that the second level of study includes challenging modules referred to as the “killer modules”. These were identified as physics and pharmacology.

*“That was sort of like how my year ended off. It was really bad because the level, the academic level from first year to second year, I think there was a ten per cent drop in my average because of much pressure they put us under in second year with everything just being on top of each other and all of that ...” (FGD5, BN3, P7)*

*“I think the times of particular modules that are offered during the second year do not help the students to be able to study, like pharmacology ...”* (FGD6, BN4, P9)

Most students that referred to physics as a killer module did not do physics in high school.

*“I didn’t do physics at school and now you sit in class and it’s like this guy is talking - and I’m like what is he talking about? I don’t know a single thing what he is talking about ...”* (FGD1, BNF1, P2)

In addition, the students feel that if the workload and the modules were distributed equally across the programme, it would alleviate the pressure from the second level of study.

*“I think they could just really split the work. You know get some work over to third year because third year is so like chilled in community!”* (FGD5, BN3, P6)

### **Category 3: Poor time-table and assessment planning results in inadequate preparation for assessments**

Students shared that the way in which specific classes are scheduled (time-table planning) is not strategic and has a significantly negative impact on their concentration in class. Most students revealed that some modules require full concentration and that it would be better if they were scheduled for morning slots rather than in the afternoon when students are already tired. The situation is worse if “killer modules” are scheduled for the afternoon slots.

*“It is not really according to the time the brain is to assimilate most. Because when you’re tired that is another problem. The timing that the module is scheduled to take place is not correct in my opinion.”* (FGD6, BN4, P4)

*“And again, I think the times of particular modules that are offered during the second year do not help the students to be able to study like pharmacology.”* (FGD6, BN4, P1)

Furthermore, the students raised challenges related to poor assessment planning. Most students are challenged with the fact that assessments are scheduled too close to each other, thus not allowing enough time in between to prepare.

*“And last year we also wrote the exams ... final exams, Hub and physics on the same day”* (FGD2, BNF2, P10)



*“Friday we’re writing Hub, human biology, around five o’ clock and then the following day, Saturday, you are writing another test, at nine o’ clock you are writing pharmacology. And how do they expect us to study?”* (FGD5, BN3, P2)

The students also expressed that the assessments dates are changed without them being notified timeously.

*“Also, some of these tests just pop us. Nobody says anything. You actually have to go and check yourself. Nobody says anything”* (FGD2, BNF2, P3)

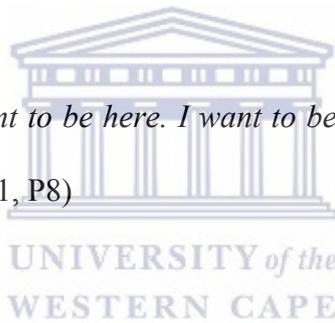
Categories Four and Five describe the measures that students have put in place to ensure satisfactory academic performance despite the challenges arising from the current structure of the programme.

**Category 4: Students maintain a positive attitude and remain dedicated towards programme responsibilities**

The students reported that despite experiencing programme related challenges, they try to keep a positive mind set.

*“So, I try to keep like a positive attitude as well as getting the work done.”* (FGD1, BNF1, P6)

*“I am here because I want to be here. I want to be a nurse and I want to be a damn good nurse.”* (FGD3, BN1, P8)



**Category 5: Students memorise content for the sake of passing assessments**

The students admitted to sometimes resorting to desperate measures in order to cope with the pressure. One measure that emerged strongly from this study was that students memorise content without understanding, a measure referred to as “Cram, Pass and Forget” (CPF) by the students.

*“It is like you study to pass the test and not to just take it in. Just to pass ...”* (FGD6, BN4, P5)

*“... pharmacology you need to memorise, you don’t study, you memorise”* (FGD5, BN3, P1)

*“I study to pass. I don’t study to do good. For physics, I study to pass ...”* (FGD3, BN1, P4)

**Theme 4: Learning in the clinical and theoretical setting is negatively influenced by perceived inadequate academic and clinical support. However, undergraduate nursing students strive to remain academically engaged**

This theme highlights the challenges experienced by students which are directly related to the nurse educators, clinical supervisors as well as the nursing staff in the hospital. Most students shared the struggle of remaining academically engaged due to the insufficient support they receive.



**Category 1: Perceived insufficient teaching and learning support in both theory and practice**

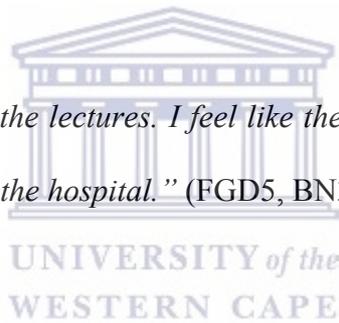
The students shared that they do not receive adequate support in both theoretical and practical components of their programme. With regard to the theoretical component, students revealed that nurse educators do not always come prepared to class and that the learning material given to them is not always adequate. Students further elaborated on the teaching methodology implemented by nurse educators in the classroom. They also indicated that case-based learning disadvantages them because it encourages students to only engage with a specific section of the case to be presented.

*“Yes. And sometimes the notes were irrelevant like they would give extra stuff for our benefit, but it is not what they’re going to ask.” (FGD5, BN3, P6)*

*“... like in a presentation-based case where you’re supposed to do just a part; I do a part; this one does a part and then I focus on what everyone else is supposed to present and I present. What he is saying, just because it is not coming directly from my lecturer, I don’t know ... I don’t get it. Because after all I do not know whether he is right or wrong. So, at the end of the day I’m missing because I was just a part of this whole thing ...” (FGD6, BN4, P6)*

Another student commented:

*“So, we need more from the lectures. I feel like they’re not really giving us what we actually need for skills in the hospital.” (FGD5, BN3, P2)*



Likewise, with regard to the practical component of the programme, students revealed that the practical teaching they receive from the clinical supervisors is inconsistent and results in confusion.

*“... because at skills lab you also have one supervisor and then you get into the hospital and then it’s someone else. And in skills lab they show you this is how you do it and, in the hospital, they show you another way ...” (FGD4, BN2, P3)*

One student said:

*“... all the supervisors should be taught one way of teaching the students a procedure because last year I found out that I was taught this procedure which ended up being my OSCE and I was taught wrong. I only realised last year I was wrong. I actually missed critical points and everything.” (FGD4, BN2, P4)*

Students also shared that opportunities are not created for them to learn in the practical setting and they feel that they are part of the workforce. As a result, they just wonder around and do not learn anything.

*“I work in the cancer paediatric ward and we are placed in a room. We can’t leave that room because we need to look after the children. But now there is no opportunity for me to learn anything. Because all I need to do is do the observations ...” (FGD4, BN2, P5)*



*“So, while everyone is doing other things you are not just sitting there looking like a lost soul” (FGD4, BN2, P8)*

*“... you actually have to create your own opportunities because no-one is going to come and show you, which is frustrating for me because like I say it’s an environment where we should be taught. We are not being taught.” (FGD4, BN2, P4)*

However, students shared measures they have put in place to ensure that learning takes place despite the lack of support.

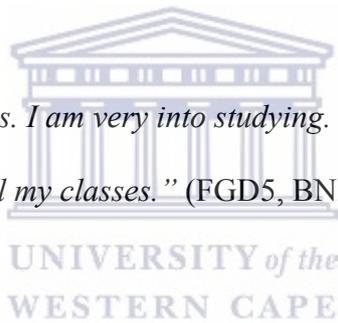
**Category 2: Students strive to remain academically engaged by being self-directed, attending class, seeking consultation and active participation in study groups**

Students mentioned that in order to deal with the challenges related to insufficient teaching and learning support, they take responsibility for their own learning by putting in extra time for study, attending class and consulting with nurse educators.

*“For me, it is like self-studying. I actually go home and sit with my books at night and try to figure it out myself.”* (FGD3, BN1, P6)

*“I study obviously. I have to study every day a lot and I also have guys, study group sessions”* (FGD3, BN1, P3)

*“I go to like all the classes. I am very into studying. That’s the only way that I can like pass this. It is to attend all my classes.”* (FGD5, BN3, P6)



**Theme 5: Students view learning as being negatively affected by the unfavourable physical teaching and learning environment**

This theme highlights environmental challenges experienced by undergraduate nursing students that impact on their academic performance and success.

**Category 1: The physical conditions of teaching and learning venues for both clinical and theory components hindered the learning process**

A final sub-theme that was frequently mentioned by the students across all participant groups was that the poor physical education environment at the identified university does not promote learning. They shared their dissatisfaction with the physical state of both the theory and

practical (skills laboratory) educational environment. The students shared that some classes are so full, there is no place for everyone to sit.

*“I went to a pharmacology and a psych lecture once each. Like there is no seating for everyone in the class. I didn’t even bother going back. They sit in the aisles.” (FGD4, BN2, P1)*

One student mentioned that the practical educational environment poses unfavourable challenges that hinder the learning process.

*“And in skills lab it is like two in the afternoon, and it is so hot, and you just stand there. I don’t know I don’t even learn anything in skills lab.” (FGD5, BN3, P1)*

## **DISCUSSION**

The aim of this study was to explore and describe the challenges experienced by undergraduate nursing students that may have an impact on their academic performance and success and the measures put in place to ensure satisfactory academic performance and success. The findings of the study identified these challenges as well as the measures students put in place to ensure that they overcome these challenges.

### **Layer 1- internal context**

#### **Student profile**

This study revealed that undergraduate nursing students at the identified university engage in paid part-time employment, which poses a challenge and ultimately impacts negatively on their academic performance. A scoping review conducted by Phillips, Kenny and Esterman (2016)

reported that nursing students engage in paid part-time employment due to inadequate financial support in higher education. Previous studies conducted around the world support these findings (Salamonson, Andrew & Everett 2009; Reyes, Hartin, Loftin, Davenport & Carter 2012; Salamonson, Everett, Koch, Andrew & Davidson 2012). Furthermore, literature reveals that the number of hours spent in part-time employment has an impact on the academic performance of nursing students. In particular, Salamonson et al. (2012) reported that nursing students who work more than 16 hours per week during term-time are at risk of unsatisfactory academic performance. Tiredness and exhaustion as a consequence of working extended hours can result in poor attentiveness in class and academic disengagement. In this study, this result can be exacerbated by the fact that majority of the students at the identified university are from disadvantaged backgrounds and thus the need to engage in paid part-time employment to meet their financial needs. Formerly founded in 1959 as an ethnic college for coloured students, the university under study is one of the most recent of these universities to gain its autonomy (University of the Western Cape, n.d.). Post-apartheid, the university adopted an open admissions policy, providing access to a rising number of black students (University of the Western Cape, n.d.).

Given the history of the Republic of South Africa, black and coloured students, who form the majority of those enrolled for the undergraduate nursing programme at the identified SoN, are likely to come from disadvantaged backgrounds. Hence the vicious cycle that students are caught up in: if they study, they need finances; if they work while studying, their academic performance is negatively affected.

## **Layer 2- Family context**

Various studies around the world have reported that family context factors such as residing at home while studying for a higher education degree impacts on the student's academic performance and success (Newman-Ford, Lloyd & Thomas 2009; Peterson 2009; López Turley & Wodtke 2010). This study revealed that residing at home during the course of the undergraduate nursing programme has a negative impact on the academic performance and success of nursing students at the identified university. Similarly, an exploratory study conducted by Ali and Naylor (2010) in Pakistan, with the aim of exploring the association between certain academic and non-academic factors and academic success of the nursing students in the three-year diploma programme, reported that the place of dwelling has an impact on their academic performance. By contrast, a study conducted by Oducado and Penuela (2014) in the Philippines revealed that the place of dwelling does not have any significant impact on the academic performance of nursing students. The findings of the current study may be explained by the context in which many South African students find themselves. Many South Africans still reside in sub-economic housing with limited basics such as adequate space which may have a negative impact on studying (Marais 2013). Unlike students residing on a university campus, students residing at home may also incur financial implications such as high data costs to access the internet and travelling costs to campus and clinical placements. These conditions may pose a serious challenge to students who reside at home that may negatively influence their academic performance.

## **Layer 3- School context**

### **Professional integration**

For decades, various studies have been conducted worldwide focusing on the impact of hospital shifts on undergraduate nursing students (Mariani, Cummins & CEN 2012; Rossen & Fegan

2009). However, conflicting findings have been reported. A recent study conducted by Reising, Fickenscher and Satrom, (2017) aiming to “compare opportunities for students to develop their psychomotor skills in the clinical unit and the perception of clinical experience across a 6-hour day, 6-hour evening, and 12-hour day schedules in an acute care setting” revealed that 12-hour shifts afforded the students with more meaningful skill development opportunities than other shifts. By contrast, a study conducted by Danner (2014) with the aim of comparing competency achievements of undergraduate nursing students allocated 12-hour shifts with those allocated 7-8 hours shifts reported that there was no significant variance in learning outcomes among the 2 groups.

The current study reported that undergraduate nursing students are not in favour of 12-hour hospital shifts. Similar findings were reported in the mixed method study conducted by Mariani et al. (2012) that aimed to “evaluate the student and registered nursing staff’s perceptions of whether the 12-hour clinical shift rotation enhances the student’s clinical learning ability, allows for better continuity of care for their assigned patients and families, and facilitates the ability to correlate theory to nursing practice”. This finding should be understood bearing in mind that students may feel tired after long shifts and have to deal with poor transport arrangements and household responsibilities as discussed earlier. Furthermore, the 12-hours shifts were perceived to have an impact on their academic performance because the participants reported that they sometimes have to attend class or write assessments on the morning after a 12-hour shift without having had enough rest.

The study also revealed that nursing students do not receive adequate academic and clinical support. Previous research studies such as those of Murray & Staniland (2010) have indicated the importance of having good mentorship to facilitate a smooth transition and ongoing support

into new environments. In nursing education, mentorship refers to the academic and clinical support provided to students in the educational environment (Jervis & Tilki 2011). It is important to note that at the SoN in this study, nurse educators and clinical facilitators also take on a role of a clinical mentor and are expected to see students on a one to one or group supervision session at least once a week. In addition, the role of registered nurses (RNs) in clinical education is to provide students with support, however the high workload due to patient acuity makes it difficult for RNs to perform this role. A study conducted by Jack, Hamshire, Harris, Langan, Barrett and Wibberley (2018) in the United Kingdom revealed that many mentors do not see themselves as educators but rather as managers and superiors and consequently neglect the nursing student's educational needs. This could explain why most students in this study reported feeling like "lost souls" in clinical placement. Another challenge highlighted by Nguyen, Forbes, Mohebbi & Duke (2018) is the inadequate preparation and training of nursing mentors, which is one of the aggravating factors of insufficient nursing student's support. Similarly, in the current study, students reported that the information they receive from their clinical supervisors is inconsistent and sometimes contradictory. Therefore, the findings of this study highlight the importance of standardised training for nurse educators and clinical supervisors.

Despite these challenges, the current study revealed that the students strive to remain academically engaged by being self-directed, attending class, seeking consultation and active participation in study groups. Boctor (2013) reported that the majority of nursing students are kinaesthetic learners and prefer a hands-on, active approach to learning. Thus, it is important for nurse educators to encourage and create a learner-centred curriculum (Greer, Pokorny, Clay, Brown & Steele 2010; Colley 2012).

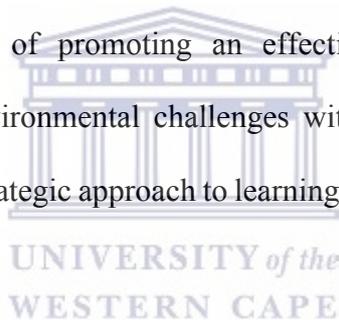
## Teaching and learning environment

The educational environment in nursing includes both clinical and theoretical learning settings (Billings & Halstead 2015). Furthermore, in the education of nurses, the educational environment requires a variety of fundamental components such as the physical infrastructure, the teaching and learning processes, school resources/materials, and the teacher-student relationship (Miles, Swift & Leinster. 2012). Previous studies conducted across the world have reported that generally, undergraduate nursing students have a positive perception towards the education environment (Brown, Williams & Lynch 2011; Furst 2011; Hamid, Faroukh & Mohammadhosein 2013; Victor, Ishtiaq & Parveen 2016). A study conducted by Yang, Becerik-Gerber and Mino, (2013) reported that the student's perception of their learning environment is linked to spatial attributes such as room layout and furniture and ambient attributes such as temperature and air quality. Similarly, in this study, the students revealed that insufficient space and seating in classrooms have a negative impact on the quality of learning and ultimately influence their academic performance. Furthermore, this study revealed that ambient attributes such as temperature and noise levels in the classroom and skills laboratory at the identified university do not promote quality teaching and learning processes. These conditions deter students from attending classes.

The findings of this study revealed that the second-year level of undergraduate nursing programme is the most challenging year of the entire programme. Referred to as the "death year" by students, the second year is comprised of a number of challenging modules, also referred to as "killer modules", such as science, pharmacology and general nursing science. The findings of this study support the results of a study conducted at the same university by Mthimunye (2015), which found that 52.21% of second-year students (2012-2013) who hold a NSC failed to successfully complete their second-year of study at the first attempt. Thus, the

findings of this study confirm that the second-level of undergraduate nursing programme at the identified university is problematic and requires prompt intervention.

Most participants in this study indicated that they memorise content (“cram, pass and forget”) for the sake of coping with the workload and passing assessments. Similar results were found in an unpublished study conducted by Furst (2011) aimed at evaluating “the perceptions of student nurses regarding the effectiveness of the teaching methods which they experienced at a nursing college in the Western Cape Province”. Kyndt, Berghmans, Dochy & Bulckens (2014) states that students who perceive their workload to be excessive will apply a surface learning approach. Furthermore, Kyndt et al. (2014) reported that the educational environment may have a positive or negative influence on the students’ perception towards their workload. This suggests the significance of promoting an effective and cooperative educational environment that minimises environmental challenges without making the workload seem overwhelming and promotes a strategic approach to learning (Bruce, Klopper & Mellish 2011).



#### **Layer 4- Social, economic, and policy context**

##### **Economic conditions**

The findings of this study revealed an indirect link between economic conditions and the challenges experienced by undergraduate nursing students through the internal and family contexts. Economic challenges drive students to engage in paid part-time employment and ultimately put them at risk of unsatisfactory academic performance. In addition, poor economic conditions have a greater impact for students residing at home during the period of study. Regrettably, the economic challenges are beyond the student’s and the HEI’s control.

## LIMITATIONS

The study was conducted with a sample from one school of nursing, which limits the generalisability of the findings to other institutions offering undergraduate nursing programmes. Another limitation is that FGDs may lead to participants not sharing their thoughts and not feeling comfortable with speaking in a group. This may influence the quality of the data collected (Stewart & Shamdasani 2014).

## RECOMMENDATIONS

The following recommendations are proposed for research and nursing education.

### Recommendations for nursing research

The researchers recommend that future research studies should include more nursing schools in South Africa and beyond, to increase generalisability.



### Recommendations for nursing education

The findings of this study demonstrate the need to implement interventions that will promote quality learning as well as measures that will promote academic engagement and success.

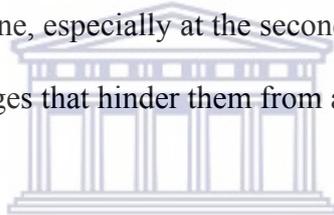
Furthermore, the recommendations emerging from this study emphasise the need to address matters such as:

- Providing nursing students with on-campus residence/accommodation and providing those that are staying in off-campus residence with reliable transport.
- Ensuring high quality and standardised training for nurse educators and clinical supervisors.
- Providing opportunities to enhance collaborative relationships between nursing students and nurse educators as well as clinical supervisors.

- Providing a teaching and learning environment that supports academic engagement.
- Ensuring equal distribution of modules across the undergraduate nursing programme to ensure that the workload is distributed evenly. Furthermore, educators should ensure that the modules across the programme are synchronised to ensure a holistic approach to teaching and learning.

## CONCLUSION

The present study reveals the challenges faced by undergraduate nursing students while endeavouring to achieve satisfactory academic performance and success as well as the corresponding measures they have put in place to achieve this. The findings of this study clearly indicate that more needs to be done, especially at the second level of the programme, to assist students to cope with the challenges that hinder them from achieving the desired outcomes.



## ACKNOWLEDGEMENTS

### Competing interests

The authors declare that they have no competing interests and no financial or personal relationships which may have inappropriately influenced them in writing this article.

### Authors' contributions

K.D.T.M., the primary student researcher, was responsible for the conceptualisation of the study, data collection, data analysis and discussion. F.M.D. was the study leader, supervised the conceptualisation of the study and guided the methodology for the study. Both wrote the article based on the research.

## REFERENCES

- Ali, P.A. and Naylor, P.B., 2010. Association between academic and non-academic variables and academic success of diploma nursing students in Pakistan. *Nurse Education Today*, 30(2), pp.157-162.
- Beauvais, A.M., Stewart, J.G., DeNisco, S. and Beauvais, J.E., 2014. Factors related to academic success among nursing students: A descriptive correlational research study. *Nurse Education Today*, 34(6), pp.918-923.
- Billings, D.M. and Halstead, J.A., 2015. *Teaching in nursing-e-book: A guide for faculty*. Elsevier Health Sciences.
- Boctor, L., 2013. Active-learning strategies: The use of a game to reinforce learning in nursing education. A case study. *Nurse education in practice*, 13(2), pp.96-100.
- Braun, V. and Clarke, V., 2013. *Successful qualitative research: A practical guide for beginners*. sage.
- Brown, T., Williams, B. and Lynch, M., 2011. The Australian DREEM: evaluating student perceptions of academic learning environments within eight health science courses. *International Journal of Medical Education*, 2.
- Bruce, J.C., Klopper, H. and Mellish, J.M., 2011. *Teaching and learning the practice of nursing*. Heinemann.
- Buerhaus, P., Staiger, D. and Auerbach, D., 2009. *The future of the nursing workforce in the United States: Data, trends and implications*. Jones & Bartlett Publishers.
- Council on Higher Education (CHE), 2010. *Higher Education Monitor. Access and throughput in South African Higher Education: Three case studies*. Pretoria: Council on Higher Education.



- Colley, S.L., 2012. Implementing a change to a learner-centered philosophy in a school of nursing: Faculty perceptions. *Nursing education perspectives*, 33(4), pp.229-233.
- Danner, M., 2014. Comparison of 1 long versus 2 shorter clinical days on clinical learning outcomes of nursing students. *Nurse educator*, 39(6), pp.280-284.
- Everett, B., Salamonson, Y., Trajkovski, S. and Fernandez, R., 2013. Demographic and academic-related differences between standard-entry and graduate-entry nursing students: A prospective correlational survey. *Nurse Education Today*, 33(7), pp.709-713.
- Furst, L.N., 2011. *The effect of teaching methods used as experienced and perceived by student nurses at a nursing college in the Western Cape province* (Masters dissertation, Stellenbosch: Stellenbosch University).
- Glew, P.J., Hillege, S.P., Salamonson, Y., Dixon, K., Good, A. and Lombardo, L., 2015. Predictive validity of the post-enrolment English language assessment tool for commencing undergraduate nursing students. *Nurse education today*, 35(12), pp.1142-1147.
- Greer, A.G., Pokorny, M., Clay, M.C., Brown, S. and Steele, L.L., 2010. Learner-centered characteristics of nurse educators. *International Journal of Nursing Education Scholarship*, 7(1).
- Grove, S.K., Burns, N. and Gray, J., 2014. *Understanding nursing research: Building an evidence-based practice*. Elsevier Health Sciences.
- Hamid, B., Faroukh, A. and Mohammadhosein, B., 2013. Nursing students' perceptions of their educational environment based on DREEM model in an Iranian university. *The Malaysian journal of medical sciences: MJMS*, 20(4), p.56.

- Jack, K., Hamshire, C., Harris, W.E., Langan, M., Barrett, N. and Wibberley, C., 2018. “My mentor didn't speak to me for the first four weeks”: Perceived Unfairness experienced by nursing students in clinical practice settings. *Journal of clinical nursing*, 27(5-6), pp.929-938.
- Jeffreys, M.R., 2015. Jeffreys’ Nursing universal retention and success model: overview and action ideas for optimizing outcomes A–Z.
- Jeptha, I.D., 2008. *Throughput rate of nursing students in the Faculty of Health and Wellness Sciences at a university of technology* (Masters dissertation, Cape Peninsula University of Technology).
- Jervis, A. and Tilki, M., 2011. Why are nurse mentors failing to student nurses who do not meet clinical performance standards?. *British journal of Nursing*, 20(9), pp.582-587.
- Kyndt, E., Berghmans, I., Dochy, F., & Bulckens, L. (2014). ‘Time is not enough.’ Workload in higher education: a student perspective. *Higher Education Research & Development*, 33(4), 684-698.
- Leung, F.H. and Savithiri, R., 2009. Spotlight on focus groups. *Canadian Family Physician*, 55(2), pp.218-219.
- López Turley, R.N. and Wodtke, G., 2010. College residence and academic performance: Who benefits from living on campus?. *Urban Education*, 45(4), pp.506-532.
- Marais, H., 2013. *South Africa pushed to the limit: The political economy of change*. Zed Books Ltd.
- Mariani, B., Cummins, J. and CEN, B., 2012. Student and Registered Nursing Staff’s Perceptions of 12-Hour Clinical Rotations in an Undergraduate Baccalaureate Nursing Program.

- McLachlan, M.E., 2010. *Experiences influencing the academic performances of 1st year nursing students at the Western Cape College of Nursing, South Africa, during 2008* (Masters dissertation, University of the Western Cape).
- Miles, S., Swift, L. and Leinster, S.J., 2012. The Dundee Ready Education Environment Measure (DREEM): a review of its adoption and use. *Medical Teacher*, 34(9), pp.e620-e634.
- Mthimunye, K.D.T., 2015. Predictors of academic performance and throughput among second-year nursing students at a university in the Western Cape. (Masters Dissertation, University of the Western Cape, Cape Town).
- Mthimunye, K.D. and Daniels, F.M., 2017. Performance in grade 12 mathematics and science predicts student nurses' performance in first year science modules at a university in the Western Cape. *Curationis*, 40(1), pp.1-6.
- Murray, C. and Staniland, K., 2010. Mentorship: past, present and future. *The Nurse Mentor and Reviewer Update Book*.
- Nguyen, V.N., Forbes, H., Mohebbi, M. and Duke, M., 2018. The effect of preparation strategies, qualification and professional background on clinical nurse educator confidence. *Journal of advanced nursing*.
- Newman-Ford, L., Lloyd, S. and Thomas, S., 2009. An investigation in the effects of gender, prior academic achievement, place of residence, age and attendance on first-year undergraduate attainment. *Journal of Applied Research in Higher Education*, 1(1), pp.14-28.
- Oducado, R.M.F. and Penuela, A.C., 2014. Predictors of academic performance in professional nursing courses in a private nursing school in Kalibo, Aklan, Philippines. *Asia Pacific Journal of Education, Arts, and Sciences*, 1(5), pp.21-28.

- Perna, L.W. and Thomas, S.L., 2006. A framework for reducing the student success gap and promoting success for all. Retrieved from National Center for Educational Statistics website: [http://nces.ed.gov/npec/pdf/Perna\\_Thomas\\_ExecSumm.pdf](http://nces.ed.gov/npec/pdf/Perna_Thomas_ExecSumm.pdf).
- Peterson, V.M., 2009. Predictors of academic success in first semester baccalaureate nursing students. *Social Behavior and Personality: an international journal*, 37(3), pp.411-417.
- Phillips, C., Kenny, A. and Esterman, A., 2016. Pre-registration paid employment practices of undergraduate nursing students: A scoping review. *Collegian*, 23(1), pp.115-127.
- Reising, D.L., Fickenscher, R. and Satrom, A., 2017. Comparison of Differing Clinical Schedules for Nursing Students. *Nurse educator*, 42(1), pp.8-13.
- Reyes, H., Hartin, V., Loftin, C., Davenport, D. and Carter, V., 2012. The impact of employment on nursing students' academic performance. *Nurse Educator*, 37(5), pp.218-221.
- Ritchie, J., Lewis, J., Nicholls, C.M. and Ormston, R. eds., 2013. *Qualitative research practice: A guide for social science students and researchers*. sage.
- Rossen, B.E. and Fegan, M.A., 2009. Eight-or twelve-hour shifts: what nursing students prefer. *Nursing education perspectives*, 30(1), p.40.
- Rubin, H.J. and Rubin, I.S., 2011. *Qualitative interviewing: The art of hearing data*. Sage.
- Salamonson, Y., Andrew, S. and Everett, B., 2009. Academic engagement and disengagement as predictors of performance in pathophysiology among nursing students.
- Salamonson, Y., Everett, B., Koch, J., Andrew, S. and Davidson, P.M., 2012. The impact of term-time paid work on academic performance in nursing students: a longitudinal study. *International journal of nursing studies*, 49(5), pp.579-585.
- South African Nursing Council., 2017. South African Nursing Council statistics. Accessed 23 August 2018. <http://www.sanc.co.za/stats.htm>.

Stewart, D.W. and Shamdasani, P.N., 2014. *Focus groups: Theory and practice* (Vol. 20). Sage publications.

Thomas, J.R., Silverman, S. and Nelson, J., 2015. *Research methods in physical activity*, 7E. Human kinetics.

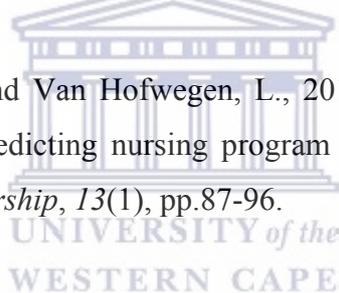
University of the Western Cape. n.d. UWC History accessed 27 June 2018. <https://www.uwc.ac.za/Pages/History.aspx>

Victor, G., Ishtiaq, M. and Parveen, S., 2016. Nursing students' perceptions of their educational environment in the bachelor's programs of the Shifa College of Nursing, Pakistan. *Journal of educational evaluation for health professions*, 13.

Creswell, J.W., 2009. *Research design: Qualitative, quantitative, and mixed methods approaches* (Vol. 4). Thousand Oaks, CA: Sage.

Wambuguh, O., Eckfield, M. and Van Hofwegen, L., 2016. Examining the importance of admissions criteria in predicting nursing program success. *International journal of nursing education scholarship*, 13(1), pp.87-96.

Yang, Z., Becerik-Gerber, B. and Mino, L., 2013. A study on student perceptions of higher education classrooms: Impact of classroom attributes on student satisfaction and performance. *Building and Environment*, 70, pp.171-188.



## **CHAPTER SEVEN**

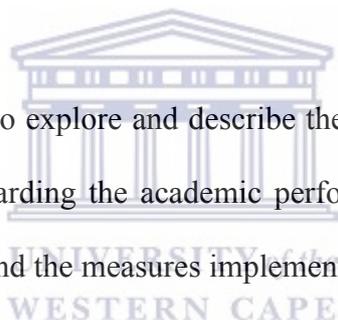
### **NURSE EDUCATORS' CHALLENGES AND MEASURES TO OVERCOME CHALLENGES -: STUDY 4**

#### **7.1 INTRODUCTION**

This chapter presents the findings of Phase 1, referred to as study 4: A qualitative study to explore and describe the challenges experienced by nurse educators and the measures implemented to overcome these challenges. The following is a summary of the objectives, methodology, study outcome and article 4.

#### **7.2 OBJECTIVE**

The objective of this study was to explore and describe the challenges experienced by nurse educators at a selected SoN regarding the academic performance, success and retention of undergraduate nursing students and the measures implemented to overcome these challenges



#### **7.3 METHODOLOGY**

A qualitative research approach with exploratory-descriptive research design was implemented. Stratified purposive sampling technique was used to recruit study participants. Data was collected by means of face-to-face in-depth interviews. Thematic analysis by Braun and Clarke (2013) was used for data analysis using Atlas, ti. Mac Version 1.6. software.

#### **7.4 STUDY OUTCOME**

The article has been submitted for publication in a national open access peer reviewed journal (see Appendix 27).

**Mthimunye, K.D.T., & Daniels, F.M. (2018).** Nurse educator's challenges and corresponding measures to improve the academic performance, success and retention of undergraduate nursing students at a university in the Western Cape, South Africa: *Independent Journal of Teaching and Learning*.



# **Nurse educator's challenges and corresponding measures to improve the academic performance, success and retention of undergraduate nursing students at a university in the Western Cape, South Africa.**

**K.D.T Mthimunye<sup>a</sup> & F. M. Daniels<sup>a</sup>**

<sup>a</sup> School of Nursing, University of the Western Cape, Robert Sobukwe Road, Bellville

[katlegomthimunye@icloud.com](mailto:katlegomthimunye@icloud.com)

[fdaniels@uwc.ac.za](mailto:fdaniels@uwc.ac.za)

**\*Article submitted to: The Independent Journal of Teaching and Learning. (Submitted for review)**

## **ABSTRACT**

The aim of this study was to explore and describe the challenges experienced by nurse educators at a selected School of Nursing regarding the academic performance, success and retention of undergraduate nursing students and the measures implemented to overcome these challenges. An in-depth qualitative research approach with an exploratory and descriptive design was implemented. Stratified purposive sampling technique was used to recruit nurse educators to participate in the study. Data were analysed by means of thematic analysis using Atlas, ti. Mac Version 1.6. Software. The findings of this study indicate that nurse educators are faced with student challenges related to: (1) lack of interest, motivation and dedication, (2) lack of academic readiness, (3) socioeconomic background and employment responsibilities, and (4) poor English proficiency, as well as school related challenges such as (5) the current structure of the curriculum, (6) an unfavourable teaching and learning environment, and (7) an unfavourable work environment. The following measures were identified to remedy these challenges: (1) promoting a positive teaching and learning environment, (2) encouraging individual and group consultations, (3) financial assistance for students; and (4) improving team work among educators. This study provides higher academic institutions with evidence that additional measures should be implemented to alleviate the impact of identified challenges on the performance, success and retention of nursing students.

**Keywords:** academic performance, challenges, measures, nurse education, qualitative research, South Africa

## INTRODUCTION AND BACKGROUND

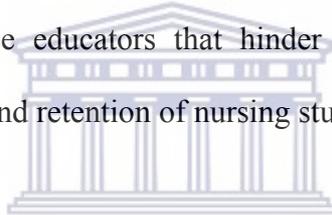
The rapidly changing nursing system is remodelling the role and scope of nurse educators in the academic environment. The change in focus from hospital centred health care to primary health care and the imminent introduction of National Health Insurance (NHI), as well as the proposed new curriculum for undergraduate nursing by the South African Nursing Council (SANC), pose challenges for the approach to and quality of teaching and learning. Therefore, Nurse educators need to reassess teaching methods in order to prepare nurses for the work environment (Mekwa, 2000). Nurse educators also need to be resourceful and implement innovative methods that will enhance the academic performance, success and retention of nursing students.

The national and global shortage in the nursing workforce (Buerhaus, Auerbach & Staiger 2009; World Health Organization, 2010), together with the implementation of the recommendations of the National Plan for Higher Education (2000) has led to an increase in the number of students being admitted to higher education, particularly in undergraduate programmes. The National Plan for Higher Education (2000) addresses the transformation of higher education to remedy previous inequalities experienced by historically disadvantaged populations. This increases the nurse educators' workload, which impacts the quality of the teaching and learning process and requires additional efforts by nurse educators to promote the academic performance, success and retention of nursing students. This includes an acknowledgement of and appropriate response to the diversity of students, including offering emotional support, extra classes and individual consultations.

In addition, the nurse educators' preparation for conducting teaching and learning sessions before each semester requires insight into preparing comprehensive and detailed lesson plans

as well as organising all teaching material needed to ensure that quality teaching and learning takes place (Billings & Halstead, 2015; Cherry & Jacob, 2016). Apart from being experts in nursing content, nurse educators are also expected to support students on emotional, psychological and spiritual levels. Without this additional support, students are at risk of unsatisfactory academic performance and may drop out of the programme (Jeffreys, 2012).

The challenges faced by nurse educators to effectively perform their duties have serious consequences for students, Higher Education Institutions (HEI) and ultimately the nursing profession and patient care. Given the current global demand for qualified nurses, efficient education and training is essential for ensuring that the quantity and quality of nurses is sufficient to sustain the required nursing workforce. Thus, it is pivotal to understand the challenges experienced by nurse educators that hinder them from ensuring satisfactory academic performance, success and retention of nursing students.



Nurse educators are expected to take responsibility for implementing effective, reasonable solutions to counter the numerous challenges they face within their profession. The South African Nursing Council (SANC) guides the professional practice of nurse educators. The core competencies stipulated by SANC (2013) for nurse educators provide guidance in quality nursing education (SANC, 2013). These competencies include: scholarship of teaching and learning; academic and student management; curriculum development; management and leadership; personal development of the nurse educator; and research and knowledge creation. Literature research has highlighted two main challenges associated with the core competencies of nurse educators. These relate to the facilitation of learning, as well as curriculum design and programme evaluation (Barrio Minton & Gibson, 2012; Adamson, 2012; Cambier, Dejonge, Kelley, McDermitt, Miller & Riddle, 2013).

Adamson (2012) reported that nurse educators' competency as related to the facilitation of learning is complicated due to the fact that teaching and learning approaches are multidimensional. Nurse educators are challenged with the responsibility of creating a multidimensional programme and employing a range of teaching methodologies to ensure that quality teaching and learning takes place, thereby positively influencing academic performance, success and retention of nursing students (Cambier et al., 2013). Thus, it is essential for nurse educators to demonstrate commitment to and accountability for the education of nursing students to guarantee satisfactory academic performance.

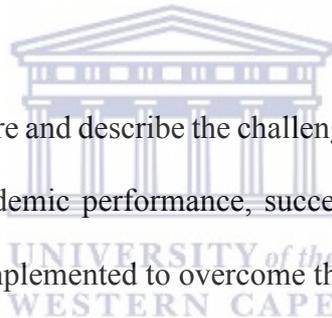
Apart from participating in curriculum design and evaluation of programme outcomes under the SANC competencies, nurse educators are also at the forefront of the implementation of the curriculum. However, literature research indicated that nurse educators face numerous challenges in their endeavour to fulfil this essential competency (Giddens & Morton, 2010; Stanley & Dougherty, 2010). Cambier et al. (2013) reported that "the changing healthcare system and the need to stay relevant taking into consideration the current issues add to the challenges". While changes in the healthcare system have initiated debate around increasing the content in nursing programmes, the Institute of Medicine (2003) has warned against content overload which adds to the educators' and students' workload. The repercussions of content overload in nursing programmes can have a detrimental impact on the academic performance, success and retention of nursing students. Another curriculum design, implementation and evaluation challenge relates to evolving technologies such as web-based classrooms, virtual reality simulations and online classes (Stanley & Dougherty, 2010).

This paper is grounded on the conceptual framework for reducing the School of Nursing (SoN) success gap and promoting success for all as adapted from Perna and Thomas (2006). This

framework has six central features: (1) “Student success is a longitudinal process”, (2) “multiple theoretical approaches inform understanding of student success”, (3) “student success is shaped by multiple levels of context”, (4) “the relative contribution of different disciplinary and area perspectives to student success varies”, (5) “multiple methodological approaches contribute to knowledge of student success”, and (6) “student success processes vary across groups”. As it was not within the scope of this study to test the entire framework, the third feature of this model was focused on. This model assumes that students’ academic success cannot be comprehended without considering that such success is shaped by four contextual layers: (1) the individual’s internal context, (2) the family context, (3) the school context, and (4) the social, economic and policy context (Perna & Thomas, 2006).

## **AIM OF THE STUDY**

The aim of the study was to explore and describe the challenges experienced by nurse educators at a selected SoN regarding academic performance, success and retention of undergraduate nursing students and measures implemented to overcome these challenges.



## **METHODOLOGY**

### **Research approach and design**

A qualitative exploratory and descriptive research design allowed for an in-depth understanding of the challenges and restorative measures used by nurse educators to ensure satisfactory academic performance, success and retention of nursing students. According to Grove, Burns and Gray (2012), a qualitative research approach increases our in-depth understanding about some aspects of the phenomenon.

## **Research setting**

The study was conducted at the SoN, in the faculty Community and Health Science (CHS), at a university in the Western Cape, South Africa. The main focus of this research was the undergraduate Bachelor of Nursing (BN) four-year programme and the five-year Extended Curricular Programme (ECP), which are regulated by R425 according to Nursing Act 1978 (Act 50 of 1978) and culminate in registration as a nurse with SANC. This enables graduates to practice as general nurses, midwives, community health workers and psychiatric nurses.

## **Population and Sampling**

The population included all nurse educators involved in the mainstream Bachelor of Nursing as well as Extended Curricular Programmes. The total nurse educator population was twenty (20), with each year level of the programme having one (1) to four (4) representatives. Stratified purposive sampling was used to recruit nurse educators for participation in the study. The sample started with one (1) to two (2) nurse educators in each of the year levels of the programme. Sampling ended when data saturation was reached (Grove et al., 2012).

## **Data collection and management**

Data was collected between April and July 2017 through individual face-to-face in-depth interviews, which lasted from forty-five (45) to sixty (60) minutes. The following research question was posed to participants: What are the challenges faced by nurse educators at the selected SoN regarding ensuring satisfactory academic performance, success and retention of nursing students and what measures do they implement to achieve this? Interviews were digitally recorded and password protected to ensure confidentiality. The recordings facilitated accurate verbatim transcriptions of the interviews (Onwuegbuzie, Dickinson, Leech & Zoran, 2009).

## **Data analysis**

ATLAS, ti. Mac Version 1.6. software was used for the organisation of text along with coding and memos (Creswell, 2009). Thematic analysis (Braun & Clarke, 2013) was an iterative process involving coding of data until themes and sub-themes were generated. Identification (ID) codes were used to present verbatim quotes.

## **Rigour**

Rigour was safeguarded by employing the principles of credibility, transferability, dependability, confirmability and reflexivity (Thomas, Silverman & Nelson, 2015). Member checking was done to gauge the accuracy of the interpretation of data and to enhance credibility. A detailed description of the research setting, the participants, as well as the method of data collection and data analysis was provided to ensure transferability. In data collection, dependability was ensured using in-depth interviews, which allowed the researcher to ask a question and change the follow-up question depending on the answer (Ritchie, Lewis, Nicholls & Ormston, 2013). The enquiry auditor verified the processes and procedures used by the researcher and confirmed that they were acceptable and dependable.

## **Ethical considerations**

The study was approved by the university's Research Ethics Committee (S17/1/42). Permission to conduct the study was granted by the university Registrar and the Director of the SoN. Prospective participants were provided with written information about the study before being requested to sign a written consent for their participation. The participants were made aware of their rights, including voluntary participation, the right to withdraw from the study, confidentiality and anonymity. All data was kept safe in password protected electronic files.

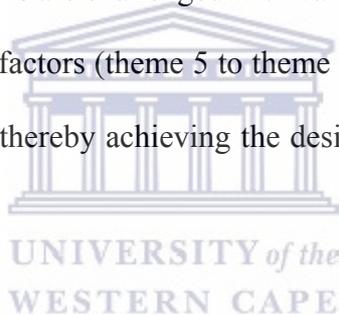
## **FINDINGS**

A total of 7 themes and 17 categories were generated from the data. The categorisation and interpretation of the data were grounded on a framework for reducing the SoN success gap and promoting success for all as adapted from Perna and Thomas (2006).

### **Participant characteristics**

The eight (8) nurse educator's ages ranged between 31 and 56 years. They had various post graduate qualifications including nursing education, advanced midwifery, primary health care, occupational health and critical care nursing. Some were previously employed as clinical supervisors at the university.

The findings indicate that educators are challenged with various student related factors (theme 1 to theme 4) and school related factors (theme 5 to theme 7) that hinder them from ensuring that students perform optimally, thereby achieving the desired level of performance, success and retention of nursing students.



### **Theme 1: Nursing students' lack of interest, motivation, dedication, commitment and poor class attendance**

Educators discussed the measures implemented to create a positive teaching and learning environment. Opportunities were provided for active participation of students, ensuring that these challenges do not lead to academic disengagement and have a minimal impact on their academic performance. These included: emotional support and encouragement of students, promoting class participation, group-work, and self-directed and experiential learning.

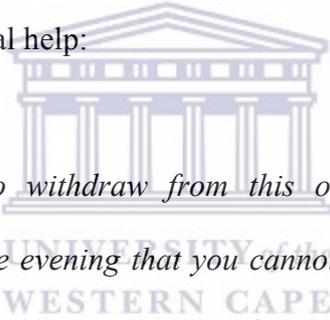
### **Category 1: Emotional support and encouragement**

Educators discussed their efforts to provide emotional support to students who experience emotional stress.

*“I don’t know maybe I’m an idealist, but I think that students must also feel loved; [...] made to be feel as a person and not just a number sitting there, for me - that’s my personal view...”*

*“I just tell them if you cannot cope or it is too traumatic you need to come to me...”*

One educator reported that providing emotional support to students was overwhelming and had to advise them to seek professional help:



*“I personally decided to withdraw from this other student when she couldn’t [cope]...But I told her one evening that you cannot contact me every time. So that’s when I told her that you need to get some professional help”*

### **Category 2: Promotion of class participation, group-work, self-directed and experiential learning**

Despite the challenge posed by large numbers of students in the classroom, educators want to ensure that there is interaction and sharing of ideas among students.

*“Students need to participate fully within their groups. They need to engage with each other ... I can see that there’s improvement because when students start disagreeing*

*with each other it means that something is happening...I don't expect students to give me the correct answer. I expect them to have a discussion to debate with each other..."*

**Category 3: Creation of a positive teaching and learning environment, getting to know students, being available, and allowing students space to talk and reflect.**

Educators highlighted the importance of treating students as individuals and providing them with personalised attention.

*"I just feel that students want to be known and they feel a sense of belonging if the lecturer knows their name"*

*"...I make a rule... let's talk about what makes you feel uncomfortable before we start a lesson. What are your fears? So, what do they do? They immediately open up"*



**Category 4: Low levels of student motivation, commitment and dedication towards programme responsibilities and irregular class attendance**

Educators reported that students display low levels of seriousness towards their studies.

*"...my group of students last year were really disinterested. They were a tough group."*

*"... for me they're not at the level of the fourth year in terms of motivation and dedication towards their studies."*

It was also mentioned that students were selective and intentionally gave less attention to certain modules.

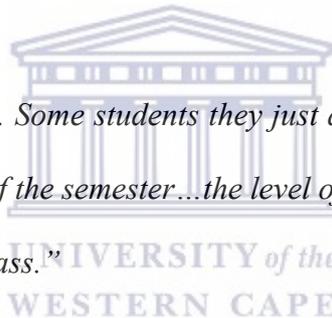
*“I’ve heard students say, oh, that HDP is a boring subject... I didn’t even know what was going on there. I just want to pass the module...”*

Further reports indicated that students do not take programme responsibilities seriously, fail to participate and are disengaged.

*“...they might understand the topic, but they don’t go into sufficient depth. They will just say the normal things, superficial things ...”*

*“Students are not participating, not producing, not listening... but there may be more to it.”*

*“...students’ lack interest. Some students they just don’t come... especially at the end of the term or at the end of the semester...the level of attendance declines... once I saw one student sleeping in class.”*



## **Theme 2: Lack of academic readiness of students admitted into the undergraduate nursing programme**

Educators discussed their efforts to ensure that poor previous academic performances have a minimal impact on the academic performance of undergraduate nursing students. These include academic support, individual and group consultations, regular assessments and providing prompt feedback.

### **Category 1: Provision of academic support**

Some educators reported their commitment to providing academic support through consultations, conducting regular assessments and providing feedback and guidance to students at risk of unsatisfactory academic performance throughout the undergraduate programme.

*“... And we have a discussion. And then I say let’s revise your work. Go and prepare and then we revise what we have covered. It really helps them to empower them a lot... consultation time, it’s open time for them....”*

*“... when I see the students are struggling I will sit there and I will get them kind of like triggers – think about this, think about that. Think back...”*

### **Category 2: Poor academic background of students**

Educators reported that the academic background of students that are recruited for the nursing programme is not up to standard and that the SoN accepts students that have been rejected by other departments, which results in their inability to cope with the basic demands of the programme.

*“... the level of education that a lot of the students come into the programme with is not high”*

*“...They didn’t get in anywhere because of their poor marks and then nursing would take them, and you can imagine...”*

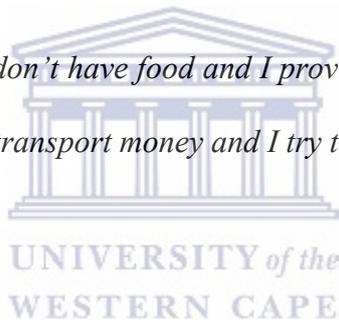
### **Theme 3: Student's socioeconomic backgrounds and employment responsibilities**

Educators discussed their efforts to ensure that challenges relating to the socioeconomic status and employment responsibilities of students, which lead to academic disengagement, have a minimal impact on their academic performance. These include voluntarily providing financial assistance where possible to alleviate the burden.

#### **Category 1: Provision of financial assistance to students**

The caring nature of nurse educators drives them to provide much needed financial assistance to needy students.

*“They tell me when they don't have food and I provide that for them, as best as I can. Some of them don't have transport money and I try to be of assistance there in my own personal capacity”*



#### **Category 2: Lack of basic needs and employment responsibility**

Most educators agreed that nursing students' socioeconomic backgrounds significantly impact their academic performance, success and retention in the programme. Educators indicated that students cannot afford basic needs such as food, which negatively affects their concentration in class.

*“You can see students sitting in your class they can't pay attention because they're hungry. Like how is that not a problem?”*

*“I guess it does play a role. Because the hungry students would be unable to concentrate in class and I mean if you don’t have the finances to come to class you also miss out”*

It was also alluded that students from poor socioeconomic backgrounds are forced to seek and participate in paid part-time employment.

*“...so, weekends or maybe night shift, they are working, waitressing or shops... so they will tell you, Ma’am, I’m working. That’s why I didn’t come to class. I have to work for my fees...Her eyes were red. I asked her what was wrong with you. So, she said, Ma’am, I’ve been working last night. So, I said why do you work and come to class in the morning? She said I don’t have a choice”*

#### **Theme 4: Lack of proficiency in English**

Educators highlighted that language differences and poor language proficiency are some of the challenges they face in the classroom. These challenges hinder effective communication which negatively impacts academic performances.

##### **Category 1: Language challenges in the teaching and learning environment**

Some educators reported that one of the major challenges that students experience in the classroom due to differences in cultural backgrounds is to communicate effectively in English.

*“I have experienced that students do struggle with English as the medium of instruction”*

*“They don’t understand the language. It is just too difficult for them”*

## **Theme 5: Structure of the undergraduate nursing programme**

Educators highlighted challenges that the current structure of the nursing programme pose on the academic performance, success and retention of undergraduate nursing students. These include timetable arrangements and asynchrony between modules and content being taught across the undergraduate nursing programme. Measures that educators put in place included departmental and interdepartmental collaboration to ensure nursing and non-nursing modules are synchronised.

### **Category 1: Structure and timetable arrangements of the undergraduate nursing programme**

Educators indicated that the structure of the programme does not take into account that nursing students have both theory and clinical/practical responsibilities.



*“...with our students, our students are working tonight and tomorrow night again. On Wednesday morning, they’ve got lectures. That’s another thing, students are tired when they come to their class”*

Reports also indicated that timetable arrangements for nursing modules are problematic.

*“At the moment, we struggle because let’s for example say I would have two periods in this venue and then I have to move over to Senate building to have another two periods”*

*“...there is tutoring classes but because apparently is happened during lunch times so they were not able to attend most of them”*

*“... we have classes on Friday so they did not want to come on Friday. So when you ask the student, they said it is the timetable they don't feel like coming just for that.”*

### **Category 2: Lack of synchrony between modules and content**

Educators reported on the asynchrony of programme modules and content which negatively influence integrated learning. Some modules are being taught in isolation with no attempt to pair related modules, resulting in students not being able to understand and comprehend the link between programme modules.



*“...human biology lecturer, she was doing work in the second year that we already do in first year....so the best practices is by aligning our modules with what we call service modules, which is the science department modules. Otherwise they teach and we teach our own and we don't align it. The students will tell you but we don't know what you're talking about. They will actually say that”*

### **Category 3: Departmental and inter-departmental collaboration**

Some educators reported on their efforts towards departmental and interdepartmental teamwork through meetings and discussion to ensure that content taught in different modules of the undergraduate nursing programme is aligned.

*“...we actually meet up with the science department...”*

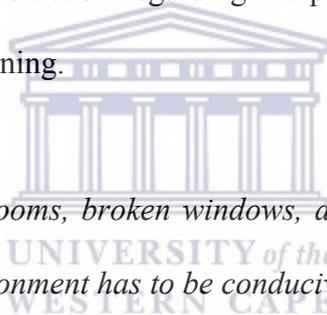
*“Every week we’ve got a meeting, maybe Wednesdays and discuss the programme and content as the year level collective...”*

## **Theme 6: The physical teaching and learning environment is not conducive to learning**

Educators highlighted environmental challenges that negatively impact the academic performance, success and retention of students. These included a poorly maintained physical environment and problematic internet connectivity.

### **Category 1: Teaching and learning venues are poorly maintained**

Some educators expressed dissatisfaction regarding the physical environment that does not promote quality teaching and learning.



*“...the state of the classrooms, broken windows, a hole in the floor, and things like that... your physical environment has to be conducive for learning”*

*“They are really not conducive. When it is so hot there is no fan. There’s nothing. It is very hot there. And when it is cold it is very cold..., those classes, they are really not good”*

### **Category 2: Problematic Internet connectivity**

Educators also reported challenges related to digital resources such as internet connectivity which negatively affect the learning process.

*“Now the internet connection isn’t working...if you want to use blended-learning you need students obviously can use textbooks and there’s articles. But to get access to an article you need the internet.”*

## **Theme 7: Unfavourable working conditions**

Educators highlighted various work-related challenges that hinder them from ensuring that students perform optimally and result in job dissatisfaction. These challenges include large numbers of students, work allocation, workload and lack of support from the SoN management.

### **Category 1: Large number of students**

Some educators reported feeling overwhelmed with the large number of students in the classroom.



*“I mean, we have groups of students of like 60 or more. It’s not easy to do that....”*

UNIVERSITY of the  
WESTERN CAPE

*“So, it becomes an issue for the lecturer just to control the class, especially if it’s big groups”*

### **Category 2: Lack of consideration for educators’ areas of specialisation**

Educators highlighted their frustrations regarding the fact that their areas of specialisation and preferred choices are not considered during work allocation, which negatively impacts the quality of the teaching and learning process.

*“But I see they normally just swop people – you go there. I didn’t do psychiatry and finish but now I’m teaching psychiatry”*

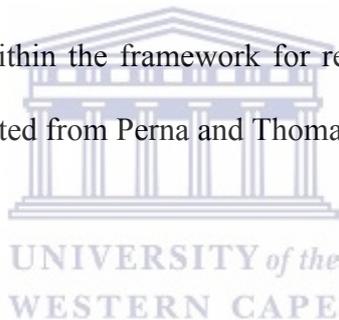
### **Category 3: Unreasonable workload**

Educators also highlighted their frustrations with the unreasonable workload which impacts negatively on time for student engagement.

*“...I’ve got so much admin to do as well and a lot of students come in here with things”*

## **DISCUSSION**

The findings of the study identified challenges experienced by nurse educators which may have a significant impact on the academic performance, success and retention of nursing students. Furthermore, the study identified several measures implemented by nurse educators aimed at enhancing academic performance of undergraduate nursing students. The findings of this in-depth study will be discussed within the framework for reducing the SoN success gap and promoting success for all as adapted from Perna and Thomas (2006).



### **Layer 1- Internal context**

According to Perna and Thomas (2006), the internal context gives attention to the cognitive and motivational aspects that shape an individual’s behaviour. For this study, the internal context was operationalised as a cluster of three main categories: (1) student profile, (2) academic factors, and (3) psychological and emotional factors. It is argued that students’ profile characteristics (such as language proficiency, previous educational experience and employment responsibilities), academic factors (such as class attendance, academic services and course grades), as well as psychological and emotional factors (such as self-efficacy, motivation, gratification and cultural beliefs/background) have a significant impact on the academic performance, success and retention of nursing students (Ali & Naylor, 2010; Timer & Clauson, 2011; Fernandez, Salamonson, & Griffiths, 2012; Everett, Salamonson, Trajkovski

& Fernandez, 2013; Kowitlawakul, Brenkus & Dugan 2013; Pitt, Powis, Levett-Jones & Hunter, 2014; Glew, Hillege, Salamonson, Dixon, Good & Lombardo, 2015; Wambuguh, Eckfield & Van Hofwegen, 2016).

### **Students profile characteristics**

Poor English proficiency, previous educational experience and students' socioeconomic backgrounds were identified as student profile challenges facing nurse educators. This study found that students' inability to express themselves adequately in English is one of the major challenges experienced by educators. Previous studies are consistent in concluding that proficiency in English has a significant impact on the academic performance and success of nursing students (Everett et al., 2013; Glew et al., 2015). These findings strengthen the importance of English proficiency as a school leaving subject requirement for admission to the undergraduate nursing programme.



### **Academic factors**

Furthermore, this study found that prospective students with poor academic qualifications are being admitted into the nursing programme. This could be due to the global shortage and demand for nursing personnel (Buerhaus et al., 2009), resulting in nursing schools admitting students to the nursing programme even when they do not meet the minimum entrance requirements (Gary Moore, 2007). Another possible explanation could be administrative related. Thus, it is imperative that screening and selection of prospective nursing students should be done by fully competent personnel. These findings are consistent with previous studies (Ehrenfeld & Tabak, 2000; Bonnie Higgins, 2005; Safadi, Saleh, Nassar, Amre & Froelicher, 2011).

The findings of this study suggest that students admitted into the undergraduate nursing programme at the SoN come from poor socioeconomic backgrounds. Furthermore, this study found that due to these conditions, students resort to paid part-time employment during their studies, which results in poor class attendance due to employment responsibilities. These findings are consistent with previous finding reported by (Salamonson, Andrew & Everett, 2009; Everett et al., 2013; Salamonson et al., 2014). Previous studies have found a significant correlation between class attendance and the number of hours spent engaging in employment responsibilities. i.e. the higher the number of hours spent engaging in employment responsibility, the poorer the class attendance leading to academic disengagement (Salamonson et al., 2009; Everett et al., 2013; Salamonson et al., 2014).

### **Psychological and emotional factors**

The study revealed that nurse educators are faced with challenges associated with nursing students' lack of interest, motivation, dedication and commitment. These findings confirm findings of previous studies (Clark & Springer; Fernandez, Salamonson & Griffiths, 2012; Clements, Kinman, Leggetter, Teoh & Guppy, 2016). This requires nurse educators to identify students with low levels of motivation and commitment as well as those who show signs of lack of interests in programme responsibilities and to implement corrective measures to reduce the risk of unsatisfactory academic performance. Early identification of at-risk students may be fundamental to ensure that corrective measures are implemented timeously and thus ensure satisfactory academic performance (Hopkins, 2008; Missildine, Fountain, Summers & Gosselin, 2013; Mthimunye, 2015).

The study also indicated that there is a need to promote student engagement as well as to create a safe and conducive educational environment that will not pose a threat to students and will

allow students space to engage with the study content, the environment and the educators without any fear. A study conducted by Patterson, Kilpatrick and Woebkenberg (2010) in the United States (US) with the purpose of describing students' perceptions of using a Student Response System (SRS) in the classroom revealed that increased engagement and interaction in the classroom is beneficial to students. However, it is important that nurse educators at the SoN scrutinise their own practices in the classroom with regard to the activities that they believe are engaging. In addition, it would also be essential to explore what students believe would engage them in the classroom.

## **Layer 2- The school context**

According to Perna and Thomas (2006), the school context gives attention to the compounding effects associated with educational resources, academic preparation, and educational orientations that are necessary for success at a university level. The school context was operationalised for the study as a cluster of four main categories: (1) school background, (2) professional integration, (3) teaching and learning environment, and (4) funding. However, this study found no evidence to support category 1, 2 and 4 of the school context, thus only category 3 was discussed below.

### **Teaching and learning environment**

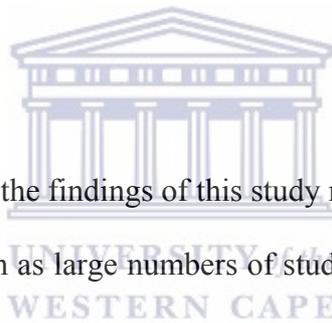
The study revealed that the curriculum preparation, particularly timetable arrangements and synchrony of modules of the nursing programme, were some of the challenges faced by nurse educators while endeavouring to obtain optimal academic performance by nursing students. Jeffreys (2015) suggests that timetable arrangements have a significant impact on the academic performance and success of nursing students. The findings of this study provide supplementary

evidence that issues related to macro and micro curricula such as timetable arrangements and coherent pairing of modules of the nursing programme should be addressed.

Furthermore, this study found that the physical teaching and learning environment, large numbers of students and poor internet connectivity were additional challenges reported by nurse educators. A study conducted by Yang, Becerik-Gerber and Mino (2013) revealed that students' perceptions of their educational environments relied highly on physical characteristics such as classroom layout, furniture and number of students in the classroom, and immediate surroundings that include temperature and air quality. Therefore, these findings illustrate the significance of improving the design, organisation, functioning and maintenance of the educational environment.

### **Work environment**

In addition to the school context, the findings of this study revealed that some nurse educators face work related challenges such as large numbers of students, high workload and problems with module allocation. The findings are consistent with previous studies conducted by Stork (2003) and Bittner and O'Connor (2012). A study conducted by Bittner and O'Connor (2012) in the New England region, with the aim of "determining the barriers to job satisfaction as reported by nurse faculty", found that work environment as well as workload are significant factors to jobs satisfaction. Furthermore, according to Stork (2003), large numbers of students typically make it challenging for educators to create a conducive educational environment in which students feel that their own personal needs are being met. These findings could be explained by the pressure that university nurse educators receive from the faculty as well as from the SoN i.e. taking on large numbers of students, producing research output, local and international collaboration, continuous professional development, community engagement, as



well as various faculty committees' responsibilities. This pressure adds to the already demanding competencies for nurse educators i.e. administration, teaching and learning, research and clinical supervision. Several studies have reported that nurse educators take on various roles, which may lead to burnout and job dissatisfaction (Gerolamo & Roemer, 2011; Baker, Fitzpatrick & Griffin, 2011). These findings suggest that in order for nurse educators to perform their primary duty of ensuring academic performance, success and retention of nursing students, the university and the SoN should ensure a favourable work environment that promotes job satisfaction.

## **CONCLUSION**

The study revealed the challenges faced by nurse educators at a university in the Western Cape as well as measures they put in place to ensure satisfactory academic performance by undergraduate nursing students. The findings mainly describe the student (internal) as well as school related factors and indicate the need for more measures to be put in place to remedy the identified challenges. This study did not address the challenges related to the family context or the social, economic, and policy context as suggested by the theoretical framework used for this study. In addition, the framework did not address the influence that the work environment of nurse educators has on their job satisfaction and on the academic performance, success and retention of nursing students.

## **LIMITATIONS OF THE STUDY**

The main limitation was that a limited number of nurse educators formed part of the study and that they only provided the theoretical perspective of the programme and not the clinical perspective. Furthermore, data was only collected from one SoN in South Africa, therefore the findings of this study may not be generalised beyond that setting. However, the findings of this

study provide important information regarding the challenges experienced by nurse educators as well as the measures they have put in place to ensure optimal academic performance, success and retention of nursing students and thus may be generalised with caution to similar educational practices in other countries.

## **IMPLICATIONS FOR NURSING EDUCATION**

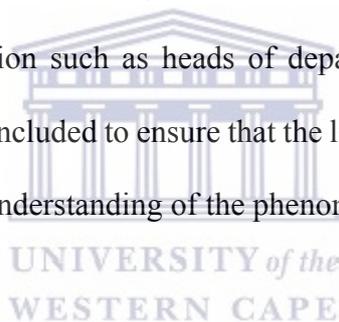
The teaching and learning implications of this in-depth study include (1) reinforcement of student engagement through active participation and promotion of experiential learning; (2) alignment of the curriculum across the entire programme by reviewing the content of the modules and aligning modules based on their objectives and content; (3) advocating for and creating a conducive physical environment by ensuring well maintained and climate controlled classrooms, adequate lighting, as well as access to reliable internet connectivity; (4) encouraging a safe environment for students to reflect and express themselves without fear and obtain emotional support and encouragement where necessary; and (5) early identification of students with language barriers (poor English proficiency) and ensuring that they are referred for language support.

The findings of this study can be used to develop interventions to alleviate the challenges experienced by nurse educators. Furthermore, the findings re-emphasise the significance for proper screening of prospective students. The implications of this study point out the need for a favourable work environment for nurse educators to ensure job satisfaction and reduce the risk of burnout, which has an impact on the quality of the teaching and learning process, thus negatively influencing the academic performance of nursing students. Addressing the challenges identified in this study could result in an improvement in the quality of the undergraduate nursing programme offered at the SoN.

## RECOMMENDATIONS

The recommendations emerging from this study indicate the need to address student related matters i.e. motivation, commitment, screening processes and socioeconomic backgrounds as well as school related matters i.e. timetable arrangements, module and content alignment, large numbers of students in classrooms and an uncondusive educational environment. Furthermore, the study recommends that the work conditions for nurse educators such as workload and work allocation be reviewed regularly to ensure a favourable work environment and to reduce the risk of burnout.

This study recommends that for future studies, researchers expand the scope of the study to include more schools of nursing. In addition, more stakeholders linked to students' academic performance, success and retention such as heads of departments, clinical supervisors and faculty staff members should be included to ensure that the limitations of the study are avoided and that a more comprehensive understanding of the phenomenon is gained.



## ACKNOWLEDGEMENTS:

The authors would like to acknowledge the language editor of the paper Gareth Lowe. The authors would also like to thank all the participants who formed part of the study.

## REFERENCE

- Adamson, K. A. (2012). Piloting a method for comparing two experiential teaching strategies. *Clinical Simulation in Nursing*, 8(8), e375-e382.
- Ali, P. A., & Naylor, P. B. (2010). Association between academic and non-academic variables and academic success of diploma nursing students in Pakistan. *Nurse Education Today*, 30(2), 157-162.

Baker, S. L., Fitzpatrick, J. J., & Griffin, M. Q. (2011). Empowerment and job satisfaction in associate degree nurse educators. *Nursing Education Perspectives*, 32(4), 234-239.

Barrio Minton, C. A., & Gibson, D. M. (2012). Evaluating student learning outcomes in counselor education: Recommendations and process considerations. *Counseling Outcome Research and Evaluation*, 3(2), 73-91.

Billings, D. M., & Halstead, J. A. (2015). *Teaching in nursing-e-book: A guide for faculty*. Elsevier Health Sciences.

Bittner, N. P., & O'connor, M. (2012). Focus on retention: Identifying barriers to nurse faculty satisfaction. *Nursing Education Perspectives*, 33(4), 251-254.

Bonnie Higgins EdD, R. N. (2005). Strategies for lowering attrition rates and raising NCLEX-RN® pass rates. *Journal of Nursing Education*, 44(12), 541.

Braun, V., & Clarke, V. (2013). *Successful qualitative research: A practical guide for beginners*. sage.

Buerhaus, P. I., Auerbach, D. I., & Staiger, D. O. (2009). The recent surge in nurse employment: Causes and implications. *Health Affairs*, 28(4), w657-w668.

Cambier, E., Dejonge, K., Kelley, N., McDermitt, J., Miller, J., & Riddle, A. (2013). Nurse educator role challenges and plan: Facilitation of learning, curriculum design and program. *Ferris State University*.

Cherry, B., & Jacob, S. R. (2016). *Contemporary nursing: Issues, trends, & management*. Elsevier Health Sciences.

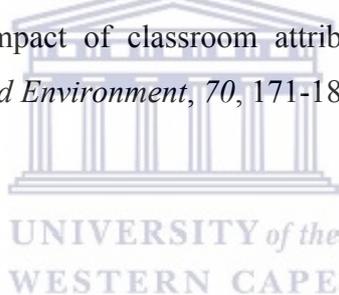
Clark, C. M., & Springer, P. J. (2010). Academic nurse leaders' role in fostering a culture of civility in nursing education. *Journal of Nursing Education*, 49(6), 319-325.

- Clements, A. J., Kinman, G., Leggetter, S., Teoh, K., & Guppy, A. (2016). Exploring commitment, professional identity, and support for student nurses. *Nurse Education in Practice, 16*(1), 20-26.
- Council, S. A. N. (2013). Code of ethics for nursing practitioners in South Africa. *Pretoria: South African Nursing Council, 3-5*.
- Creswell, J. W. (2009). Research design: Qualitative, quantitative, and mixed methods approaches.
- Dolea, C. (2010). *Increasing access to health workers in remote and rural areas through improved retention: global policy recommendations*. World Health Organization.
- Ehrenfeld, M., & Tabak, N. (2000). Value of admission interviews in selecting of undergraduate nursing students. *Journal of Nursing Management, 8*(2), 101-106.
- Everett, B., Salamonson, Y., Trajkovski, S., & Fernandez, R. (2013). Demographic and academic-related differences between standard-entry and graduate-entry nursing students: A prospective correlational survey. *Nurse Education Today, 33*(7), 709-713.
- Fernandez, R., Salamonson, Y., & Griffiths, R. (2012). Emotional intelligence as a predictor of academic performance in first-year accelerated graduate entry nursing students. *Journal of clinical nursing, 21*(23-24), 3485-3492.
- Gary Moore PhD, R. N. (2007). Baccalaureate nursing program admission policies: Promoting success or facilitating failure?. *Journal of Nursing Education, 46*(10), 439.
- Gerolamo, A. M., & Roemer, G. F. (2011). Workload and the nurse faculty shortage: Implications for policy and research. *Nursing Outlook, 59*(5), 259-265.
- Giddens, J. F., & Morton, N. (2010). Report card: An evaluation of a concept-based curriculum. *Nursing education perspectives, 31*(6), 372-377.

- Glew, P. J., Hillege, S. P., Salamonson, Y., Dixon, K., Good, A., & Lombardo, L. (2015). Predictive validity of the post-enrolment English language assessment tool for commencing undergraduate nursing students. *Nurse education today*, 35(12), 1142-1147.
- Grove, S. K., Burns, N., & Gray, J. (2012). *The practice of nursing research: Appraisal, synthesis, and generation of evidence*. Elsevier Health Sciences.
- Hopkins, T. H. (2008). Early identification of at-risk nursing students: A student support model. *Journal of Nursing Education*, 47(6), 254-259.
- Knebel, E., & Greiner, A. C. (Eds.). (2003). *Health professions education: A bridge to quality*. National Academies Press.
- Jeffreys, M. R. (2015). Jeffreys's Nursing universal retention and success model: overview and action ideas for optimizing outcomes A–Z.
- Jeffreys, M. R. (2012). *Nursing student retention: Understanding the process and making a difference*. Springer Publishing Company.
- Kowitlawakul, Y., Brenkus, R., & Dugan, N. (2013). Predictors for success for first semester, second-degree Bachelor of Science in Nursing students. *International Journal of Nursing Practice*, 19, 38-43.
- Mekwa, J. (2000). Transformation in nursing education: chapter 13. *South African health review*, 2000(1), 271-283.
- Missildine, K., Fountain, R., Summers, L., & Gosselin, K. (2013). Flipping the classroom to improve student performance and satisfaction. *Journal of Nursing Education*, 52(10), 597-599.
- Mthimunye, K. D. T. (2015). Predictors of academic performance and throughput among second-year nursing students at a university in the Western Cape.

- Onwuegbuzie, A. J., Dickinson, W. B., Leech, N. L., & Zoran, A. G. (2009). Toward more rigor in focus group research: A new framework for collecting and analyzing focus group data. *International Journal of Qualitative Methods-ARCHIVE*, 8(3), 1-21.
- Patterson, B., Kilpatrick, J., & Woebkenberg, E. (2010). Evidence for teaching practice: The impact of clickers in a large classroom environment. *Nurse Education Today*, 30(7), 603-607.
- Perna, L. W., & Thomas, S. L. (2006). A framework for reducing the college success gap and promoting success for all.
- Pitt, V., Powis, D., Levett-Jones, T., & Hunter, S. (2014). The influence of personal qualities on performance and progression in a pre-registration nursing programme. *Nurse education today*, 34(5), 866-871.
- Ritchie, J., Lewis, J., Nicholls, C. M., & Ormston, R. (Eds.). (2013). *Qualitative research practice: A guide for social science students and researchers*. sage.
- Safadi, R. R., Saleh, M. Y. N., Nassar, O. S., Amre, H. M., & Froelicher, E. S. (2011). Nursing students' perceptions of nursing: a descriptive study of four cohorts. *International nursing review*, 58(4), 420-427.
- Salamonson, Y., Andrew, S., & Everett, B. (2009). Academic engagement and disengagement as predictors of performance in pathophysiology among nursing students.
- Salamonson, Y., Everett, B., Cooper, M., Lombardo, L., Weaver, R., & Davidson, P. M. (2014). Nursing as first choice predicts nursing program completion. *Nurse Education Today*, 34(1), 127-131.
- Stanley, M. J. C., & Dougherty, J. P. (2010). A paradigm shift in nursing education: A new model. *Nursing Education Perspectives*, 31(6), 378-380.
- Stanley, M. J. C., & Dougherty, J. P. (2010). A paradigm shift in nursing education: A new model. *Nursing Education Perspectives*, 31(6), 378-380.

- Stork, D. (2003). Teaching statistics with student survey data: A pedagogical innovation in support of student learning. *Journal of Education for Business*, 78(6), 335-339.
- Thomas, J. R., Silverman, S., & Nelson, J. (2015). *Research methods in physical activity*, 7E. Human kinetics.
- Timer, J. E., & Clauson, M. I. (2011). The use of selective admissions tools to predict students' success in an advanced standing baccalaureate nursing program. *Nurse Education Today*, 31(6), 601-606.
- Wambuguh, O., Eckfield, M., & Van Hofwegen, L. (2016). Examining the importance of admissions criteria in predicting nursing program success. *International journal of nursing education scholarship*, 13(1), 87-96.
- Yang, Z., Becerik-Gerber, B., & Mino, L. (2013). A study on student perceptions of higher education classrooms: Impact of classroom attributes on student satisfaction and performance. *Building and Environment*, 70, 171-188.



## **CHAPTER EIGHT**

### **INTERVENTIONS TOWARDS IMPROVING THE ACADEMIC PERFORMANCE, SUCCESS AND RETENTION OF UNDERGRADUATE NURSING STUDENTS: STUDY 5**

#### **8.1 INTRODUCTION**

This chapter presents the findings from Phases 2 and 3, referred to as study 5: A three round Delphi process was undertaken to design, develop and validate interventions towards improving the academic performance, success and retention of undergraduate nursing students. The following is a summary of the objectives, methodology, study outcome and article 5.

#### **8.2 OBJECTIVE**

This chapter realises the main aim of the study. The objective of this study was to use the findings of phase one to design, develop and validate interventions towards improving the academic performance, success and retention of undergraduate nursing students.

#### **8.3 METHODOLOGY**

Purposive sampling technique was used to select a panel of experts. Two researcher developed questionnaires were used to collect data. Descriptive statistics were obtained using IBM SPSS-24. Qualitative responses were analysed using thematic analysis by Braun and Clarke (2013).

## 8.4 STUDY OUTCOME

The article has been submitted for publication in an international open access peer reviewed journal (see Appendix 28).

**Mthimunye, K.D.T., & Daniels, F.M. (2018).** An intervention for the improvement of academic performance, success and retention of nursing students at the university in the western cape, South Africa: *International Journal of Africa Nursing Sciences*.



# The development and validation of an intervention for the improvement of academic performance and success of nursing students at a university in the Western Cape, South Africa

K.D.T Mthimunye<sup>a</sup> & F. M. Daniels<sup>a</sup>

<sup>a</sup>School of Nursing, University of the Western Cape, Robert Sobukwe Road, Bellville

[katlegomthimunye@icloud.com](mailto:katlegomthimunye@icloud.com)

[fdaniels@uwc.ac.za](mailto:fdaniels@uwc.ac.za)

**\*Article submitted to: International Journal of Educational Research (in review: second round)**

## ABSTRACT

A three round Delphi study aimed at developing and validating the intervention for improving the academic performance and success of undergraduate nursing students at a university in the Western Cape, South Africa was undertaken. The first round of the Delphi process used a self-developed semi-structured questionnaire focusing on rating the pre-developed prescriptive intervention statements that were identified from the preceding phases of the larger project, as well as to obtain further recommendations from the panel of experts. The second round of the Delphi process focused on reviewing the items that did not reach the desired consensus ( $\geq 80\%$ ) as well as to present the newly formulated prescriptive intervention statements based on the panel's recommendations provided in the first round of the Delphi process. The last round validated the intervention statements that reached the desired consensus ( $\geq 80\%$ ). The intervention highlighted that students need support in various aspects including: financial support, English language support, family support and theoretical and clinical support. Furthermore, the university has the responsibility to ensure the following: selection of quality prospective students, class attendance, university residence for nursing students, a student-friendly programme, uniformity and consistency in learning and teaching and lastly to provide support to the educators.

**Keywords:** Academic performance, academic successes, Delphi, intervention, nursing education, nursing students

## INTRODUCTION AND BACKGROUND

Schools of nursing around the world are tasked with the responsibility of graduating well-educated and competent graduate nurses. This desired outcome can be achieved by ensuring satisfactory academic performance and academic success. Studies from around the world suggest that nursing student attrition is a global problem with attrition rates reported at over 30% (O'Donnell, 2009; Fowler & Norrie 2009; Dante, Valoppi, Saiani & Palese, 2011; Abele, Penprase & Ternes, 2013). Rodgers, Stenhouse, McCreddie and Small (2013) reported that in 2010 the United States recorded a high attrition rate of 42% among undergraduate nursing student while the United Kingdom 25-30%.

Jeffreys (2012) argued that without extra effort from educators and nursing schools, students are at risk of unsatisfactory academic performance and ultimately this may increase the attrition rate in the education of nurses. According to Buerhaus, Auerbach, and Staiger (2009) the demand for competent nurses is escalating at a rate of 2%–3% per year. To ease this demand, Staiger, Auerbach and Buerhaus, (2012) reported that the intake of nursing students should increase by 40% per year.

In South Africa, the South African Nursing Council (SANC) reported that in 2017 approximately 21 286 undergraduate nursing students were registered in their student register. Of the 21 286 students, 3 829 (17.99%) were first admissions (first-year nursing students) and 17 457 (82.01%) were re-admissions (second-year to final-year students) (SANC, 2017). However, it is anticipated that not all students admitted into the undergraduate nursing programme will perform academically well and successfully complete the programme. Council on Higher Education (2010) reported a general attrition rate of 50% in 2005. The same trend was observed in nursing education. Two independent studies conducted at two different

schools of nursing in the Western Cape (WC), South Africa (SA) by McLachlan (2010) and Jephtha (2008) reported high attrition rates among first-year nursing students. Jephtha (2008) reported an attrition rate of 34.4% among first-year nursing students at the Western Cape College of Nursing for the 2003 cohort. An unpublished master's study conducted by Mthimunye (2015) revealed that 52.21% of students registered for second year of Bachelor of Nursing programme at the identified university for the year 2012–2013 had difficulties in progressing to the next level of study on first attempt. This paper reports on a response to address the issue of unsatisfactory academic performance that result in high attrition and dropout rates.

## **PROBLEM STATEMENT**

Although efforts have been made both globally and nationally to ensure academic performance, success and ultimately retention of nursing students for the past decades, the reality is that nursing students' performance and success continues to be on the decline (Mthimunye, 2015; Roos, Fichardt, MacKenzie & Raubenheimer, 2016). If efforts to improve the academic performance and success of nursing students are not prioritised and maintained, schools of nursing risk not meeting the demands of the much-needed nursing workforce, with potential threats of a collapse in the health system (World Health Organization, 2010). Literature reveals an enormous interest by researchers to understand the factors that promote academic performance and success of nursing students (Jeffreys, 2012; Beauvais, Stewart, DeNisco, & Beauvais, 2014; Mthimunye, Daniels, & Pedro, 2018). However, literature has not been clear on educational recommendations or the interventions required to ensure satisfactory academic performance and success of undergraduate nursing students. The obvious lack of research on intervention measures supports the need for researchers to develop evidence-informed

interventions focusing on improving the academic performance and success of nursing students.

## **PURPOSE OF THE STUDY**

The study aimed to develop and validate an intervention for the improvement of academic performance, success and retention of undergraduate nursing students at a university in the Western Cape, South Africa. This was done through a Delphi process which was based on the findings of preceding exploratory descriptive studies.

## **METHODOLOGY**

### **Research design**

A three-round Delphi methodology was used to develop and validate the intervention for the improvement of academic performance and success of nursing students at a university in the Western Cape, South Africa. Keeney McKenna and Hasson (2010) defined the Delphi method as a repetitive method of structuring communication between a group of people who can provide valuable contributions in order to resolve a complex problem. Likewise, the Delphi method was applied in this study to gain consensus, from experts in the field of nursing and education, on the designed intervention based on findings from exploratory descriptive studies, as well as to gather recommendations on how the academic performance, success and ultimately the retention of undergraduate nursing students can be improved.

There are different types of Delphi techniques in research. As suggested by Hasson and Keeney (2011) the classic Delphi, which aims to prompt opinion and gain consensus among a group of experts, was used. The Delphi process comprised of a first round, using a self-developed semi-structured questionnaire with both quantitative and qualitative questions; a second round using

a more structured questionnaire; and a third round where items that reached highest consensus ( $\geq 80\%$  agreement) were reviewed. The process was halted once agreement was achieved, which signified that theoretical saturation was accomplished (Keeney et al., 2010).

The current study forms part of a larger project that employed a multi-method approach aimed at developing an intervention for the improvement of academic performance and success of nursing students at a university in the Western Cape, South Africa. The larger project was conducted in three phases and this this paper reports on the final phase which is based on an adapted version of Intervention Design and Development (DD) by Thomas and Rothman (2013).

#### **Preceding phase one: Problem analysis and information gathering**

Phase one was adapted from Thomas and Rothman (2013) and focused on problem analysis, planning and information gathering. The activities during problem analysis and project planning involved “Identifying and involving participants, gaining entry to and cooperation from settings, identifying the concerns of the population; analysing the identified concerns; setting goals and objectives” (Thomas & Rothman, 2013). The larger project was guided by a “Framework for Reducing the College Success Gap and Promoting Success for All” (Perna & Thomas, 2006), and was adapted to the nursing education context. This framework was used to guide data collection, data analysis and the discussion of study findings. According to Perna and Thomas’s (2006) success model, student success is determined by the interaction of multiple layers of context namely: 1) internal context; 2) family context; 3) school context and; 4) social, economic and policy context. The first layer of context (internal context) refers to the cognitive and motivational aspects that shape an individual’s behaviour. This layer of context was clustered in three main categories namely the student profile, academic, psychological and

emotional factors. The second layer of context (family context) recognises the influence of both family and friends on the academic performance and success of nursing students and was clustered in three main categories namely family background, family psychology and family economics. The third layer of context (school context) was adapted to acknowledge the influence of the school on the academic performance and success of nursing students and was categorised as school background, professional integration and teaching and learning environment. The Fourth layer of context (social, economic and policy context) was adapted to acknowledge various external factors that have an influence on the academic performance of nursing students and was categorised as social and economic conditions and public policies.

Information was gathered using four methods: 1) a systematic review to identify the predictors of academic performance among undergraduate nursing students; 2) a cross-sectional descriptive survey ( $n=232$ ) aimed to evaluate the education environment as perceived by undergraduate nursing students the school of nursing; 3) focus group discussions with undergraduate nursing students ( $n=50$ ) aimed to explore and describe the challenges experienced by undergraduate nursing students at the identified school of nursing that may have an impact on their academic performance and success and measures they have put in place to ensure satisfactory academic performance and success and; 4) face to face in-depth interviews with undergraduate nurse educators ( $n=8$ ) aimed to explore and describe challenges experienced by nurse educators at the selected school of nursing regarding academic performance, success and retention of undergraduate nursing students and the measures they put in place to overcome these challenges. In phase one, the findings from the systematic review, survey, as well as the themes that emerged from the focus group discussion and in-depth interviews were rigorously triangulated to identify horizontal themes, which served as concluding statements. Table 1 below presents the key findings and the concluding statements from phase one.

**Table 1: Key findings and the concluding statements from phase one**

Conceptual framework	Key findings (Phase 1)	Concluding statements (Phase 1)
<p><b>Layer 1- Internal context</b></p>	<ul style="list-style-type: none"> <li>• Academic performance, success and retention of undergraduate nursing students is negatively influenced by lack of interest, motivation, dedication, commitment, emotional intelligence, self-control and resilience, homework completion as well as poor lecture attendance. Nevertheless, nurse educators strive to create an educational environment that promotes academic engagement</li> <li>• Unsatisfactory academic performance, success and retention of undergraduate nursing students was associated with poor pre-admission characteristics. Pre-admission qualification admission score, pre-admission science score as well as selecting nursing as first choice of study is positively correlated to student's academic performance and success.</li> <li>• Academic performance, success and retention of undergraduate nursing students is negatively affected by participating in paid part-time employment during the period of study which is due to poor socio-economic background</li> <li>• Academic performance and success of undergraduate nursing students is negatively affected by students' poor English language skills.</li> </ul>	<ul style="list-style-type: none"> <li>• Student's readiness for tertiary education influences class attendance and academic engagement. Creating an environment that promotes academic engagement is pivotal.</li> <li>• The selection criteria for entry to the undergraduate nursing programme do not guarantee the admission of students who have potential for satisfactory academic performance and success.</li> <li>• Poor socio-economic status and resultant part-time employment influences the academic performance and success of undergraduate nursing students.</li> <li>• English as second language (ESL) and poor English language proficiency of undergraduate nursing students places them at risk of unsatisfactory academic performance and success.</li> </ul>

<p><b>Layer 2- Family context</b></p>	<ul style="list-style-type: none"> <li>• Academic performance and success of undergraduate nursing students was negatively affected by the students' place of residence during the period of study. Staying at home during course of study had a negative impact on the students' academic performance and success</li> </ul>	<ul style="list-style-type: none"> <li>• Residing off campus with family affects learning and ultimately the academic performance and success of undergraduate nursing students.</li> </ul>
<p><b>Layer 3- School context</b></p>	<ul style="list-style-type: none"> <li>• Academic performance, success and retention of undergraduate nursing students is negatively affected by the disorganised structure of the nursing programme. Unorganised timetable, poor assessment planning, poor module distribution across the programme and 12-hour hospital shift has an impact on the teaching and learning process and ultimately on the academic performance of undergraduate nursing students</li> <li>• Academic performance, success and retention of undergraduate nursing students was negatively affected the unfavourable theory and practical teaching and learning environment as well as inadequate digital recourses.</li> <li>• Academic performance, success and retention of undergraduate nursing is negatively affected by teaching and learning strategies implemented at the SoN as well as insufficient academic and clinical support provided to students</li> <li>• The work environment for nursing educators is unfavourable.</li> </ul>	<ul style="list-style-type: none"> <li>• The curriculum design and delivery of the undergraduate nursing programme affects the academic performance and success of undergraduate nursing students.</li> <li>• The learning and teaching environment has a direct effect on learning and teaching and ultimately impacts the academic performance and success of nursing students.</li> <li>• Learning and teaching strategies used, and the support provided in the delivery of the theoretical and clinical components of the programme affects the academic performance of undergraduate nursing students.</li> <li>• Class size and the educator's workload influence the quality of the learning and teaching process.</li> </ul>

### **Preceding phase two: Design and early development of the intervention**

Phase two of the project focused on the early design and development of the intervention subsequent to the systematic application of scientific process of intervention DD as argued by Thomas and Rothman (2013) in Intervention Research (IR) design. In phase two, the detailed findings of phase one informed the early design and development of the intervention. The researcher adapted these two primary events of the design phase, as recognised by Fawcett et al. (1994) in Thomas and Rothman (2013) in an endeavour to generate an innovative intervention that seeks to improve the academic performance and success of undergraduate nursing students at the identified school of nursing. The two primary events included designing an observational system; and specification of procedural elements in the intervention. The fundamental sub-events that are dealt with under the observational system are design objective, design domain, and design requirements. For the second primary event (specifying procedural elements) the researcher provided sufficient evidence and details regarding the early design and development of the intervention to enable other researchers to replicate the design of the intervention (Thomas & Rothman, 2013). During this stage, the information gathered in phase one was manipulated and transformed and organised in a manner that produced practical design concepts. According to Thomas and Rothman (2013), the design concepts are articulated through the conversion and intervention design process. Furthermore, Thomas and Rothman (2013) states that “information retrieval, conversion and design with many social intervention problems can be conducted by an individual researcher, although most efforts would be enriched when a group of designers work together”. In line with this, the researcher with the help of the study supervisor was actively involved in the design work. In addition to the researcher and the study supervisor’s efforts, consultation was had with a group of experts to glean their input as well as to confirm the designed intervention.

### **Phase three: Validation through a Delphi process**

The aim of the Delphi process was to validate and refine the intervention through expert opinion and consensus and is the focus of this paper.

### **Participant selection**

Purposive sampling was used to select participants who are experts, knowledgeable about the phenomena being studied and who were willing to provide the information and experiences the researcher sought (Etikan, Musa & Alkassim, 2016). A list of eligible participants ( $n= 25$ ) using purposive sampling technique was compiled and were invited via email in January 2018 to participate in the study. Eight participants ( $n= 8$ ) agreed to participate. Of the 17 that were excluded, 16 did not respond while one stated that he was unable to participate due to other commitments. The experts were from various institutions in South Africa including Stellenbosch University (SU); the University of the Western Cape (UWC); the University of Cape Town (UCT); the University of Pretoria; the University of the Free State; Chris Hani Baragwanath Nursing College (CHBNC) in Johannesburg as well as Ann Latsky Nursing College in Johannesburg. The eligible experts have a background in nursing education with a focus on curriculum development as well as learning and teaching in nursing. The inclusion criteria were set as: (i) expertise in the field of nursing; (ii) qualified with a bachelor's degree or higher; (iii) have conducted research in the education of nurses; (iv) employed as a nurse educator or clinical facilitator in a university, nursing college or hospital based. Participants were briefed about the study and the Delphi process before they consented to participate. The findings of the preceding phases were communicated to the study participants as background and to ensure that the development of the intervention was focused and relevant.

## Data collection

Data was collected in two rounds between March and May 2018 while the third round was used to review items that reached the desired level of consensus ( $\geq 80\%$ ).

*Round 1:* Boulkedid, Abdoul, Loustau, Sibony and Alberti (2011) recommend a self-administered questionnaire as an effective tool for use in a Delphi study. A self-developed semi-structured questionnaire was administered to the participants, using Google forms. The questionnaire comprised both quantitative and qualitative components. Participants were asked to rate, comment and/or provide recommendations on the items. The aim of the qualitative component therefore was to generate ideas, comments and recommendations from the experts to ensure that an inclusive and innovative intervention was developed. This facilitated further refinement of the intervention statements or the addition of new statements. In round 1, the questionnaire comprised two sections with a total of 33 items: section one focused on the demographic information of participants and section two on the prescriptive intervention statements developed from the preceding phase one and phase two. The items (prescriptive statements) were rated using a five-point Likert scale where 1 = not at all important; 2 = slightly important; 3 = moderately important; 4 = very important; and 5 = absolutely essential. The following sub-sections of section 2 were developed based on the findings of previous studies: 1) select high quality prospective nursing students; 2) provide English language support; 3) promote class attendance; 4) provide financial support to deserving students; 5) provide university residence to undergraduate nursing students; 6) encourage family support and involvement; 7) make the undergraduate nursing programme student-friendly; 8) ensure a conducive learning and teaching environment; 9) enhance theoretical and clinical support to undergraduate nursing students at all times; 10) ensure uniformity and consistency in the process of learning and teaching as well as; 11) provide support to nurse educators and clinical

supervisors.

Consensus ( $\geq 80\%$ ) was reached on 29 of the 33-item questionnaire (Table 3: item 2-15, 16-17, 19-30, 32-33). The expert panel could not reach consensus on four prescriptive statements (Table 3: item 1, 15, 18, 31). Thematic analysis according to Braun and Clarke (2013) was used to analyse the qualitative data obtained in round 1: familiarisation with the data; generating initial codes; discovering themes/searching for themes; reviewing themes; defining and naming themes and; producing the report. This qualitative data analysis process resulted in the formulation of additional 12 prescriptive intervention statements (Table 4: items 2, 3, 4, 6, 8, 9, 10, 11, 12, 13, 14 and 16) categorised in 8 sub-sections as indicated in table 4.

*Round 2:* The second round of the Delphi study was therefore aimed at providing participants with feedback on the previous round; conducting a follow up on the 4 prescriptive statements that did not reach consensus and allowing participants to change their scores if they so wished. The participants were also asked to rate, comment and/or provide recommendations on the 12 new prescriptive statements that were developed based on the qualitative responses in round 1. This was done through a self-developed questionnaire consisting of 16 items and was administered to the panel of experts via Google forms. Participants were asked to rate the items using a five-point Likert scale as described in round 1.

*Round 3:* This round aimed at validation of the rated intervention statements to determine whether it was an accurate reflection of what the participants agreed on in rounds 1 and 2. The intervention statements that reached the desired consensus level were adapted to form the intervention that should be implemented to improve the academic performance, success and ultimately the retention of nursing students at the university identified in this study. The researcher set the agreement level at 80% consensus. All items (Table 4: item 1, 7 and 15)

which did not achieve agreement of 80% consensus were removed from the list of intervention statements. In round 3, the expert participants were asked to check the appropriateness of the intervention in relation to their rating.

## **Rigor**

Rigor was ensured by using Rebar and Macnee's (2010) four criteria of trustworthiness:

**Credibility** was ensured through providing participants with a detailed description of the background to ensure that they understood the research context that led to the development of the prescriptive intervention statements. Furthermore, member checks of data collected were done during the Delphi process by allowing the participants the opportunity to confirm the data.

**Transferability** was safeguarded by providing a detailed description of the research setting, and of the D&D model as pioneered by Thomas and Rothman (2013).

**Dependability** was ensured through the verification processes conducted by the research supervisor who ensured that the procedures used by the researcher were acceptable.

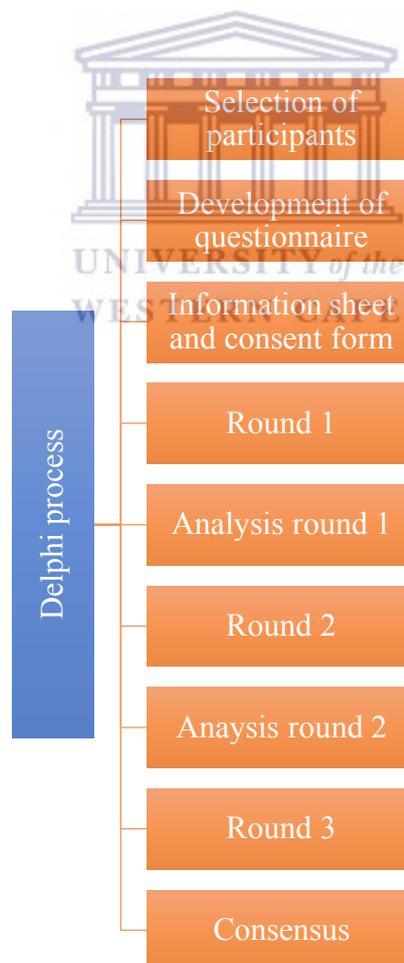
**Confirmability** was maintained through safekeeping of the completed questionnaires, transcripts and the researcher's reflective report which is available on request for audit purposes.

**Validity of the questionnaire** was ensured by means of content validity. Content validity of the questionnaire was established by the research supervisor (an expert in teaching and learning as well as in quantitative studies).

## Data Analysis

Quantitative data were analysed by means of descriptive statistical analysis using the IBM Statistical Package for Social Sciences (IBM SPSS-24). Responses were thoroughly checked for completeness and correctness. There were no missing data. Percentages (%) of agreement, median scores as a measure of central tendency including percentiles ranges which are the preferred consensus measures used in Delphi studies were calculated (Von der Gracht, 2012). Qualitative responses were analysed using the six steps of thematic analysis as identified by Braun and Clarke (2013) using Atlas, ti. Mac Version 1.6. Software.

Figure 1 provides an overview of the Delphi process applied. This figure outlines the process, which extends from the selection of the expert participants to the point where consensus was reached.



**Figure 1: Process of the Delphi study**

## Research Ethics

Permission to conduct this study was obtained from the University of the Western Cape Research Ethics Committee (Ethical Clearance Number: HS17/1/42). Written consent was obtained from all participants and all participants were informed of their right to withdraw from the study without any consequence. Confidentiality was maintained by ensuring email communication was sent to individual participants rather than through mass emails.

## RESULTS

During the first round of invitation 25 participants were invited to participate in the Delphi study and eight consented to participate. Of the 25 eligible participants, 13 (52%) participants did not respond to the request to participate while 4 (16%) declined. Only 8 (32%) participants agreed to participate. The youngest participant was 29 years old and the oldest was 52 years old. The average age was 40 years. One of the participants withheld his age two (25%) participants were male and 75% ( $n=6$ ) participants were female.

Table 2 provides the demographic information and field of expertise per participant:

**Table 2: Expert panel demographical details**

Code	Gender	Age	Experience in years	Title	Speciality
P1	Female	45	12	Mrs	Researcher, educator/lecturer
P2	Female	44	12	Dr	Researcher, educator/lecturer, learning and teaching expert
P3	Male	35	4	Mr	Educator/lecturer, registered nurse, learning and teaching expert, critical care child nurse expert
P4	Female	52	19	Mrs	Researcher, educator/lecturer, registered nurse
P5	Female	47	13	Mrs	Researcher, educator/lecturer, clinical facilitator, registered nurse, learning and teaching expert, curriculum development expert
P6	Male	n/a	10	Mr	Educator/lecturer
P7	Female	29	4	Mrs	Clinical facilitator
P8	Female	30	6	Dr	Researcher, educator/lecturer, learning and teaching expert

### Results of Delphi round 1

In the first round, 8 participants responded to a 33-item questionnaire. Of the 33 items, 29 items reached the desired consensus level ( $\geq 80\%$ ) while 4 items fell short. At the end of every section in the questionnaire and at the end of round 1, participants had the opportunity to provide recommendations which the researcher could take into consideration about the content as well as the process being undertaken. The recommendations were related to seven sections namely:

- 1) selection of high quality prospective nursing students (entry requirements for admission);
- 2) promote class attendance;
- 3) encourage family support and involvement;
- 4) make the undergraduate nursing programme student-friendly;
- 5) enhance theoretical and clinical support to undergraduate nursing students at all times;
- 6) ensure uniformity and consistency in the process of learning and teaching and;
- 7) provide support for nurse educators and clinical supervisors.

Table 3 provides information on the level of consensus from experts in round 1.

**Table 3: Level of consensus in round 1**

Grey highlights indicate statements on which consensus could not be reached.

	<b>INTERVENTION/PRESCRIPTIVE STATEMENT</b>	<b>Round 1 Consensus in % (Median)</b>	<b>Inter- quartile Range</b>
	<b>Selection of high quality prospective nursing students (entry requirements for admission)</b>		
1.	Prospective nursing students who have demonstrated an aptitude to pass physical science subject from high school or equivalent should be given first priority/preference above those without physical science subject for admission into undergraduate nursing programme.	70% (3,5)	1-5
2.	Students with no previous physical science knowledge to be identified and followed up closely and be given the necessary support.	85% (4)	3-5
3.	Provide a prerequisite physical science course to prepare students that are provisionally accepted into the undergraduate nursing programme to ensure that they are better prepared for the mainstream physical science module.	80% (4)	3-5
4.	Compulsory tutoring session for students with no physical science backgrounds or those that obtained a low score.	85% (4)	3-5
5.	Prospective nursing students who indicate nursing as first choice on the application form given first priority on admission above those who indicate nursing as second or third choice of study.	90% (5)	3-5
	<b>Provide English language support (English for academic use)</b>		
6.	A compulsory English academic development module should be implemented for first-year undergraduate nursing students.	85% (4.5)	3-5

<b>Promote class attendance</b>		
7. Students support services should provide all students with regular academic, psychological and emotional support to improve motivation.	85% (4)	3-5
8. Student class attendance should be made compulsory.	87.5% (5)	3-5
9. The school of nursing should provide a platform for peer mentoring, i.e. provide a platform for high achievers to share their experience and guidance to with low performing students.	82.5% (4)	3-5
10. The school of nursing should provide a platform for successful graduates who are role models in the field of nursing to share their success and to inform current students of the possible prospects within the profession.	87.5% (4.5)	4-5
<b>Provide financial support to deserving students</b>		
11. A comprehensive financial needs assessment should be conducted: needy students and deserving students should be provided with customized funding according to their individual needs.	88.6% (4)	4-5
12. The institution should consider ways in which they can reduce the financial burden on students; through targeted additional financial support (i.e. scholarships, hardship funds, subsidised accommodation or other support) and by providing assistance to access financial aid or contingency funds.	85.7% (4)	4-5
13. The institution should provide paid student assistant positions such as peer tutoring/mentoring and research assistant positions for needy students that perform well academically.	85.7% (4)	3-5
14. The school of nursing should consider approaching companies and businesses for sponsorships to provide food drives (feeding schemes) for needy students.	82.5% (4)	3-5
<b>Provide university residence to undergraduate nursing students</b>		
15. University residence should be available to all undergraduate nursing students.	70% (3.5)	1-5

16. Ensure reliable transport to and from campus/clinical placement for students residing in off-campus accommodation.	80% (4)	2-5
<b>Encourage family support and involvement</b>		
17. Family should allow students time to engage with his/her academic responsibilities.	92.5% (5)	3-5
<b>Make the undergraduate nursing programme student friendly</b>		
18. The required clinical hours should be split across the programme to allow for 6-8 hours clinical shift per day instead of 12-hour clinical shifts.	60% (3)	1-4
19. Timetable arrangement should take into consideration both the clinical and theoretical component of the undergraduate nursing programme.	87.5% (4.5)	3-5
20. Distribution of modules across the undergraduate nursing programme should take into account the relationship between modules, module content and complexity and clinical requirements.	87.5% (4.5)	3-5
21. Assessment planning should be done in advance and students should be provided with the assessment plan (e.g. date, time, content to be covered) prior to commencing with the module that is to be studied.	92.5% (5)	4-5
22. The institution should offer academic support and development to improve students study skills and to ensure deep learning takes place.	92.5% (5)	3-5
<b>Ensure a conducive learning and teaching environment</b>		
23. The school of nursing should ensure the provision of a physical environment that promotes physical comfort in classrooms (adequate space, enough chairs to sit, minimal noise, adequate ventilation and temperature regulation).	95% (5)	4-5
24. The school of nursing should ensure the provision of a physical environment that promotes physical comfort in skills laboratories (adequate space and enough chairs to sit, adequate ventilation and temperature regulation).	95% (5)	4-5

25. The institution should ensure that students have reliable access to digital resources such as secure WIFI access points, fully functional computer labs that can accommodate the number of undergraduate nursing students.	92.5% (5)	3-5
<b>Enhance theoretical and clinical support to undergraduate nursing students at all times</b>		
26. The school of nursing should ensure that clinical supervisors/preceptors are always available and visible to all undergraduate nursing students in clinical placements to ensure clinical support.	95% (5)	4-5
27. Professional nurses in the hospital should provide clinical support for undergraduate nursing students.	92.5% (5)	2-5
<b>Ensure uniformity and consistency in the process of learning and teaching</b>		
28. Regular workshops to promote innovative learning and teaching strategies should be provided to all nurse educators and clinical supervisors.	97.5% (5)	4-5
29. Nurse educators and clinical supervisors should receive appropriate and ongoing professional training and development to ensure standardization of teaching practices.	85% (4)	3-5
<b>Provide support for nurse educators and clinical supervisors</b>		
30. Nurse educators should be allowed to teach or facilitate modules based on their experience and area of interest and specialization.	82.5% (4)	3-5
31. The intake (selection target) of nursing students should be decreased to reduce the workload.	55% (3)	1-4
32. Workload for nurse educators and clinical supervisors should be reviewed on a regular basis to ensure that work is distributed fairly.	85% (4.5)	2-5
33. More administrative support such as, marking and research assistance should be provided to relieve nurse educators.	80% (4.5)	1-5

## Qualitative responses from experts

### a) Selection of high-quality prospective nursing students (entry requirements for admission)

Five experts gave recommendations and suggestions on the selection and recruitment of prospective nursing students. The experts shared the sentiment that recruitment of prospective undergraduate nursing students should be done while they are still in high school.

One expert stated:

*“Start recruitment while they are still in high school. Have the current nursing students and staff conduct activities at high school to provide role model for the prospective students.” (P2)*

Another expert said:

*“I think it is very essential for current nurses/ registered nurses to be mindful of how they present and interact (themselves) and interact with the public. They are the face of nursing and builds the professional reputation. Secondly, I think a more intentional focus should be geared toward awareness at high schools (open days) regarding the nursing profession, and professional pathways one can explore on completion of the BNurs degree. I still think that nursing is not well represented and many misconceptions regarding the work that registered nurses perform need to be clarified.” (P3)*

**Summary statement:** Based on the frequency in expert suggestions, the researcher concluded that it is essential that recruitment of nursing students should begin at secondary school level as well as during university open days with the hope of attracting high quality prospective students to the nursing profession.

### **b) Promote class attendance**

Seven experts provided comments and suggestions on how class attendance can be enhanced. The two main suggestions that emerged from this section were that performance and class attendance should be rewarded.

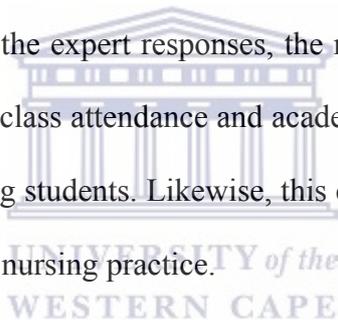
One expert said:

*“...Give certificates of full attendance to students who attend all the time.” (P2)*

While another expert believes that:

*“...Merit awards at the University can also promote positive competition amongst learners and establish a good climate for learning.” (P3)*

**Summary statement:** Based on the expert responses, the researcher concluded that positive reinforcement such as rewarding class attendance and academic performance can enhance the overall class attendance of nursing students. Likewise, this could enhance the development of professionalism, which is core to nursing practice.



### **c) Encourage family support and involvement**

Four experts provided comments and suggestions in this section. The experts agreed that family support plays a vital role in the academic performance, success and ultimately retention of nursing students. The main theme that emerged from the responses emphasizes the importance of family involvement in the academic growth of students.

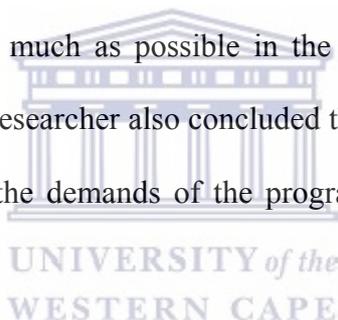
These are some comments from the experts:

*“Family should provide a good learning environment.” (P7)*

*“have open days for staff members to be able to share with the parents about the requirements of the course” (P2)*

*“It is of paramount importance that there should always be communication amongst the student and the family regarding his/her studies and all related activities. However, family time is also important as it enhances bonding and provides additional support (a sense of belonging) to the student. Nursing is a very demanding profession, with the focus on theory (lectures) and practice (clinical hours). Recommendation: Student to publish and provide family members weekly/monthly study schedules regarding academic activities. This would empower family members to participate and providing support to the student. It also gives them (the family) a sense of inclusiveness.” (P3)*

**Summary statement:** Based on the responses provided the researcher concluded that family members should be involved as much as possible in the school activities, which includes inviting them to open days. The researcher also concluded that the nursing school plays a role in providing information about the demands of the programme and the students’ need for family support.



**d) Make the undergraduate nursing programme student friendly**

Seven experts provided comments and suggestions on how to ensure a “friendly” undergraduate nursing programme taking cognisance of the current generation of students in the classrooms. The experts agreed on incorporating innovative techniques in learning and teaching of nursing students. One theme that emerged from this section was that online teaching should be strengthened.

These are some comments from the experts:

*“Administrative and technological support should be strengthened.” (P4)*

*“Regular online activities to strengthen the support.” (P2)*

*“Online tutoring should be available to students.” (P7)*

**Summary statement:** Based on the expert responses, the researcher concluded that promoting online teaching and tutorials for all lessons can play a vital role in improving the academic performance of undergraduate nursing students.

**e) Enhance theoretical and clinical support to undergraduate nursing students at all times**

Eight experts provided suggestions on how theoretical and clinical support can be provided to improve the academic performance and success of undergraduates nursing students. Five important intervention statements reflected the implementation of a variety of teaching strategies, effective use of technology in the classroom, course evaluation, and adequate support for students in the clinical setting as well as preceptor training to registered nurses involved in the training of undergraduate nursing students.

These are some comments from the experts:

*“A psychologically safe teaching and learning environment is essential.” (P4)*

*“The incorporation of various teaching strategies for various learners (e.g. Kinaesthetic, Visual, Auditory), also to incorporate technology in the classroom, since health fraternities are evolving in technology.” (P3)*

*“Effective and appropriate use of electronic devices in classrooms and practice areas should be promoted. Google searches of content. Embrace the benefits of electronic teaching and learning equipment.” (P6)*

*“Firstly, consider identifying registered nurses in wards, where students are placed, that are eager and willing to provide support to these students. Secondly, empower these registered nurses by providing them with support e.g. preceptor training or clinical teaching courses.” (P8)*

*“Create a scholarly environment for teaching and learning of nurses. Also in clinical environments. Empower nurses with inquiring minds and strong drive to discover new ways and new information. No longer just following orders but awareness of autonomy, responsibility and patient advocacy.” (P5)*

*“There should be communication between nursing staff and clinical supervisor regarding the learning needs of each individual.” (P7)*

**Summary statement:** Based on the expert responses the researcher concluded that the application of various teaching strategies, effective use of technology in the classroom, adequate support for students in the clinical setting, effective use of course evaluation to improve learning and teaching, as well as preceptor training for registered nurses involved in the training of undergraduate nursing students should be viewed as essential in enhancing theoretical and clinical support for nursing students.

**f) Ensure uniformity and consistency in the process of learning and teaching**

Two experts provided responses in this section. The main recommendation that emerged from the responses was that a student-centred approach should be implemented to deal with individual learning needs of students.

One expert said:

*“...standardization of teaching and learning practice should no longer be the focus, more a student-centred approach. Awareness that all students are different and unique and should thus become the focus/ object of teaching and learning. Equip educators with a variety of teaching strategies and educational tools to support any learning style in any teaching and learning encounter. Encounters can happen anywhere - and should thus have an impact on the student. Teaching and learning expectations to become the new norm. Students to have confidence that any educator will be able to assist them in their learning needs.” (P5)*



**Summary statement:** Based on this response, the researcher concluded that a student-centred approach to learning and teaching should be viewed as pivotal in improving the academic performance and success of nursing students.

**g) Provide support for nurse educators and clinical supervisors**

Two experts provided responses in this section. The recommendation addressed the importance of active involvement by the head of the department in supporting nurse educators so that they perform their duties with high levels of commitment.

One expert reported:

*“Head of Departments to consult with nurse educators on a regular basis to establish areas where support is needed. Also, having a career path for nurse education at educational institutions is of paramount importance.” (P3)*

**Summary statement:** Based on the recommendation, the researcher concluded that the school management and particularly the head of the school of nursing should provide necessary support to nurse educators and ensure a favourable work environment.

## **Results of Delphi round 2**

In the second round, eight participants responded to a 16-item questionnaire which consisted of four prescriptive statements from round one and 12 new prescriptive statements that were developed based on the qualitative response in round 1. Of the 16 items that were distributed, 13 items reached the desired consensus level ( $\geq 80\%$ ) while three items (1, 22 and 42) fell short and were excluded from the prescriptive intervention statements. Of the 4 prescriptive intervention statements that were recirculated in round 2, only one statement (Table 3 - item 5) reached expert consensus ( $\geq 80\%$ ). The remaining 12 new items achieved the desired agreement level set for this study. At the end of round 2, a total of 42 out of 45 items reached the desired consensus level ( $\geq 80\%$ ) set for the study. Table 4 provides information on the level of consensus from experts in round 2.

**Table 4: Level of consensus in round 2**

Grey highlights indicate statements on which consensus could not be reached.

	INTERVENTION/PRESCRIPTIVE STATEMENT	Round 2 Consensus in % (Median)	Inter- quartile Range
	<b>Selection of high-quality prospective nursing students (entry requirements for admission)</b>		
1.	Prospective nursing students who have demonstrated aptitude by passing physical science at high school or equivalent should be given priority/preference over those who did not do or pass physical science for admission into undergraduate nursing programme.	54.3% (3)	2-4
2.	Recruitment of undergraduate nursing students should commence in high school. Current nursing students and educators should conduct activities, motivational talks and provide role models at schools.	88.7% (4)	4-5
	<b>Promote class attendance</b>		
3.	Annual merit awards at the university faculty and/or departmental level should be implemented to promote positive competition among nursing students.	88.6% (4)	4-5
4.	Reward for class attendance: students with 100% class attendance should be awarded a certificate of full attendance.	80% (4)	2-5
	<b>Provide university residence to undergraduate nursing students</b>		
5.	University residence should be available to all undergraduate nursing students.	80% (4)	3-5
	<b>Encourage family support and involvement</b>		

6. Invite parents and family members to open days and programme orientation to share with them the challenges of the programme and what role they can play in ensuring satisfactory academic performance and success among undergraduate nursing students.	86.7% (4)	3-5
<b>Make the undergraduate nursing programme student friendly</b>		
7. The required clinical hours should be split across the programme to allow for 6-8hour clinical shift per day instead of 12-hour clinical shifts.	60% (4)	1-4
8. Online tutoring should be available to students.	94.3% (5)	4-5
<b>Enhance theoretical and clinical support to undergraduate nursing students at all times</b>		
9. Nurse educators should include a variety of teaching strategies to accommodate diverse learning styles (e.g. kinaesthetic, visual, and auditory) to promote interactive activities in class.	91.4% (5)	3-5
10. Nurse educators should incorporate effective and appropriate use of technology (electronic devices) in the classroom.	91.4% (5)	4-5
11. Provide nurse educators with the opportunity to consult student's course evaluation at the end of every module and make the relevant and appropriate changes where necessary.	94.3% (5)	4-5
12. Preceptor training or clinical teaching courses should be provided to registered nurses based in the hospitals.	80% (4)	1-5
13. Encourage regular communication between nursing staff and clinical supervisor regarding the learning needs of each individual students.	94.3% (5)	4-5
<b>Ensure uniformity and consistency in the process of learning and teaching</b>		
14. Promote a more student-centred approach where students are allowed to be different and unique while focusing on the objectives to be achieved.	91.4% (5)	4-5

Provide support for nurse educators and clinical supervisors		
15. The intake (selection target) of nursing students should be decreased to reduce the workload.	68.6 (4)	1-4
16. Head of Departments (HoDs) should consult with nurse educators on a regular basis to establish areas where support is needed.	97.1% (5)	4-5



### **Round 3: Final round**

In round 3, a summary of the results was circulated via email to the study participants to review their agreement level and to confirm if the final product reflects their views. All eight experts that participated responded in round 3. The experts reported that they were satisfied with their responses and the agreement level.

## **THE DESIGNED INTERVENTION**

Given the phenomenon of unsatisfactory academic performance and attrition, designing an effective and innovative intervention to improve the academic performance, success and ultimately the retention of undergraduate nursing students should be the utmost priority for all involved. An effective intervention should have multi-components to ensure that it is integrated. The intervention was formed by incorporating only the prescriptive statements that reached the desired consensus level ( $\geq 80\%$ ) in round 1 to 3. Text box 1 and figure 2 below summarise the intervention that should be implemented to ensure improved academic performance and success and the retention of undergraduate nursing students at the identified school of nursing.

### **Text box 1: The designed intervention**

#### **1. Internal context with input from the school context:**

##### **1.1. Provide financial support to deserving students**

- A comprehensive financial needs assessment should be conducted: needy students and deserving students should be provided with customised funding according to their individual needs.
- The institution should consider ways in which the financial burden on students can be reduced through targeted additional financial support (i.e. Scholarships, hardship funds,

subsidised accommodation) and by providing assistance to access financial aid or contingency funds.

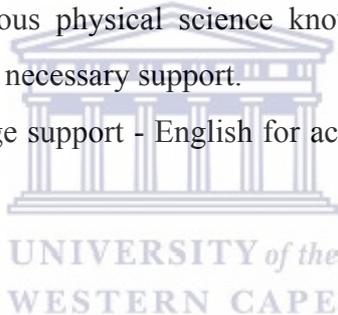
- The institution should provide paid student assistant positions such as peer tutoring/mentoring and research assistant positions to needy students that perform well academically.
- The school of nursing should consider approaching companies and businesses for sponsorship to provide food drives (feeding schemes) for needy students.

### **1.2 Provide university residence to undergraduate nursing students**

- University residence should be available to all undergraduate nursing students.
- Ensure reliable transport to and from campus/clinical placement for students residing in off-campus accommodation.

### **1.3 Academic support**

- Students with no previous physical science knowledge should be identified, closely monitored and given the necessary support.
- Provide English language support - English for academic development as a compulsory module at first-year.



## **2. Family context**

### **2.1 Encourage family support and involvement**

- Family should allow students time to engage with his/her academic responsibilities.
- Invite parents and family members to open days and programme orientations to share with them the challenges of the programme and what role they can play in ensuring satisfactory academic performance and success among undergraduate nursing students.

## **3. School context**

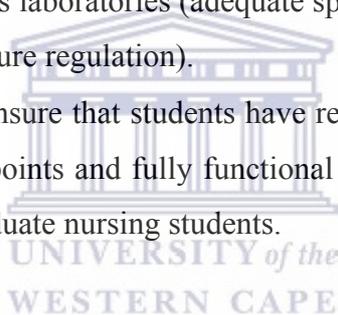
### **3.1 Selection of high-quality prospective nursing students: Admission requirements**

- Provide a prerequisite physical science module to prepare students who are provisionally accepted into the undergraduate nursing programme to ensure that they are better prepared for the mainstream physical science module.

- Compulsory tutoring sessions for students with no physical science backgrounds or to those who obtained a low score.
- Prospective nursing students who indicate nursing as their first choice on the application form should be given priority on admission over those who indicate nursing as second or third choice of study.
- Recruitment of undergraduate nursing students to start in high school: Current nursing students and educators should conduct activities, motivational talks and provide role modelling in schools.

### **3.2 Ensure a conducive learning and teaching environment**

- The school of nursing should ensure provision of a physical environment that promotes physical comfort in classrooms (adequate space, enough chairs to sit, minimal noise, adequate ventilation and temperature regulation).
- The school of nursing should ensure provision of the physical environment that promotes physical comfort in skills laboratories (adequate space and enough chairs to sit, adequate ventilation and temperature regulation).
- The institution should ensure that students have reliable access to digital resources such as secure WIFI access points and fully functional computer labs that can accommodate the number of undergraduate nursing students.

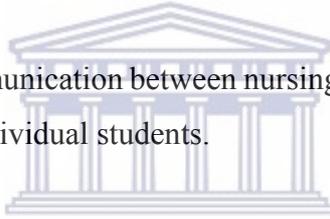


### **3.3 Make the undergraduate nursing programme student friendly**

- Timetable arrangement should take into consideration both the clinical and theoretical components of the undergraduate nursing programme.
- Distribution of modules across the undergraduate nursing programme should be done taking into account the relationship between modules, the module content, complexity of each module, and the clinical requirements.
- Assessment planning should be done in advance and students should be provided with the assessment plan (e.g. date, time, content to be covered) prior to commencing with the module that is to be studied.
- The institution should offer academic support and development to improve students study skills and to ensure deep learning takes place. Online tutoring should be available to students.

### **3.4 Enhance theoretical and clinical support to undergraduate nursing students**

- The school of nursing should ensure that clinical supervisors/preceptors are available and visible to all undergraduate nursing students in clinical placements at all times to ensure clinical support.
- Professional nurses in the hospital should provide clinical support for undergraduate nursing students
- Nurse educators should include a variety of teaching strategies to accommodate diverse learning styles (e.g. kinaesthetic, visual, auditory) and to promote interactive activities in class.
- Nurse educators should incorporate the effective and appropriate use of technology (electronic devices) in the classroom.
- Provide nurse educators with the opportunity to consult student's course evaluation at the end of every module and make the relevant and appropriate changes where necessary.
- Preceptor training or clinical teaching courses should be provided to registered nurses based in the hospitals.
- Encourage regular communication between nursing staff and clinical supervisor regarding the learning needs of individual students.



### **3.5 Ensure uniformity and consistency in the process of learning and teaching**

- Regular workshops to promote innovative learning and teaching strategies should be provided to all nurse educators and clinical supervisors.
- Nurse educators and clinical supervisors should receive appropriate and ongoing professional training and development to ensure standardisation of teaching practices.
- Promote a more student-centred approach where students are allowed to be different and unique while focusing on the objectives to be achieved.

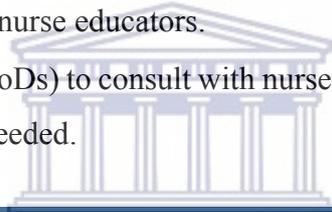
### **3.6 Promote class attendance**

- Student support services should provide all students with regular academic, psychological and emotional support to improve motivation.
- Student's class attendance should be made compulsory.
- The school of nursing should provide a platform for peer mentoring. i.e. Providing a platform for high achievers to share their experience and guidance with underperforming students.

- The school of nursing should provide a platform for graduates who are successful and are role models in the field of nursing to share their success and to inform current students of the prospects within the profession.
- Annual merit awards at the university faculty and/or departmental level should be implemented to promote positive competition among nursing students.
- Reward class attendance: Students with 100% class attendance should be awarded a certificate of full attendance.

### **3.7 Provide support for nurse educators and clinical supervisors**

- Nurse educators should be allowed to teach or facilitate modules based on their experience and area of interest and specialisation
- Workload for nurse educators and clinical supervisors should be reviewed on a regular basis to ensure that work is distributed equally
- More administrative support such as marking and research assistance should be provided to relieve the burden on nurse educators.
- Head of Departments (HoDs) to consult with nurse educators on a regular basis to identify areas where support is needed.



UNIVERSITY *of the*  
WESTERN CAPE

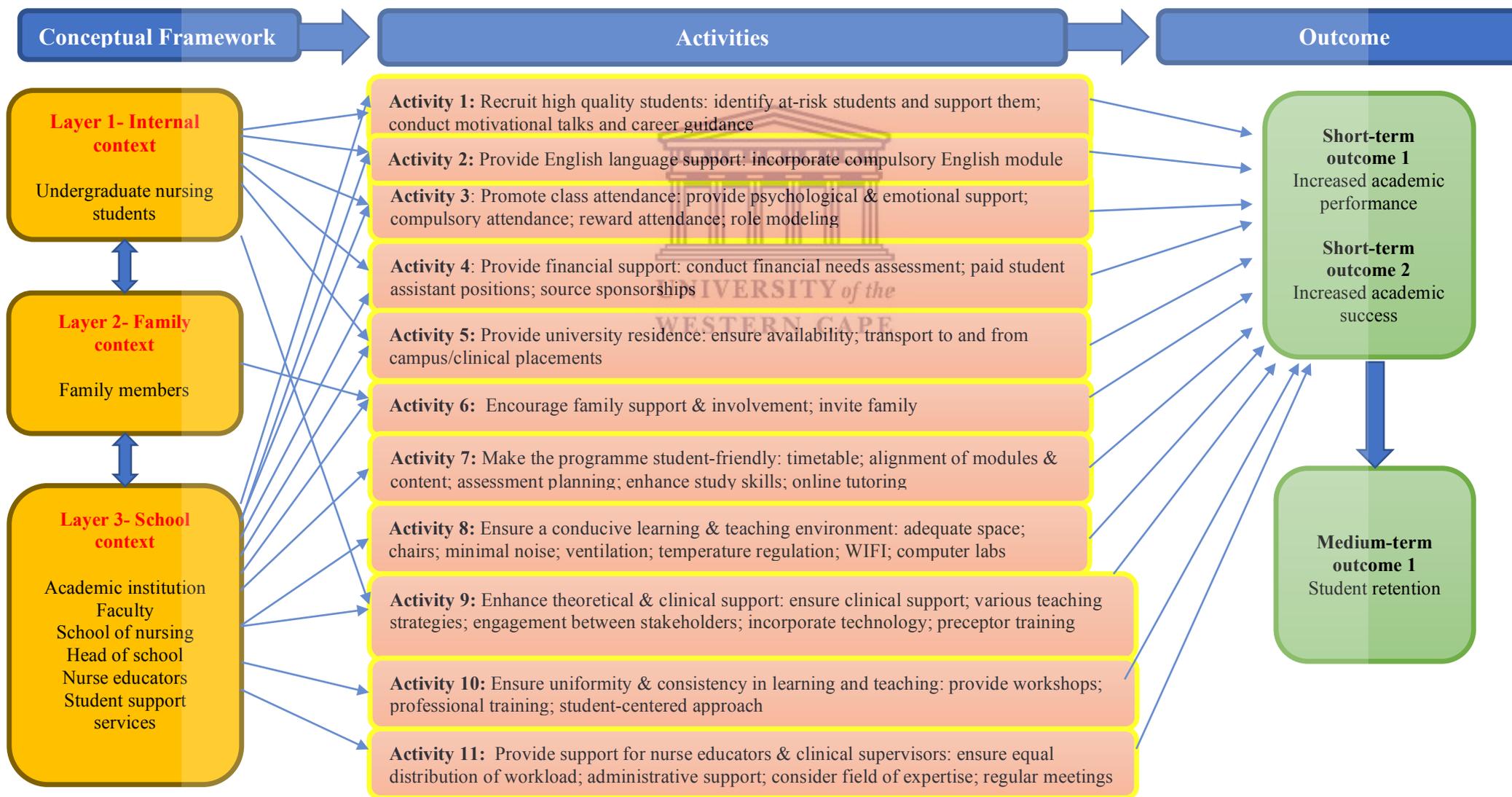


Figure 2: The designed intervention

## DISCUSSION

Overall, a total of 42 items gained agreement based on the consensus level ( $\geq 80\%$ ), median values, and interquartile ranges (Table 3 and Table 4). This intervention can be viewed as an initial support for nursing students, nurse educators as well as the school of nursing to assist in dealing with the challenges that have a negative impact on the academic performance and success of nursing students. The findings emphasise that the intervention towards improving the academic performance and success among nursing students is a phenomenon that is influenced by multiple layers of context.

Shortlisting of high-quality prospective students is a goal of most HEIs. However, literature is not clear on what specific characteristics or combination of characteristics define a high-quality student. Several studies focused on the student profile characteristics such as the student's demographics, affective factors and academic factors (Abele, Penprase, & Ternes, 2013; Alshammari, Saguban, Pasay-an, Altheban, & Al-Shammari, 2017; Mthimunye et al., 2018). Therefore, it is important that the selection of prospective nursing students should not only focus on the applicant meeting the minimum academic requirements, but the prospective nursing students who indicate nursing as their first choice should be given priority on admission into the undergraduate nursing programme as agreed on by the experts who participated in this study.

While there are a few studies contradicting English language support for academic use, many studies provide evidence of positive results (Timer & Clauson, 2011; Everett, Salamonson, Trajkovski & Fernandez, 2013; Glew, Hillege, Salamonson, Dixon, Good & Lombardo, 2015). However, the experts in this study agreed on the need to provide English language support to undergraduate nursing student in an attempt to improve their academic performance. This

finding is supported by a quantitative study conducted by Baik and Grieg (2009) with the aim of developing specific language academic study skills revealed that the programme had a positive impact on the student's academic performance as evidenced by the improved academic performance of those students who attended regularly.

In the current study experts agreed that improving class attendance would have a positive influence on the academic performance of students. The findings are consistent with previous studies such as a meta-analysis conducted by Credé, Roch and Kieszczynka (2010) which revealed that class attendance has a stronger positive correlation with academic performance than any other known predictor variables.

Economics is one of the biggest challenges that has a direct or indirect negative impact on students (Roderick et al., 2008; Roderick, Nagaoka, & Coca, 2009). Goldrick-Rab, Harris and Trostel (2009) and Hossler, Ziskin, Gross, Kim and Cekic (2009) compared the academic performance of students who received financial aid with those that did not. The results revealed that non-recipients of financial aid are likely to produce unsatisfactory academic results. The results of this study suggest that financial support is vitally important when endeavouring to achieve satisfactory academic performance and success.

Literature further reveals the effects of educators on students' academic performance (Dale, Leland, & Dale, 2013). Although much is known about these effects, they seem to be underrated, given some of the conditions educators find themselves working under including a lack of professional development opportunities (Calcagno, Bailey, Jenkins, Kienzl, & Leinbach, 2008; Tack, Valcke, Rots, Struyven & Vanderlinde, 2018). This study identified that providing specific support to nurse educators and clinical supervisors is vital in ensuring

satisfactory academic performance of nursing students. Further findings of this study revealed an agreement of the experts that enhancing theoretical and clinical support as well as ensuring uniformity and consistency in the process of learning and teaching are crucial measures in ensuring satisfactory academic performance and success among students. A study conducted by Dale et al. (2013), aimed at exploring “what bachelor students’ in nursing perceived to be important for having good learning experiences in clinical studies”, highlighted the importance of professional nurse competence and qualifications as a pivotal requirement for a good clinical supervisor. This is in line with the findings of this study and suggests that the undergraduate nursing programme should employ adequate staff to support nursing students during their clinical placements.

Previous studies reported that the learning and teaching environment has an influence on the students’ academic performance (Arzuman, Yusoff, & Chit, 2010; Hamid, Faroukh & Mohammadhosein, 2013; Kohli & Dhaliwal, 2013). In the current study, the experts agreed that a favourable physical learning and teaching environment must be in place for students to succeed. Arzuman et al. (2010) have advocated that students’ contentment with their learning environment is associated with the depth and quality of learning. Furthermore, the improvement of the learning environment is likely to result in satisfactory academic performance of nursing students (Al Ayed & Sheik, 2008; Arzuman et al., 2010; Hamid et al., 2013).

Literature has not been conclusive on the effect of university residence on the academic performance of nursing students. However, due to the benefits that come with residing in university residence such as 24-hour access to university resources, it would be highly probable that students who reside in university residence would yield satisfactory results as compared

to their counterparts who reside off-campus. Previous studies such as those conducted by Paltridge, Mayson and Schapper (2010) and Snyder, Kras, Bressel, Reeve and Dilworth (2011) found that there is a significantly positive correlation between students living in university residence and academic performance. Experts in the current study concur that the institution should ensure that nursing students are housed in university residences. These results, however, should be implemented with caution as previous research has revealed that students living in university accommodation are at risk of suffering from stress related conditions due to a lack of family support (Magerman, 2011). Similarly, the findings of the current study revealed that family support and involvement should be encouraged.

## **CONCLUSION**

The purpose of this paper was to develop and validate an intervention towards improving the academic performance and success among nursing students through a consultative process with a panel of experts. The prescriptive intervention statements highlighted that besides the need for intrinsic motivation and readiness for the programme, students have multi-level needs for support from the family and the higher education institution. In addition, the prescriptive intervention statements suggest that the higher education institution as well as the school of nursing are responsible for ensuring the selection of quality prospective students, class attendance, university residence for nursing students, a student-friendly programme, uniformity and consistence in learning and teaching as well as providing support to the educators. The identified prescriptive intervention statements may help promote a better understanding of the factors that place students at risk of poor academic performance. Moreover, it is hoped that this study will serve as the basis for future studies aimed at assisting higher education institutions and schools of nursing to address the struggle with the

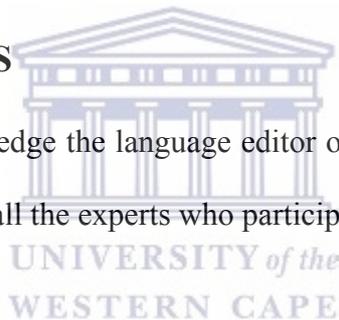
unsatisfactory academic performance of nursing students in South Africa. Further exploration should be conducted to appraise the effectiveness of these prescriptive intervention statements.

## **STUDY LIMITATIONS**

As with many Delphi studies, the shortfall of this study is that the sample size was smaller than anticipated and thus the findings may not be generalizable beyond the context of this study. For future studies the researcher recommends a larger sample as well as the involvement of other stakeholders such as nursing students, where possible, to ensure the reliability of the finding. However, the foundation of the intervention was grounded on the empirical findings of preceding studies.

## **ACKNOWLEDGEMENTS**

The authors will like to acknowledge the language editor of the paper Mr Gareth Lowe. The authors would also like to thank all the experts who participated in the study.



## **REFERENCES**

- Abele, C., Penprase, B., & Ternes, R. (2013). A closer look at academic probation and attrition: What courses are predictive of nursing student success?. *Nurse Education Today*, 33(3), 258-261.
- Al Ayed, I. H., & Sheik, S. A. (2008). Assessment of the educational environment at the College of Medicine of King Saud University, Riyadh.
- Alshammari, F., Saguban, R., Pasay-an, E., Altheban, A., & Al-Shammari, L. (2017). Factors affecting the academic performance of student nurses: A cross-sectional study. *Journal of Nursing Education and Practice*, 8(1), 60.

- Arzuman, H., Yusoff, M. S. B., & Chit, S. P. (2010). Big sib students' perceptions of the educational environment at the school of medical sciences, Universiti Sains Malaysia, using Dundee Ready Educational Environment Measure (DREEM) Inventory. *The Malaysian journal of medical sciences: MJMS*, 17(3), 40.
- Baik, C., & Greig, J. (2009). Improving the academic outcomes of undergraduate ESL students: the case for discipline-based academic skills programs. *Higher Education Research & Development*, 28(4), 401-416.
- Beauvais, A. M., Stewart, J. G., DeNisco, S., & Beauvais, J. E. (2014). Factors related to academic success among nursing students: A descriptive correlational research study. *Nurse Education Today*, 34(6), 918-923.
- Boulkedid, R., Abdoul, H., Loustau, M., Sibony, O., & Alberti, C. (2011). Using and reporting the Delphi method for selecting healthcare quality indicators: A systematic review. *PloS One*, 6(6), e20476.
- Braun, V., & Clarke, V. (2013). *Successful qualitative research: A practical guide for beginners*. London: Sage Publications Ltd.
- Buerhaus, P.I., Auerbach, D.I., & Staiger, D.O. (2009). The recent surge in nurse employment: Causes and implications. *Health Affairs*, 28(4): w657–w668.
- Calcagno, J. C., Bailey, T., Jenkins, D., Kienzl, G., & Leinbach, T. (2008). Community college student success: What institutional characteristics make a difference?. *Economics of Education review*, 27(6), 632-645.
- Council on Higher Education (CHE). (2010). *Higher Education Monitor. Access and throughput in South African Higher Education: Three case studies*. Pretoria: Council on Higher Education.



- Credé, M., Roch, S. G., & Kieszczynka, U. M. (2010). Class attendance in college: A meta-analytic review of the relationship of class attendance with grades and student characteristics. *Review of Educational Research, 80*(2), 272-295.
- Dale, B., Leland, A., & Dale, J. G. (2013). What factors facilitate good learning experience in clinical studies in nursing: Bachelor students' perceptions. *ISRN Nursing, 2013*, 1-7. doi: <http://dx.doi.org/10.1155/2013/628679>
- Dante, A., Valoppi, G., Saiani, L., & Palese, A. (2011). Factors associated with nursing students' academic success or failure: A retrospective Italian prescriptiv study. *Nurse Education Today, 31*(1), 59-64.
- Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics, 5*(1), 1-4.
- Everett, B., Salamonson, Y., Trajkovski, S., & Fernandez, R. (2013). Demographic and academic-related differences between standard-entry and graduate-entry nursing students: A prospective correlational survey. *Nurse Education Today, 33*(7), 709-713.
- Fowler, J., & Norrie, P. (2009). Development of an attrition risk prediction tool. *British Journal of Nursing, 18*(19), 1194-1200.
- Hamid, B., Faroukh, A., & Mohammadhosein, B. (2013). Nursing students' perceptions of their educational environment based on DREEM model in an Iranian university. *The Malaysian journal of medical sciences: MJMS, 20*(4), 56.
- Hasson, F., & Keeney, S. (2011). Enhancing rigour in the Delphi technique research. *Technological Forecasting and Social Change, 78*(9), 1695-1704.
- Jeffreys, M. R. (2012a). *Nursing student retention: Understanding the process and making a difference* Springer Publishing Company.
- Jeffreys, M. R. (2012b). *Nursing student retention: Understanding the process and making a difference*. New York City: Springer Publishing Company.

Jeptha, I.D. (2008). Throughput rate of nursing students in the Faculty of Health and Wellness Sciences at a university of technology (Masters dissertation).

Glew, P. J., Hillege, S. P., Salamonson, Y., Dixon, K., Good, A., & Lombardo, L. (2015). Predictive validity of the post-enrolment English language assessment tool for commencing undergraduate nursing students. *Nurse education today*, 35(12), 1142-1147.

Goldrick-Rab, S., Kelchen, R., Harris, D. N., & Benson, J. (2016). Reducing income inequality in educational attainment: Experimental evidence on the impact of financial aid on college completion. *American Journal of Sociology*, 121(6), 1762-1817.

Goldrick-Rab, S., Harris, D., & Trotse, P. 2009. Why financial aid matters for college success: Toward a new interdisciplinary perspectives. *Higher Education. Handbook of Theory and Research*, 24, 1-46.

Hossler, D., Ziskin, M., Gross, J. P., Kim, S., & Cekic, O. (2009). Student aid and its role in encouraging persistence. In *Higher education: Handbook of theory and research* (pp. 389-425). Springer, Dordrecht.

Keeney, S., McKenna, H., & Hasson, F. (2010). *The Delphi technique in nursing and health research*. Chichester, West Sussex, UK: Wiley-Blackwell Sons Ltd.

Kohli, V., & Dhaliwal, U. (2013). Medical students' perception of the educational environment in a medical college in India: a cross-sectional study using the Dundee Ready Education Environment questionnaire. *Journal of educational evaluation for health professions*, 10.

Magerman, Y. N. (2011). *Academic factors affecting learning at a nursing college in the Western Cape* (Masters dissertation, Stellenbosch: University of Stellenbosch).

McLachlan, M. E. (2010). *Experiences Influencing the Academic Performances of 1<sup>st</sup> Year Nursing Students at the Western Cape College of Nursing, South Africa, during 2008*.

Mthimunye, K. D. T. (2015). Predictors of academic performance and throughput among second-year nursing students at a university in the Western Cape. (Masters dissertation, University of the Western Cape).

Mthimunye, K. D. T., Daniels, F. M., & Pedro, A. (2018). Predictors of academic performance among second-year nursing students at a university in the Western Cape. *South African Journal of Higher Education*, 32(1), 192-215.

O'Donnell, H. (2008). The emotional impact of nursing student attrition rates. *British Journal of Nursing*, 17(12), 745-754.

Paltridge, T., Mayson, S., & Schapper, J. (2010). The contribution of university accommodation to international student security. *Journal of Higher Education Policy and Management*, 32(4), 353-364.

Perna, L. W., & Thomas, S. L. (2006). A framework for reducing the college success gap and promoting success for all. Retrieved from National Center for Educational Statistics website: [http://nces.ed.gov/ipeds/data/ipedsdatatools/2012/ipeds\\_data\\_query.asp?table=100&year=2012](http://nces.ed.gov/ipeds/data/ipedsdatatools/2012/ipeds_data_query.asp?table=100&year=2012). *ExecSumm. pdf*.

Rebar, C. L., & Macnee, C. L. (2010). *Understanding nursing research: Reading and using research in evidence-based practice*. Philadelphia, PA: Lippincott Williams & Wilkins.

Roderick, M., Nagaoka, J., & Coca, V. (2009). College readiness for all: The challenge for urban high schools. *The future of children*, 185-210.

Roderick, M., Nagaoka, J., Coca, V., Moeller, E., Roddie, K., Gilliam, J., & Patton, D. (2008). From high school to the future: Potholes on the road to college. Chicago, IL: Consortium on Chicago School Research at the University of Chicago.

Rodgers, S., Stenhouse, R., McCreadie, M., & Small, P. (2013). Recruitment, selection and retention of nursing and midwifery students in Scottish Universities. *Nurse Education Today*, 33(11), 1301-1310.

- Roos, E., Fichardt, A. E., MacKenzie, M. J., & Raubenheimer, J. (2016). Attrition of undergraduate nursing students at selected South African universities. *curationis*, 39(1), 1-8.
- South African Nursing Council. 2017. South African Nursing Council statistics. Accessed 13 April 2017. <http://www.sanc.co.za/stats.htm>.
- Snyder, E. M., Kras, J. M., Bressel, E., Reeve, E. M., & Dilworth, V. (2011). The Relationship of Residence to Academic Performance in NCAA Division I Freshman Athletes. *Journal of issues in intercollegiate athletics*, 4, 105-119.
- Staiger, D. O., Auerbach, D. I., & Buerhaus, P. I. (2012). Registered nurse labor supply and the recession—are we in a bubble?. *New England Journal of Medicine*, 366(16), 1463-1465.
- Tack, H., Valcke, M., Rots, I., Struyven, K., & Vanderlinde, R. (2018). Uncovering a hidden professional agenda for teacher educators: A mixed method study on Flemish teacher educators and their professional development. *European Journal of Teacher Education*, 41(1), 86-104.
- Timer, J. E., & Clauson, M. I. (2011). The use of selective admissions tools to predict students' success in an advanced standing baccalaureate nursing program. *Nurse Education Today*, 31(6), 601-606.
- Thomas, E. J., & Rothman, J. (2013). *Intervention research: Design and development for human service*. Routledge.
- Vieira, C., Vieira, I., & Raposo, L. (2018). Distance and academic performance in higher education. *Spatial Economic Analysis*, 13(1), 60-79.

von der Gracht, H. A. (2012) Consensus measurement in Delphi studies: Review and implications for future quality assurance. *Technological Forecasting & Social Change*, 79, 1525-1536. Doi: 10.1016/j.techfore.2012.04.013.

World Health Organization. (2010). *Increasing access to health workers in remote and rural areas through improved retention: Global policy recommendations* World Health Organization.



## CHAPTER NINE

### SUMMARY, LIMITATIONS, RECOMMENDATIONS AND CONCLUSIONS

#### 9.1. INTRODUCTION

The purpose of this chapter is to highlight the key findings of this study and its main contributions to the field, the limitations of the study, and recommendations for nursing education and practice, as well as for future research. The researcher then provides some concluding remarks. The aim of this study was to develop an intervention towards the improvement of academic performance, success and retention of undergraduate nursing students at a university in the Western Cape, South Africa.



#### 9.2. SUMMARY OF ALL STUDIES AND THEIR SIGNIFICANCE

Five studies were conducted in order to accomplish the aim of the broader research. These studies were each linked to the aim of the study. A multi-method approach following intervention research design and development (D&D), as adapted from Rothman and Thomas (2013) was applied in three phases to achieve the above-mentioned aim. The study commenced with a systematic review followed by a cross-sectional survey, focus group discussions (FGDs), one-on-one interviews, the design and development of the intervention and lastly the validation of the prescriptive intervention statements through a Delphi process.

**Phase one** entailed problem analysis and information gathering and comprised of four parts: (1) systematic review to determine the predictors of academic performance, success and retention of undergraduate nursing students, (2) a cross-sectional survey to explore the

undergraduate nursing students' perception of their educational environment, (3) focus group discussions with undergraduate nursing students, and (4) individual (one-on-one) interviews with nurse educators. Data were analysed separately and the findings for each group organised into vertical themes from each study (Appendix 2). These vertical themes were then used to generate horizontal themes that cut across the finding from the four studies conducted in this phase (Appendix 2). The researcher then drew conclusions based on the horizontal themes, which are provided below as “concluding statements”.

**Phase two** was the intervention design and development phase which followed the two primary events of the design phase, as recognised by Fawcett et al. (1994) in Rothman and Thomas (1994). The two events of the design phase that were followed are designing an observational system and specification of procedural elements in the intervention. The problem-solving approach was chosen when designing the interventions because the researcher's interests were centred around improving the academic performance, success and retention of undergraduate nursing student (Johnson & Smith, 2008; Tilly, 2008).

**Phase three** was the validation phase, which was achieved through a quantitative, non-experimental Delphi process (Sibbald et al., 2012). The purpose of involving experts was to ensure that the designed intervention was acceptable, compatible, simple, suitable and contextually appropriate (Thomas, 1984). The inputs from the experts were taken into consideration to refine the final product.

## 9.2.1. Phase 1: Problem analysis and information gathering

### 9.2.1.1. Chapter Four – Study 1

- **Objective 1:** To conduct a systematic review to determine the predictors of academic performance, success and retention of undergraduate nursing students

The findings of this study were gathered by conducting a systematic review of literature using various databases and journals (Science Direct, Escohost, BioMed Central, PubMed, SAGE Journals and Directory of Open Access Journals) for the period from 2006 to 2016. A total of 17 studies met the inclusion criteria set for this study. The studies included in the review represented five countries (Australia, Italy, Pakistan, Canada & the United States of America). The findings of this review highlighted that advanced age, female gender, English language proficiency, majority ethnic status, pre-admission qualifications, high admission grade point average (GPA), high supplemental application score, high pre-admission Science GPA, selecting nursing as first choice for study, participating in organised music programmes, homework completion, lecture attendance, kinaesthetic learning approach, performance in Psychology modules, emotional intelligence, self-control and resilience are significant predictors of academic performance among nursing students. The findings of this study may be useful in terms of understanding the predictors of academic performance in a South African context.

### 9.2.1.2. Chapter Five – Study 2

- **Objective 2:** To explore the undergraduate nursing students' perception of their educational environment at the school of nursing (SoN) selected for this study

The findings of this study were gathered by conducting a cross-sectional descriptive survey to evaluate the educational environment at the SoN as perceived by undergraduate nursing students, as well as to investigate whether the educational environment, or components of it, is perceived negatively or positively among undergraduate nursing students of different year levels, genders, home languages and ethnicities. A sample of 232 undergraduate nursing students recruited by means of stratified random sampling technique participated in this study. The mean score attained for the entire participant group was 195 (SD=24.2) out of 268 (equivalent to 72.8% of maximum score). These findings indicate that the students generally viewed their educational environment as more positive than negative. The overall mean score was significantly higher ( $p<0.05$ ) for male students (M=202; SD=21) and for black students (M=202; SD=21). The digital resources (DR) subscale was the only subscale with a statement/item that was rated as absolute negative ( $m=1.9$ ;  $SD=0.9$ ). Other findings revealed in this study were that enhancements are required to improve the physical classroom conditions, skills laboratories (both on-campus and off-campus), digital resources and the implemented learning and teaching strategies.

### 9.2.1.3. Chapter Six – Study 3

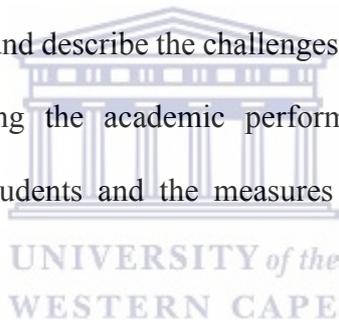
- **Objective 3:** To explore and describe the challenges experienced by undergraduate nursing students at the identified SoN regarding their academic performance and success and the measures implemented to overcome these challenges

Six in-depth focus group discussions with undergraduate nursing students were conducted. Stratified random sampling was implemented to select the study participants across the year levels of the programme. The findings of this study revealed that: (1) students' academic performance and success is adversely affected by engagement in paid part-time employment

during the period of study; (2) residing at home or off-campus during the period of study has a negative effect on students' academic performance and success; (3) the current structure of the undergraduate nursing programme negatively affects students' learning (although some students exhibit a positive attitude and employ a surface approach to learning as a desperate measure that allows them to pass assessments); (4) learning in a clinical and theoretical setting is negatively influenced by perceived inadequate academic and clinical support (although undergraduate nursing students strive to remain academically engaged); and (5) students view learning as being negatively affected by the unfavourable physical teaching and learning environment.

#### 9.2.1.4. Chapter Seven – Study 4

- **Objective 4:** To explore and describe the challenges experienced by nurse educators at a selected SoN regarding the academic performance, success and retention of undergraduate nursing students and the measures implemented to overcome these challenges



In-depth interviews with undergraduate nurse educators were conducted. A total of eight (8) nurse educators were recruited using stratified purposive sampling from across the year levels of the programme. The findings of this study indicate that nurse educators are faced with various challenges related to student factors (the individual's internal context) as well as school factors (school context), as proposed by the adapted conceptual framework for reducing the School of Nursing success gap and promoting success for all (Perna & Thomas, 2006). This study revealed that: (1) nursing students lack interest, motivation, dedication, commitment and poor class attendance; (2) there is a lack of academic readiness of students admitted into the undergraduate nursing programme; (3) students' socioeconomic backgrounds and employment

responsibilities lead to academic disengagement, which negatively impacts on their academic performance; (4) lack of proficiency in English hinders effective communication, which negatively impacts academic performance; (5) the structure of the undergraduate nursing programme (timetable arrangements and asynchrony between modules and content) has a negative impact on the academic performance and success of nursing students; (6) the physical teaching and learning environment is not conducive to learning; and (7) unfavourable working conditions for nurse educators at the SoN hinder them from ensuring that students perform optimally and result in job dissatisfaction.

### **9.2.2. Phase 2: Design and early development of the intervention**

To develop the intervention towards the improvement of the academic performance, success and retention of undergraduate nursing students at the university used in this study, the researcher drew several conclusions based on the four studies conducted in phase one. The problem-solving approach was chosen during this phase to allow the researcher to develop an innovative intervention. The following concluding statements are summarised according to the “Framework for Reducing the College Success Gap and Promoting Success for All” by Perna and Thomas (2006):

#### **9.2.2.1. Concluding statements**

Layer 1 – Internal context

- a) **Concluding statement 1:** Students’ readiness for tertiary education influences class attendance and academic engagement.
- b) **Concluding statement 2:** The selection criteria set for undergraduate nursing students do not guarantee the admission of students who have potential for satisfactory academic performance and success.

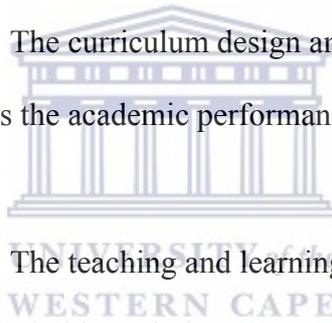
- c) **Concluding statement 3:** Poor socio-economic status and part-time employment influence academic performance and success of undergraduate nursing students.
- d) **Concluding statement 4:** English as second language and poor English language proficiency of undergraduate nursing students places them at risk of not achieving satisfactory academic performance and success.

#### Layer 2 – Family context

- a) **Concluding statement 5:** Living off campus with family affects learning and ultimately the academic performance and success of nursing students.

#### Layer 3 – School context

- a) **Concluding statement 6:** The curriculum design and delivery of the undergraduate nursing programme affects the academic performance and success of undergraduate nursing students.
- b) **Concluding statement 7:** The teaching and learning environment has a direct effect on teaching and learning and ultimately impacts on the academic performance and success of nursing students.
- c) **Concluding statement 8:** The teaching and learning strategies used and the support provided in the delivery of the theoretical and clinical components of the programme affect the academic performance of undergraduate nursing students.
- d) **Concluding statement 9:** Class size and the educator's workload influence the quality of teaching and learning.



### 9.2.3. Phase 3: Validation

#### 9.2.3.1. Chapter Eight – Study 5

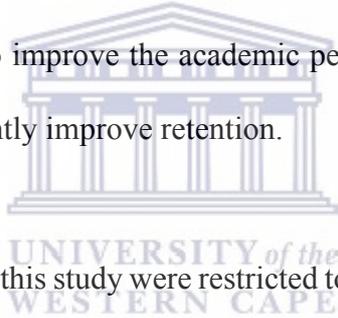
- **Objective 5:** To use the findings of the study to design, develop and validate an intervention towards improving the academic performance, success and retention of undergraduate nursing students

A three-round Delphi study aimed at developing and validating the intervention for improving the academic performance of undergraduate nursing students at a university in Western Cape, South Africa was undertaken. Purposive sampling was used to recruit a panel of eight (8) experts in the field of nursing education. The finding of this study revealed a consensus level of 80% and above on the 43 prescriptive statements that were developed using the two adapted primary events of the design phase by Fawcett et al. (1994) in Rothman and Thomas's intervention D&D. The 43 prescriptive statements that reached consensus were categorised under the following prescriptive intervention statements: (1) select high quality prospective nursing students; (2) provide English language support; (3) promote class attendance; (4) provide financial support to deserving students; (5) provide university residence to undergraduate nursing students; (6) encourage family support and involvement; (7) make the undergraduate nursing programme student-friendly; (8) ensure a conducive teaching and learning environment; (9) enhance theoretical and clinical support to undergraduate nursing students at all times; (10) ensure uniformity and consistency in the process of teaching and learning; and (11) provide support to nurse educators and clinical supervisors. The feedback from experts was largely affirmative and indicated that this intervention is essential to enhance the academic performance and success of nursing students at the identified university.

### 9.3. LIMITATIONS OF THE RESEARCH STUDY

The following limitations are reported:

- The main limitation for this study is the study population. The researcher focused purposively on the population specific to one school of nursing in the Western Cape, South Africa. Therefore, the findings of this study may not be generalised beyond the setting. Nevertheless, the findings of this study may still be significant and generalisable to similar contexts and research populations.
- Another major limitation of this study was that the area of “retention” of nursing students was not fully addressed and only discovered in the final write up of the study. It would not be scientifically sound for the researcher to assume that the prescriptive intervention statements to improve the academic performance and success of nursing students would consequently improve retention.
- Similarly, primary data in this study were restricted to nursing students, nurse educators and the experts. However, despite this limitation, the findings reported in this study will serve as a foundation for future studies and will guide the SoN and the university in terms of what urgent measures need to be put in place to ensure that the academic performance of nursing students is enhanced.
- The main focus for this study was to develop an intervention towards improving the academic performance of undergraduate nursing students. Therefore, this study focused on intervention in general and not specific to any field or speciality, such as community nursing, psychiatric nursing and/or midwifery nursing science.



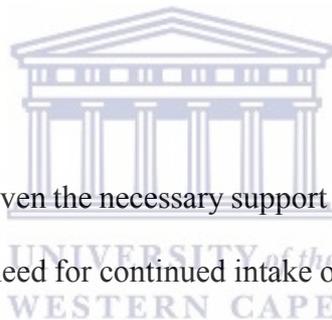
## 9.4. RECOMMENDATIONS

The following recommendations with regard to nursing education and future research are derived from the findings of this study:

### 9.4.1. Nursing education and practice

- The intervention towards improving the academic performance, success and retention of undergraduate nursing students is timely, given that a new undergraduate programme will be implemented across South Africa in 2020. Incorporation of this intervention into planning for the offering of the new Bachelor of Nursing programme should be used to assist nurse educators, the SoN at the university used in this study and beyond. It should also be used by the faculty to review the current recruitment strategies and admission criteria. While ensuring that the criteria are aligned to the mission and vision of the institution, the university should also ensure that it meets the requirements for entry to bachelor studies as set out by the South African Nursing Council and the Department of Education and Training. Institutional attempts at socio-political redress in higher education should take into account the need for supportive measures for students who are less prepared for tertiary education. This in itself has budgetary implications for institutions and requires sound financial planning.
- The structure of the undergraduate nursing programme must show alignment and scaffolding of learning across modules in a way that makes sense to the students in both theory and practice. This requires that the SoN ensures the alignment of theoretical learning and teaching activities with clinical learning and teaching activities that support an outcomes-based, experiential learning and teaching approach.

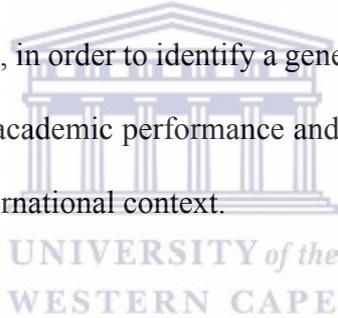
- Nursing education requires equal involvement of the education and practice institutions. Therefore, communication between the SoN and the key stakeholders, including the Department of Health, public and private clinics, hospitals and other health care services as well as non-governmental organisations, must be continuous regarding the training of nurses for the region and beyond. This can be done through quarterly stakeholder meetings regarding students' learning needs, on the one hand, and the relevance of student learning to the practice environment, on the other.
- Negotiations for the support of clinical staff in their role as student supervisors while in practice by the education institution should be consolidated. This could be by means of preceptorship training. It will improve the dual ownership of student training between education and practice.
- Nurse educators must be given the necessary support to carry out their duties. This could be done by reviewing the need for continued intake of large numbers of students, which contributes to work overload. Updated investigation into the current status of nurse shortages, specifically in the category of the professional nurses, should be conducted as this will form the basis for reviewing projected student intake in future.
- Ongoing orientation programmes should be provided for new nurse educators. This is to ensure the alignment of the educator's personal learning and teaching philosophy with that of the SoN, thus creating a positive learning experience for students which is void of inconsistencies.
- Ongoing training is required for nurse educators on changing learning and teaching



strategies and technologies to better equip them for students of the 21<sup>st</sup> century. This could be done by means of learning and teaching workshops and encouraging continuous research in the field of learning and teaching.

#### **9.4.2. Future research**

- The intervention to improve the academic performance and success of undergraduate nursing students should be implemented at the school of nursing and its effectiveness can be the focus of future research.
- The research may be repeated in other education settings to increase generalisability. Research could be directed at including more schools of nursing from other provinces in South Africa, as well globally, in order to identify a general intervention or combination of interventions to improve the academic performance and success of undergraduate nursing students in a national and international context.
- Future research should include stakeholders, such as clinics, hospitals and NGOs, including staff members as they may have an influence on the process of learning and teaching of undergraduate nursing students. This research could look at challenges and measures they have put in place to improve the academic performance and success of nursing students in clinical placements. Furthermore, for future research, more focus could be placed specifically on the improvement of retention among nursing students.



#### **9.5. CONCLUSION**

In this final chapter of the study, the summary of the results was described. Furthermore, this chapter provided an overview of the phases and the methodology applied to meet the aim of

the study. The limitations of the research study and the recommendations regarding nursing education and practice and future research were also described.

The intervention that was developed in this study has the potential to improve the academic performance, success and retention of undergraduate nursing students by ensuring that high-quality prospective students are recruited, enhancing the learning and teaching environment, promoting class attendance, providing university residence to students, encouraging family support, ensuring that the programme activities are synchronised, providing financial assistance, and providing English language support as well as theoretical and clinical support. The aim and objectives of this study have been met through the three phases applied in this research.



## 9.6. REFERENCES

- Fawcett, B.S., Suarez-Balcazar, Y., Balcazar, E.F., White, W.G., Paine, L.A., Blanchard, A.K. & Embree, G.M. (1994). Conducting intervention research: The design and development process. In J. Rothman & J.E. Thomas (eds.), *Intervention research: Design and development for human service*. (pp. 25–54). New York: The Haworth Press.
- Johnson, E.S., & Smith, L. (2008). Implementation of response to intervention at middle school: Challenges and potential benefits. *Teaching Exceptional Children*, 40(3): 46–52.
- Perna, L.W., & Thomas, S.L. (2006). A framework for reducing the college success gap and promoting success for all.
- Rothman, J., & Thomas, E.J. (1994). *Intervention research: Design and development for human service*. Psychology Press.

Sibbald, R., Goodman, L., Woo, K.Y., Krasner, D.L., Smart, H., Tariq, G., & Norton, L. (2012). Special considerations in wound bed preparation 2011: An update. *World Council of Enterostomal Therapists Journal*, 32(2): 10.

Thomas, J.E. (1984). *Designing interventions for the helping professions*. Beverly Hills: SAGE Publications.

Thomas, E.J., & Rothman, J. (2013). *Intervention research: Design and development for human service*. Routledge.

Tilly, W.D. (2008). The evolution of school psychology to science-based practice: Problem solving and the three-tiered model. *Best Practices in School Psychology V, 1*: 17–36.



## APPENDICES

### Appendix 1: Research ethics clearance letter



OFFICE OF THE DIRECTOR: RESEARCH  
RESEARCH AND INNOVATION DIVISION

Private Bag X17, Bellville 7535  
South Africa  
T: +27 21 959 2988/2948  
F: +27 21 959 3170  
E: [research-ethics@uwc.ac.za](mailto:research-ethics@uwc.ac.za)  
[www.uwc.ac.za](http://www.uwc.ac.za)

8 February 2017

Mr K Mthimunye  
School of Nursing  
Faculty of Community and Health Science

**Ethics Reference Number:** HS17/1/42

**Project Title:** An intervention towards the improvement of academic performance, success and retention among Bachelor of Nursing students at a Higher Education Institution in the Western Cape

**Approval Period:** 10 February 2017 – 10 February 2018

I hereby certify that the Humanities and Social Science Research Ethics Committee of the University of the Western Cape approved the methodology and ethics of the above mentioned research project.

Any amendments, extension or other modifications to the protocol must be submitted to the Ethics Committee for approval. Please remember to submit a progress report in good time for annual renewal.

The Committee must be informed of any serious adverse event and/or termination of the study.

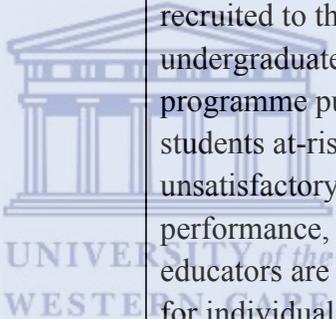
A handwritten signature in black ink that reads 'Josias'.

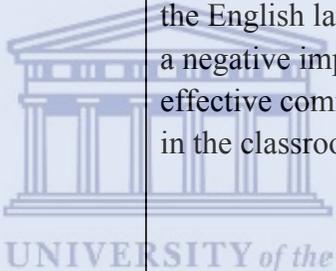
*Ms Patricia Josias*  
Research Ethics Committee Officer  
University of the Western Cape

**PROVISIONAL REC NUMBER - 130416-049**

## Appendix 2: Summary of findings (Phase 1)

Systematic review	Educational environment survey	Nursing students (FGD)	Nurse educators	Horizontal themes	Concluding statements
<p><b>Layer 1- Internal context</b>                      Responsible/Intervener: Nursing students, Educators, University, School of nursing and Government                      Affected: Nursing students</p>					
<p><b>Finding 3:</b> Affective factors such as emotional intelligence, self-control and resilience have as significant impact on the academic performance of undergraduate nursing students</p> <p><b>Finding 6:</b> Homework completion and lecture attendance and have as significant impact on the academic performance of undergraduate nursing students</p>			<p><b>Theme 1:</b> Educators strive to create a positive teaching and learning atmosphere and provide opportunities for active participation of students. However, lack of interest, motivation, dedication and commitment by nursing students leads to academic disengagement and ultimately unsatisfactory academic performance.</p>	<p><b>Theme1:</b> Academic performance, success and retention of undergraduate nursing students is negatively influenced by lack of interest, motivation, dedication, commitment, emotional intelligence, self-control and resilience, homework completion as well as poor lecture attendance. Nevertheless, nurse educators strive to create an educational environment that promotes academic engagement</p>	<p><b>Statement 1:</b> Student's readiness for tertiary education influences class attendance and academic engagement. Creating an environment that promotes academic engagement is pivotal.</p>

<p><b>Finding 2:</b> Pre-admission qualifications, high admission score, high school science score and selecting nursing as first choice for study, have a significant impact on the academic performance of undergraduate nurses</p>			<p><b>Theme 2:</b> Apparent lack of readiness and poor quality of students recruited to the undergraduate nursing programme puts the students at-risk of unsatisfactory academic performance, however, educators are available for individual and group consultations, constructive feedback to improve academic skills and to assist students at risk of unsatisfactory academic performance.</p>	<p><b>Theme 2:</b> Unsatisfactory academic performance, success and retention of undergraduate nursing students was associated with poor pre-admission characteristics. Pre-admission qualification admission score, pre-admission science score as well as selecting nursing as first choice of study is positively correlated to student's academic performance and success.</p>	<p><b>Statement 2:</b> The selection criterion set for undergraduate nursing students does not guarantee the admission of students who have potential for satisfactory academic performance and success.</p>
<p><b>Finding 4:</b> Engaging in paid part-time employment during the period of study as well as the number of hours spent in paid part-time employment has a negative impact on academic performance of nursing students.</p>		<p><b>Theme 1:</b> Academic performance and success was adversely influenced by student engagement in paid part-time employment during the period of study</p>	<p><b>Theme 3:</b> Student's socioeconomic background and employment responsibilities lead to academic disengagement.</p>	<p><b>Theme 3:</b> Academic performance, success and retention of undergraduate nursing students is negatively affected by participating in paid part-time employment during the period of study which is due to poor socio-economic background</p>	<p><b>Statement 3:</b> Poor socio-economic status and part-time employment influences academic performance and success of undergraduate nursing students</p>

<p><b>Finding 1:</b> English language proficiency has as significant impact on the academic performance of undergraduate nursing students</p>			<p><b>Theme 4:</b> Student's inability to express themselves efficiently in the English language has a negative impact on effective communication in the classroom.</p>	<p><b>Theme 4:</b> Academic performance and success of undergraduate nursing students is negatively affected by students' poor English language skills.</p>	<p><b>Statement 4:</b> English as second language and poor English language proficiency by undergraduate nursing students places them at risk of unsatisfactory academic performance and success</p>
<p>Layer 2- Family context Responsible/Intervener: University and Family Affected: Nursing student</p>					
<p><b>Finding 5:</b> Place of dwelling (weather urban or rural) was found to be significantly associated with academic success</p>		<p><b>Theme 2:</b> Learning was negatively affected by residing at home or off-campus during the period of study which negatively affected academic performance and success.</p>		<p><b>Theme 5:</b> Academic performance and success of undergraduate nursing students was negatively affected by the students' place of residence during the period of study. Staying at home during course of study had a negative impact on the students' academic performance and success</p>	<p><b>Statement 5:</b> Living off campus with family affects learning and ultimately the academic performance and success of nursing students</p>

Layer 3- School context

Responsible/Intervener: University, school of nursing, Nurse educators and clinical supervisors

Affected: Nursing students and Nurse educators

			<p><b>Theme 3:</b> Learning was negatively affected by the current structure of the undergraduate nursing programme, which adversely impacted on students' academic performance and success. However, students exhibit and uphold both constructive attributes as well as employ surface approach to learning as a desperate measure that allow them to pass assessments.</p>	<p><b>Theme 5:</b> The structure of the undergraduate nursing programme poses challenges with timetables, and alignment of modules which directly and/or indirectly impacts on the academic performance of nursing students. However, a departmental and interdisciplinary team approach, was identified as the means for ensuring that content and modules across the programme are aligned.</p>	<p><b>Theme 6:</b> Academic performance, success and retention of undergraduate nursing students is negatively affected by the disorganised structure of the nursing programme. Unorganised time-table, poor assessment planning, poor module distribution across the programme and 12-hour hospital shift has an impact on the teaching and learning process and ultimately on the academic performance of UN students</p>	<p><b>Statement 6:</b> The curriculum design and delivery of the undergraduate nursing programme affects the academic performance and success of undergraduate nursing students.</p>
--	--	--	---	---	---	--

	<p><b>Result 1:</b> The physical classroom environment was perceived by undergraduate nursing students as inadequate and needs to be improved</p> <p><b>Result 2:</b> On- and off-campus skills lab were perceived by undergraduate nursing students as inadequate and needs to be improved</p> <p><b>Result 3:</b> Digital resources were perceived by undergraduate nursing students as inadequate and needs to be improved</p>	<p><b>Theme 5:</b> Learning was negatively affected by the unfavourable physical teaching and learning environment which adversely influenced the academic performance and success of undergraduate nursing students.</p>	<p><b>Theme 6:</b> Despite the educators striving to create a positive teaching and learning atmosphere, the physical teaching and learning environment is not conducive to learning, which negatively impacted on the academic performance of undergraduate nursing students</p>	<p><b>Theme 7:</b> Academic performance, success and retention of undergraduate nursing students was negatively affected the unfavourable theory and practical teaching and learning environment as well as the inadequate digital recourses.</p>	<p><b>Statement 7:</b> The teaching and learning environment has a direct effect on teaching and learning and ultimately impacts the academic performance and success of nursing students</p>
	<p><b>Result 4:</b> Teaching and learning strategies implemented at the school of nursing was perceived by</p>	<p><b>Theme 4:</b> Learning in the clinical and theoretical setting was negatively influenced by perceived</p>		<p><b>Theme 8:</b> Academic performance, success and retention of undergraduate nursing is negatively affected by</p>	<p><b>Statement 8:</b> Teaching and learning strategies used and the support provided in the delivery of the theoretical and</p>

	undergraduate nursing students as inadequate and needs to be improved	inadequate academic and clinical support, which adversely affected academic performance and success. However, undergraduate nursing students strive to remain academically engaged.		teaching and learning strategies implemented at the School of nursing as well as insufficient academic and clinical support provided to students	clinical components of the programme affects the academic performance of undergraduate nursing students
			<b>Theme 7:</b> Nurse educator's working conditions are apparently not conducive and resulted in job dissatisfaction, which indirectly negatively influenced teaching and learning.	<b>Theme 9:</b> The work environment for nursing educators is unfavourable.	<b>Statement 9:</b> Class size and the educator's workload influences the quality of teaching and learning process.

### Appendix 3: Title reading and extraction tool (TRET)



**UNIVERSITY OF THE WESTERN CAPE**

Private Bag X 17, Bellville 7535, South Africa

Tel: +27 21-9599702, Fax: 27 21-9593515

E-mail: [kmthimunye@uwc.ac.za](mailto:kmthimunye@uwc.ac.za)

#### TITLE READING AND EXTRACTION TOOL (TRET)

Search engine	Article number	Year of publication	Title	outcome	Reason for exclusion

## Appendix 4: Abstract reading extraction tool (ARET)



### UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa

Tel: +27 21-9599702, Fax: 27 21-9593515

E-mail: [kmthimunye@uwc.ac.za](mailto:kmthimunye@uwc.ac.za)

#### ABSTRACT READING TOOL (ARET)

Article number	Year of publication	Title	Outcome	Reason for exclusion
		 UNIVERSITY of the WESTERN CAPE		

## Appendix 5: Quality assessment tool (QAT)

### Quality Assessment Tool for Quantitative Studies



#### Component Ratings of Study:

For each of the six components A–F, use the following descriptions as a roadmap.

#### A) SELECTION BIAS

(Q1) Are the individuals selected to participate in the study likely to be representative of the target population?

(Q2) What percentage of selected individuals agreed to participate?

(Q3) Sampling method: Was it representative of the population Intended in the study?

**Strong:** The selected individuals are very likely to be representative of the target population (Q1 is 1) **and** there is greater than 80% participation (Q2 is 1).

**Moderate:** The selected individuals are at least somewhat likely to be representative of the target population (Q1 is 1 or 2); **and** there is 60–79% participation (Q2 is 2). 'Moderate' may also be assigned if Q1 is 1 or 2 and Q2 is 5 (can't tell).

**Weak:** The selected individuals are not likely to be representative of the target population (Q1 is 3); **or** there is less than 60% participation (Q2 is 3) **or** selection is not described (Q1 is 4); and the level of participation is not described (Q2 is 5).

RATE THIS	STRONG	MODERATE	WEAK
See dictionary	1	2	3

#### B) DESIGN

(Q1) Indicate the study design

**Strong:** will be assigned to those articles that described Randomized Controlled Trial (RCT) and Controlled Clinical Trial (CCT).

**Moderate:** will be assigned to those that described a cohort analytic study, a case control study, a cohort design, or an interrupted time series.

**Weak:** will be assigned to those that used any other method or did not state the method used.

RATE THIS SECTION	STRONG	MODERATE	WEAK
See dictionary	1	2	3

**C) DATA COLLECTION METHODS**

(Q1) Were data collection tools shown to be valid?

(Q2) Were data collection tools shown to be reliable?

**Strong:** The data collection tools have been shown to be valid (Q1 is 1); **and** the data collection tools have been shown to be reliable (Q2 is 1).

**Moderate:** The data collection tools have been shown to be valid (Q1 is 1); **and** the data collection tools have not been shown to be reliable (Q2 is 2) **or** reliability is not described (Q2 is 3).

**Weak:** The data collection tools have not been shown to be valid (Q1 is 2) **or** both reliability and validity are not described (Q1 is 3 and Q2 is 3).

RATE THIS SECTION	STRONG	MODERATE	WEAK
See dictionary	1	2	3

**D) DATA SOURCE**

(Q1) Was the data source primary or secondary?

**Strong:** Primary data source interview observation; action research; case studies; life histories; questionnaires; ethnographic research; longitudinal studies

**Moderate:** Secondary data source Previous research; Official statistics; Mass media; products; Diaries; Letters; ~~Government reports; Web information; Historical data and information~~

**Weak:** will be assigned when data source is not clear

RATE THIS SECTION	STRONG	MODERATE	WEAK
See dictionary	1	2	3



**E) WITHDRAWALS AND DROP-OUTS- a rating of:**

(Q1) Were withdrawals and drop-outs reported in terms of numbers and/or reasons per group?

(Q2) Indicate the percentage of participants completing the study. (If the percentage differs by groups, record the lowest).

**Strong:** will be assigned when the follow-up rate is 80% or greater (Q2 is 1).

**Moderate:** will be assigned when the follow-up rate is 60 – 79% (Q2 is 2) **OR** Q2 is 5 (N/A).

**Weak:** will be assigned when a follow-up rate is less than 60% (Q2 is 3) or if the withdrawals and drop-outs were not described (Q2 is 4).

RATE THIS SECTION	STRONG	MODERATE	WEAK
See dictionary	1	2	3

**F) Analyses**

- (Q1) Are the statistical methods appropriate for the study design?  
 (Q2) Was Decision Making Approaches or Styles examined in the study?

**Strong:** will be assigned when statistical methods appropriate and all the data (participants) represented in the study is analysed

**Moderate:** will be assigned when statistical methods appropriate and Decision Making Approaches or Styles not appropriate

**Weak:** The statistical methods used to analyse the data have not been shown to be appropriate

RATE THIS SECTION	STRONG	MODERATE	WEAK
See dictionary	1	2	3

**GLOBAL RATING**

<b>A</b>	<b>Selection Bias</b>	<b>Strong</b>	<b>Moderate</b>	<b>Weak</b>
		1	2	3
<b>B</b>	<b>Study Design</b>	<b>Strong</b>	<b>Moderate</b>	<b>Weak</b>
		1	2	3
<b>C</b>	<b>Data Collection Tools</b>	<b>Strong</b>	<b>Moderate</b>	<b>Weak</b>
		1	2	3
<b>D</b>	<b>Data Collection Source</b>	<b>Strong</b>	<b>Moderate</b>	<b>Weak</b>
		1	2	3
<b>E</b>	<b>Withdrawals</b>	<b>Strong</b>	<b>Moderate</b>	<b>Weak</b>
		1	2	3
<b>F</b>	<b>Analyses</b>	<b>Strong</b>	<b>Moderate</b>	<b>Weak</b>
		1	2	3
				Not applicable

**GLOBAL RATING FOR THIS PAPER (circle one):**

- 1 STRONG (no WEAK ratings)  
 2 MODERATE (one WEAK rating)  
 3 WEAK (two or more WEAK ratings)

- Final decision of both reviewers (circle one):**
- 1 STRONG  
 2 MODERATE  
 3 WEAK

Accept	<input type="checkbox"/>	Reject	<input type="checkbox"/>
--------	--------------------------	--------	--------------------------

## Appendix 6: Data extraction tool (DAT)



### UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa

Tel: +27 21-9599702, Fax: 27 21-9593515

E-mail: [kmthimunye@uwc.ac.za](mailto:kmthimunye@uwc.ac.za)

#### DATA EXTRACTION TOOL

<b>NO:</b>	
<b>Author:</b>	
<b>Title:</b>	
<b>Country:</b>	
<b>Data collection:</b>	
<b>Target Population:</b>	
<b>Geographical Location:</b>	
<b>Research Design:</b>	
<b>Instrument:</b>	
<b>Aim/problem statement:</b>	
<b>Hypotheses:</b>	
<b>Participants</b>	<b>Percentage (n)</b>
Total	
Females	
Males	
Ethnicity:	
Age	
<b>Assessment of academic performance (outcome)</b>	
<b>Study predictor variables</b>	<b>Correlation coefficient (r)</b>
<b>Regression results</b>	
<b>Main results</b>	
1.	
2.	
3.	

## Appendix 7: Educational environment tool



### UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa

Tel: +27 21-9599702, Fax: 27 21-9593515

E-mail: [kmthimunye@uwc.ac.za](mailto:kmthimunye@uwc.ac.za)

### CHECKLIST/ SCORE SHEET SECTION A: SOCIO-DEMOGRAPHIC DATA

Please fill/tick the most appropriate response to the following questions:

1. How old are you? .....
2. Which gender are you?                      Male                       Female
3. What is your ethnic group?                      African  Coloured  Indian  White  other
4. What is your home language?                      English  Other
5. Which degree are you enrolled for?                      B. Nursing  B. Nursing Foundation
6. Which year level are you?                      First-year  Second-year  Third-year  Fourth-year

### SECTION A: ASSESS THE PHYSICAL TEACHING AND LEARNING ENVIRONMENT

Please tick the most appropriate response to the following questions

Instruction: rate the following section on the rating scale where

1= Strongly disagree; 2= Disagree; 3= Neither agree nor disagree; 4= Agree; 5= Strongly agree

CATEGORY		SCORE				
No	CLASSROOM					
1	Classrooms are pleasant places to work	1	2	3	4	5
2	Lighting is adequate and there is no glare	1	2	3	4	5
3	Ventilation is sufficient and the ambient temperature is appropriate	1	2	3	4	5
4	There is adequate space for movement	1	2	3	4	5
5	Furniture is arranged to best effect for different activities	1	2	3	4	5
6	Equipment and materials are easily accessible (computer, lighting system, projector, overhead projector)	1	2	3	4	5
7	Adequate seating arrangements for students	1	2	3	4	5
8	Students have adequate personal workspace	1	2	3	4	5
9	Students can easily see the teacher and the black/white board	1	2	3	4	5
10	Furniture is suitable and well maintained	1	2	3	4	5
11	The sound level in the classroom is conducive to learning	1	2	3	4	5
<b>On Campus SKILLS LABORATORY</b>						
12	Skills laboratory is adequate in size.	1	2	3	4	5
13	Has adequate lighting.	1	2	3	4	5
14	Has adequate ventilation.	1	2	3	4	5

15	Is equipped with the amount and variety of equipment necessary for student performance of required clinical skills.	1	2	3	4	5
16	Is equipped with the amount and variety of supplies (stock) necessary for student performance of required clinical skills.	1	2	3	4	5
17	Clinical training activities prepare the student to perform effectively in the clinical setting.	1	2	3	4	5
18	Is accessible to students outside regularly scheduled class times.	1	2	3	4	5
<b>Off Campus SKILLS LABORATORY</b>						
19	Skills laboratory is adequate in size.	1	2	3	4	5
20	Has adequate lighting.	1	2	3	4	5
21	Has adequate ventilation.	1	2	3	4	5
22	Is equipped with the amount and variety of equipment necessary for student performance of required clinical skills.	1	2	3	4	5
23	Is equipped with the amount and variety of supplies (stock) necessary for student performance of required clinical skills.	1	2	3	4	5
24	Is accessible to students outside regularly scheduled class times.	1	2	3	4	5
<b>LIBRARY</b>						
25	The library personnel offer orientation and demonstration of the library services.	1	2	3	4	5
26	The institutional library personnel provide assistance to the students when needed.	1	2	3	4	5
27	The library user friendly for nursing students	1	2	3	4	5
28	The library provides sufficient materials to support programme/classroom assignments.	1	2	3	4	5
29	The library hours are convenient to student schedules.	1	2	3	4	5
<b>DIGITAL RESOURCES</b>						
30	Illustrations/visuals are effective/ appropriate.	1	2	3	4	5
31	Audiovisual and computer equipment are available to students for class assignments and activities.	1	2	3	4	5
32	Computer resources are adequate to support learning (research, assignment completion etc.)	1	2	3	4	5
33	effective use of various mediums such as online classes, virtual reality and game-based learning	1	2	3	4	5
34	Student Instructional Support Services are readily accessible to all students.	1	2	3	4	5
35	Digital resources are available outside regular classroom hours.	1	2	3	4	5

## SECTION B: ASSESS THE TEACHING AND LEARNING CLIMATE

Instruction: rate the following section on the rating scale where

1= Strongly disagree; 2= Disagree; 3= Neither agree nor disagree; 4= Agree; 5= Strongly agree

CATEGORY		SCORE				
<b>TEACHING AND LEARNING CLIMATE</b>						
36	Teachers are concerned with developing my competences	1	2	3	4	5
37	Teachers are authoritative	1	2	3	4	5
38	Teachers are able to communicate well with students	1	2	3	4	5
39	Teachers have shown patience towards students	1	2	3	4	5
40	Teachers provide good feedback to students	1	2	3	4	5
41	Teachers give students constructive criticism	1	2	3	4	5

42	Teachers are well prepared for classes	1	2	3	4	5
43	Students irritate teachers	1	2	3	4	5
44	I feel free to ask whatever I want in class	1	2	3	4	5
45	The environment encourages me to learn	1	2	3	4	5

**SECTION C: ASSESS THE TEACHING AND LEARNING STRATEGIES**

Instruction: rate the following section on the rating scale where  
 1= Strongly disagree    2= Disagree    3= Neither agree nor disagree    4= Agree    5= Strongly agree

CATEGORY		SCORE				
TEACHING AND LEARNING STRATEGIES						
46	I am stimulated to actively participate in classrooms	1	2	3	4	5
47	The adopted teaching is often stimulating	1	2	3	4	5
48	Teaching is student-centered (more self-learning)	1	2	3	4	5
49	Teaching are very cohesive and focused	1	2	3	4	5
50	The teaching method is concerned with developing my confidence	1	2	3	4	5
51	The time for teaching is well spent	1	2	3	4	5
52	The school encourages me to pursue my own learning needs	1	2	3	4	5
53	Teaching are very focused on the teacher	1	2	3	4	5
54	I can understand the teachers in classrooms	1	2	3	4	5

**SECTION D: ASSESS THE CURRICULUM**

Instruction: rate the following section on the rating scale where:  
 1= Strongly disagree    2= Disagree    3= Neither agree nor disagree    4= Agree    5= Strongly agree

CATEGORY		SCORE				
CURRICULUM						
55	I'm sure about the goals of this course	1	2	3	4	5
56	The teaching of the previous year prepared me well for this year	1	2	3	4	5
57	Time table arrangement allows for academic engagement	1	2	3	4	5
58	Test and examination questions are aligned to the objectives provided in module guides	1	2	3	4	5
59	The curriculum provides an appropriate balance between theory and practice	1	2	3	4	5
60	The content is appropriate for the year level	1	2	3	4	5
61	The curriculum is organized in a way that helps me learn	1	2	3	4	5
62	The assignments and lectures usefully complemented each other	1	2	3	4	5
63	The course instructions (including, module guides, work books, etc.) are clear	1	2	3	4	5
64	The course developed my ability to apply theory to practice	1	2	3	4	5
65	The course improved my problem-solving skills	1	2	3	4	5
66	The course developed my ability to think critically about the subject	1	2	3	4	5
67	The course helped me understand ethical issues involved in the nursing profession	1	2	3	4	5

**Any other comments you would like to share?** .....

## Appendix 8: Focus group discussion guide



### UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa

Tel: +27 21-9599702, Fax: 27 21-9593515

E-mail: [kmthimunye@uwc.ac.za](mailto:kmthimunye@uwc.ac.za)

#### INTERVIEW SCHEDULE FOR FOCUS GROUP WITH STUDENTS

**Title of Research Project: An intervention towards the improvement of academic performance, success and retention among Bachelor of Nursing students at a Higher Education Institution in the Western Cape**

1. Describe your experiences (whether negative or positive) in the nursing programme that has an impact on your academic performance and success and what measures did you put in place to ensure satisfactory academic performance and success?
  - Describe your experiences (whether negative or positive) in the nursing programme that has an impact on your academic performance?
  - What measures did you put in place to ensure satisfactory academic performance and success?
  - What measures do you think should be put in place (from the nursing programme point of view) to improve your academic performance and success?
2. Possible probes include:
  - Please give me an example
  - Can you elaborate on that idea?
  - Would you explain that further?
  - Is there anything else?

## Appendix 9: Interview guide for nurse educators



### UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa

Tel: +27 21-9599702, Fax: 27 21-9593515

E-mail: [kmthimunye@uwc.ac.za](mailto:kmthimunye@uwc.ac.za)

#### INTERVIEW SCHEDULE FOR NURSE EDUCATORS

**Title of Research Project: An intervention towards the improvement of academic performance, success and retention among Bachelor of Nursing students at a Higher Education Institution in the Western Cape**

##### Introduction

- The year level you involved in?
  - Modules involved in?
  - Years of experience as a Nurse Educator?
1. What are the challenges faced by nurse educators at the selected SoN regarding ensuring satisfactory academic performance, success and retention of nursing students and what measures do they implement to achieve this?
    - Describe your experiences (whether negative or positive) in the nursing programme in ensuring increasing academic performance and success among Bachelor of Nursing students?
    - What measures did you have put in place to ensure satisfactory academic performance and success?
    - What measures do you think should be put in place (from the nursing programme point of view) to improve the academic performance and success among Bachelor of Nursing students?
  2. Possible probes include:
    - Give examples
    - Can you elaborate on that idea?
    - Would you explain that further?
    - Is there anything else?

## APPENDIX 10: Text boxes

### Text box 1

#### Intervention domains: intervention elements

##### Layer 1- Internal context

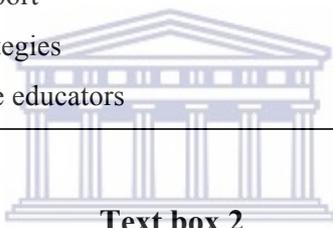
1. Class attendance
2. Selection criterion (admission of prospective students)
3. Student's socio-economic status
4. English language proficiency

##### Layer 2- Family context

5. Family support

##### Layer 3- The school context

6. Off-campus residence
7. Undergraduate nursing programme (Curriculum design)
8. Teaching and learning environment
9. Academic and clinical support
10. Teaching and learning strategies
11. Job dissatisfaction by nurse educators



### Text box 2

#### Intervention elements: prescriptive statements

##### Layer 1- Internal context

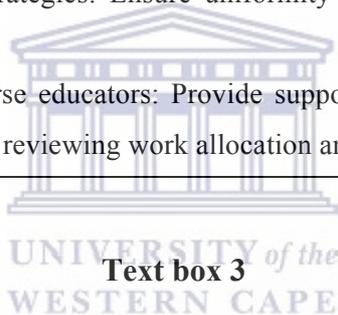
1. Class attendance: Promote class attendance. This include through motivation, encouraging dedication, commitment, emotional intelligence, self-control and resilience.
2. Selection criterion (admission of prospective students): Recruit high quality prospective nursing students.
3. Student's socio-economic status: Provide financial support to deserving students
4. English language proficiency: Provide English language support. This include Guidance and support for English as second language (ESL) nursing students including those with poor English language proficiency.

##### Layer 2- Family context

5. Family support: Encourage family support and involvement. Family should provide a conducive environment for leaning at home. That includes the family being considerate and allowing the students time and space to focus on their studies.

### Layer 3- The school context

6. Off-campus residence: Provide university residence for undergraduate nursing students during the period of study to minimize the stresses within the home environment (shared with family/friends) to a more focused and conducive learning environment.
7. Undergraduate nursing programme (Curriculum design): Make the undergraduate nursing programme student friendly, flexible and accommodating. This includes a practicable timetable (both theory and clinical placements) and assessment arrangements as well as logical module and content distribution across the programme.
8. Teaching and learning environment: Ensure a conducive teaching and learning environment. This include classrooms, skills laboratories and digital resources.
9. Academic and clinical support: Enhance clinical support to undergraduate nursing students at all times. Clinical support from nurse educators, clinical supervisors and health practitioners in the clinical placements. This included help with the use of the most effective learning and study strategies (in both theory and practice learning) and providing sufficient guidance regarding the content to be studied.
10. Teaching and learning strategies: Ensure uniformity and consistency in the process of teaching and learning
11. Job dissatisfaction by nurse educators: Provide support for nurse educators and clinical supervisors. This includes reviewing work allocation and workload for nurse educators.



### Text box 3

**Concluding statement 1:** Student's readiness for tertiary education influences class attendance and academic engagement. Creating an environment that promotes academic engagement is pivotal.

**Prescriptive statements 1:** Promote class attendance. This include motivation, encouraging dedication, commitment, emotional intelligence, self-control and resilience.

### Main problems identified from previous chapters that informed the intervention

- The findings of the current study revealed that class attendance remain the problem among undergraduate nursing students. It was also revealed that the problem of poor class attendances related to the students lack of motivation, interest and commitment, lack of emotional intelligence self-control and resilience. During the design work process the researcher considered solutions to improve student's motivation with the anticipation that with increased motivation class attendance will improve. At the end of design work the

research concluded on several solutions to solve the identified problem mentioned above. The solutions/ measures included involving students support service to provide regular motivational talks, providing platform for peer mentoring as well as role modelling.

#### Text box 4

**Concluding statement 2:** The selection criterion set for undergraduate nursing students does not guarantee the admission of students who have potential for satisfactory academic performance and success.

**Concluding statement 4:** English as second language and poor English language proficiency by undergraduate nursing students places them at risk of unsatisfactory academic performance and success

**Prescriptive statements 2:** Select high quality prospective nursing students.

**Prescriptive statements 4:** Provide English language support. This includes guidance and support for English second language (ESL) nursing students including those with poor English language proficiency.

#### Main problems identified from previous chapters that informed the intervention

- There were two main problems that were reported by nurse educators as well as nursing students. These problems were related to poor English proficiency as well as not having physical science background on admission in to the undergraduate nursing programme. This study found that majority of students that are admitted in the undergraduate nursing programme have poor English language skills (Reading, Writing, Listening and Speaking) which negatively influenced their academic performance. Furthermore, this study revealed students with no physical science (Physics and Chemistry subjects) or those who performed poorly in this subject prior to admission in to the programme find in challenging to cope with the scientific nature of the nursing programme. Therefore, during the design work the researcher considered it to be important to brainstorm possible solutions to solve the above-mentioned problems.
- The results of the systematic review conducted in chapter 5 of the present study revealed one of the most important factors that is commonly overlooked. The results revealed that students who choose nursing as first choice of study are more likely to outperform their counterparts. Therefore, the researcher argues that prospective nursing students who choose nursing as first choice should be given first priority for admission in to the undergraduate nursing programme.

### Text box 5

**Concluding statement 3:** Poor socio-economic status and part-time employment influences academic performance and success of undergraduate nursing students

**Prescriptive statements 3:** Provide financial support to deserving students

#### **Main problems identified from previous chapters that informed the intervention**

- The results that emerged from the systematic review, focus group discussions (FGDs) with nursing students as well as from the in-depth one to one interviews conducted in this study revealed that the nursing profession generally attracts students that are from previously disadvantaged background. There is strong evidence to confirm that the majority of the students registered for the undergraduate nursing programme at the university of the Western Cape are from previously disadvantaged backgrounds which leads them to participating in paid part-time employment during the course of study. The results also revealed that the number of hours spent in paid part-time employment has a negative impact on the academic performance and success of nursing students. This is due to the fact that students spend more time participating in employment responsibilities instead of engaging with academic responsibilities. During the design work the researcher identified solutions to the socioeconomic status of the students such as approaching companies for sponsorship, conducting a comprehensive needs analysis and warding some form of financial assistance to deserving students. Furthermore, the students who are academically high achievers but need financial assistance can be asked to assist in the department and be compensated for their efforts.

### Text box 6

**Concluding statement 5:** Living off campus with family affects learning and ultimately the academic performance and success of nursing students

**Prescriptive statements 5:** Encourage family support and involvement. Family should provide a conducive environment for leaning at home. That includes the family being considerate and allowing the students time and space to focus on their studies.

**Prescriptive statements 6:** Provide university residence for UN students during the period of study to minimize the stresses within the home environment (shared with family/friends) to a more focused and conducive learning environment.

### **Main problems identified from previous chapters that informed the intervention**

- The results of this study revealed that the off-campus accommodation (i.e. accommodation shared with family and or with friends). Students reported that staying with family during the course of study posed serious challenges that ultimately led to unsatisfactory academic performance. Some students mentioned that being provided with university residence may be the solution to alleviate the challenges that are faced by students residing in off-campus accommodation. In addition to that, most students residing in off-campus residence are facing transport related challenges, more especial when they have to attend early morning classes or when they have to report to clinical placements in the early hours of the morning and likewise when they have to commute to their respective off-campus residence late at night after a 12-hour clinical shift. Therefore, during the design work the researcher found it important to include solutions such as family support, providing university residence for nursing students or ensuring reliable transport to and from campus/clinical placements for students residing in off campus accommodation.

### **Text box 7**

**Concluding statement 6:** The curriculum design and delivery of the undergraduate nursing programme affects the academic performance and success of undergraduate nursing students.

**Prescriptive statements 7:** Make the undergraduate nursing programme student friendly, flexible and accommodating. This includes a practicable time-table (both theory and clinical placements) and assessment arrangements as well as logical module and content distribution across the programme.

### **Main problems identified from previous chapters that informed the intervention**

- There were four main problems identified with regard to the design and delivery on the undergraduate nursing programme. The results that emerged from the current study revealed suggest that the nursing students are confronted with challenges relating to 12-hour shifts, time table arrangements that are not taking into account other programme responsibilities such as clinical placements, lack of synchrony between the undergraduate modules and poor assessment planning. The FGDs with the students revealed that students resort to surface approach to learning which they refer to as “Cram Pass and Forget” in order to persevere and achieve the minimum requirements to successfully complete the module or programme. During the design work the researcher considered several solutions to solve the problems identified above: the solutions included distributing the required clinical hours across the

programme to allowing 6-8hours clinical shift per day instead of straight 12-hour clinical shifts, distribution of modules across the undergraduate nursing programme should be done taking in to account, the relationship between modules and module content, workload and complexity of each module, assessment planning and communication of the plans. Furthermore, the researcher considered initiation of a short course to equip the students with skills that will help with ensuring that students adopt a deep learning approach to leaning which is necessary in the nursing profession.

### Text box 8

**Concluding statement 7:** The teaching and learning environment has a direct effect on teaching and learning and ultimately impacts the academic performance and success of nursing students

**Prescriptive statements 8:** Ensure a conducive teaching and learning environment. This include classrooms, skills laboratories and Digital resources.

#### **Main problems identified from previous chapters that informed the intervention**

- The findings of the present study revealed that both nurse educators and nursing students are facing challenges related to the physical condition of the classrooms and on-campus and of campus skills laboratories. The study results revealed that the physical conditions such as temperature, noise, ventilation, size of the venues/laboratories in relation to the number of students as well as unstable WIFI connection make the physical teaching and learning environment unfavourable and does not promote a positive teaching learning process. Thus, during the design work the researcher considered prescriptive intervention statements pertaining to the physical teaching and learning environment were included to with the aim of solving these identified problems.

### Text box 9

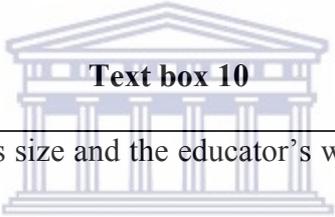
**Concluding statement 8:** Teaching and learning strategies used and the support provided in the delivery of the theoretical and clinical components of the programme affects the academic performance of undergraduate nursing students

**Prescriptive statements 9:** Enhance academic and clinical support to undergraduate nursing students at all times.

**Prescriptive statements 10:** Ensure uniformity and consistency in the process of teaching and learning

### **Main problems identified from previous chapters that informed the intervention**

- The students revealed that they receive insufficient academic and clinical support. Some students mentioned that they often feel lost in the clinical placements, what they refer to as feeling like “lost souls”. Students receive inadequate clinical support from the clinical supervisors and the hospital staff. In addition to inadequate support provided to nursing students, the researcher was also concerned about results that emerged from the focus group discussion with the students which indicated that there is a lack of uniformity and consistency among the nurse educators, clinical supervisors and hospital staff. The students revealed that conflicting and incongruent information (theory and clinical skills) led them to a state of confusion while they try to figure out the correct information or way of doing things which consequently negatively impacts on their academic performance and success. Likewise, during the design work the researcher considered solutions such as ensuring clinical supervision at all times, enhancing clinical supervisors and nurse educators teaching strategies as well as ongoing professional training to ensure uniformity and consistency.



### **Text box 10**

**Concluding statement 9:** Class size and the educator’s workload influences the quality of teaching and learning process.

**Prescriptive statements 9:** Provide support for nurse educators and clinical supervisors. This includes reviewing work allocation and workload for nurse educators.

### **Main problems identified from previous chapters that informed the intervention**

- The results of the present study revealed that nurse educators are frustrated with their current work conditions. Although this challenge may appear to be inappropriate, but job dissatisfaction by nurse educators may have an indirect negative impact on the academic performance, success and retention of nursing students. With that in mind, the researcher considered it appropriate to brainstorm solutions such as providing support (administrative and research support) to nurse educators, reducing the workload and freedom by to choose modules that they feel comfortable in teaching to reduce job stress and dissatisfaction.

## Appendix 11: Delphi questionnaire round 1



### UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa

Tel: +27 21-9599702, Fax: 27 21-9593515

E-mail: [kmthimunye@uwc.ac.za](mailto:kmthimunye@uwc.ac.za)

### Round 1 Questionnaire for Experts

#### Improving academic performance, success and retention

#### Building consensus on what should be implemented

#### Instructions:

Please read the following questions and share your opinion. Your answers and suggestions are extremely important for this project, which is part of a PhD dissertation at the University of the Western Cape, South Africa. The goal of this consultation is to build consensus around what interventions should be put in place to ensure optimal academic performance of undergraduate nursing students.

This questionnaire has two sections: The first one contains demographic information. In the second section, you will be asked for your opinion on the proposed intervention guidelines focusing on ensuring improvement of the academic performance and success of undergraduate nursing student at the university of the Western Cape.

Choose the best answer that suits your thinking. Please use the comment box for any comments or suggestion you wish to share regarding the given statement

**Note:** The **concluding statements** below summarizes the results of phase 1 and 2 of the study that informed the development of this instrument

#### Contact information:

Please enter your name and email address below. Your answers will not be associated with your name in the analysis of the questionnaire.

Name: \_\_\_\_\_

Contact number: \_\_\_\_\_

## SECTION 1: DEMOGRAPHIC DATA

Age: \_\_\_\_\_ years

Gender: \_\_\_\_\_

**1.2 Which of the following categories best represents you? (you can select more than one option)**

- Researcher
- Nurse educator/Lecturer
- Clinical facilitator
- Registered nurse (Clinical based)
- Teaching and learning specialist
- Curriculum development specialist
- Other, please specify: \_\_\_\_\_

**1.3 What qualifications do you currently hold?**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**1.4 In a typical year, how much time do you spend engaging with undergraduate nursing students?**

- None
- Less than 1 month
- 1-4 months
- 5-8 months
- 9-12 months

## SECTION 2: INTERVENTION GUIDELINES

**2.1 SELECT HIGH QUALITY PROSPECTIVE NURSING STUDENTS (entry requirements for admission)**

**Concluding statement 2:** The selection criterion set for undergraduate nursing students does not guarantee the admission of students who have potential for satisfactory academic performance and success.

**Concluding statement 4:** English as second language (ESL) and poor English language proficiency by undergraduate nursing students places them at risk of unsatisfactory academic performance and success

**Statement 1:** In your opinion, given your experience in higher education or as a nurse practitioner, do you think good English language skills should be a requirement in the undergraduate nursing programme?

- Yes
- No

**Statement 2:** English language skills (Reading, Writing, Listening and Speaking) should be tested prior to admission in to the undergraduate nursing programme.

Option	Select ONE option by typing an "X" below	Comment
Not at all important		
Slightly important		
Moderately important		
Very important		
Absolutely essential		

**Statement 3:** Based on the previous statements regarding recruitment of students with good English skills, what other interventions/measures should be put in place to ensure admission of students with the necessary English language skills. Please add any other comment or recommendation in the **COMMENT BOX** below

[please type here]

**Statement 4:** In your opinion, given your experience and the context in which you work, do you think that knowledge in Physics and Chemistry (referred to as physical science subject in high school) is an advantage for entry to the undergraduate programme?

- Yes
- No

**Statement 5:** Do you believe that students with knowledge in physical science subject from high school or equivalent should be given first priority above those without physical science subject for admission in to undergraduate nursing programme?

Option	Select ONE option by typing an "X" below	Comment
Not at all important		
Slightly important		
Moderately important		
Very important		
Absolutely essential		

**Statement 6:** Students with no previous physical science knowledge if accepted in to the nursing programme should be identified and followed up closely and be given the necessary support.

Option	Select ONE option by typing an "X" below	Comment
Not at all important		
Slightly important		
Moderately important		
Very important		
Absolutely essential		

**Statement 7:** The institution should provide a prerequisite physical science course to prepare students that are provisionally accepted into the undergraduate nursing programme to improve their physical science and to ensure that they are better prepared for the mainstream physical science module.

Option	Select ONE option by typing an "X" below	Comment
Not at all important		
Slightly important		
Moderately important		
Very important		
Absolutely essential		

**Statement 8:** Compulsory tutoring session should apply for students with no physical science backgrounds or to those that obtained a mark below average.

Option	Select ONE option by typing an "X" below	Comment
Not at all important		
Slightly important		
Moderately important		

Very important		
Absolutely essential		

**Statement 9:** Based on the previous questions regarding physical science background what other support should be available to a student with no physical science background. Please add any other comment or recommendation in the **COMMENT BOX** below

[please type here]

**Statement 10:** Prospective nursing students who indicate nursing as first choice on the application form given first priority on admission above those who indicate nursing as second or third choice of study.

Option	Select ONE option by typing an "X" below	Comment
Not at all important		
Slightly important		
Moderately important		
Very important		
Absolutely essential		

**Statement 11:** Based on the previous questions regarding recruitment of high quality prospective undergraduate nursing students, what other measures should be put in place to ensure that high quality nursing students are admitted into the undergraduate nursing programme. Please add any other comment or recommendation in the **COMMENT BOX** below

[please type here]

## 2.2 PROVIDE ENGLISH LANGUAGE SUPPORT (English for academic use)

**Concluding statement 4:** English as second language (ESL) and poor English language proficiency by undergraduate nursing students places them at risk of unsatisfactory academic performance and success

**Statement 1:** The School of Nursing should implement a compulsory English for academic development module to first year undergraduate nursing students.

Option	Select ONE option by typing an "X" below	Comment
Not at all important		
Slightly important		
Moderately important		
Very important		
Absolutely essential		

**Statement 2:** Based on the previous statement regarding English language support what other support should be available to a student with poor English language skills. Please add any other comment or recommendation in the **COMMENT BOX** below

[please type here]

## 2.3 PROMOTE CLASS ATTENDANCE

**Concluding statement 1:** Student's readiness for tertiary education influences class attendance and academic engagement. Creating an environment that promotes academic engagement is pivotal.

**Statement 1:** In your opinion, given your experience and the context in which you work, do you think admitting students who are motivated and committed to the nursing programme will result in high academic and clinical performance, success and retention rate? Please share any suggestion on how this can be promoted in the **COMMENT BOX** below

Option	Select ONE option by typing an "X" below	Comment
Not at all important		
Slightly important		
Moderately important		
Very important		
Absolutely essential		

**Statement 2:** Students support services should provide all students with regular academic support to improve motivation

Option	Select ONE option by typing an "X" below	Comment
Not at all important		
Slightly important		
Moderately important		
Very important		
Absolutely essential		

**Statement 3:** Students class attendance should be made compulsory. Please share any suggestion on how this can be promoted in the **COMMENT BOX** below

Option	Select ONE option by typing an "X" below	Comment
Not at all important		
Slightly important		
Moderately important		
Very important		
Absolutely essential		

**Statement 4:** School of Nursing should provide a platform for peer mentoring. i.e. providing a platform for high achievers to share their experience and guidance to with low performing students

Option	Select ONE option by typing an "X" below	Comment
Not at all important		
Slightly important		
Moderately important		
Very important		
Absolutely essential		

**Statement 5:** School of Nursing should provide a platform for graduates that are successful and are role models in the field of nursing to share their success and to inform current students of the possible prospects within the profession.

Option	Select ONE option by typing an "X" below	Comment
Not at all important		
Slightly important		
Moderately important		
Very important		
Absolutely essential		

**Statement 6:** Based on the previous statements regarding class attendance, what other interventions/measures should be put in place to ensure that class attendance is improved. Please add any other comment or recommendation in the **COMMENT BOX** below

[please type here]
--------------------

## 2.4 PROVIDE FINANCIAL SUPPORT TO DESERVING STUDENTS

**Concluding statement 3:** Poor socio-economic status and part-time employment influences academic performance and success of undergraduate nursing students

**Statement 1:** A comprehensive financial needs assessment should be conducted and deserving students should be provided with customized funding according to their individual needs.

Option	Select ONE option by typing an "X" below	Comment
Not at all important		
Slightly important		
Moderately important		
Very important		
Absolutely essential		

**Statement 2:** The institution should consider ways in which they can reduce the financial burden on students, through targeted additional financial support (i.e. scholarships, hardship funds, subsidised accommodation or other support) and by providing assistance to access financial aid or contingency funds.

Option	Select ONE option by typing an "X" below	Comment
Not at all important		
Slightly important		
Moderately important		
Very important		
Absolutely essential		

**Statement 3:** The institution should provide paid students assistant positions such as peer tutoring/mentoring and research assistant positions for needy students that perform well academically.

Option	Select ONE option by typing an "X" below	Comment
Not at all important		
Slightly important		
Moderately important		
Very important		
Absolutely essential		

**Statement 4:** The school of nursing should consider approaching companies and businesses for sponsor ship to provide food drives (feeding schemes) for needy students

Option	Select ONE option by typing an "X" below	Comment
Not at all important		
Slightly important		
Moderately important		
Very important		
Absolutely essential		

**Statement 5:** Based on the previous statements regarding the financial support what other interventions/measures should be put in place. Please add any other comment or recommendation in the **COMMENT BOX** below

[please type here]

## PROVIDE UNIVERSITY RESIDENCE TO UNDERGRADUATE NURSING STUDENTS

**Concluding statement 5:** Living off campus with family affects learning and ultimately the academic performance and success of nursing students

**Statement 1:** University residence should be available to all undergraduate nursing students.

Option	Select ONE option by typing an "X" below	Comment
Not at all important		
Slightly important		
Moderately important		
Very important		
Absolutely essential		

**Statement 2:** Based on your previous answer: If not: Ensure reliable transport to and from campus/clinical placement for students residing in off-campus accommodation

Option	Select ONE option by typing an "X" below	Comment
Not at all important		
Slightly important		
Moderately important		
Very important		
Absolutely essential		

**Statement 3:** Based on the previous statement above regarding providing university residence to nursing students what other support should students residing in off-campus residence be provided with. Please add any other comment or recommendation in the **COMMENT BOX** below

[please type here]

## 2.6 ENCOURAGE FAMILY SUPPORT AND INVOLVEMENT

**Concluding statement 5:** Living off campus with family affects learning and ultimately the academic performance and success of nursing students

**Statement 1:** In your opinion, given your experience in higher education or as a nurse practitioner, do you think family support is ensuring satisfactory academic performance, success and retention among undergraduate nursing students?

- Yes  
 No

UNIVERSITY of the  
WESTERN CAPE

**Statement 2:** Family should allow student time engage with his/her academic responsibilities.

Option	Select ONE option by typing an "X" below	Comment
Not at all important		
Slightly important		
Moderately important		
Very important		
Absolutely essential		

**Statement 2:** Based on the previous statement regarding the family support status what other interventions/measures should be put in place. Please add any other comment or recommendation in the **COMMENT BOX** below

[please type here]

## 2.7 MAKE THE UNDERGRADUATE NURSING PROGRAMME STUDENT FRIENDLY

**Concluding statement 6:** The curriculum design and delivery of the undergraduate nursing programme affects the academic performance and success of undergraduate nursing students.

**Statement 1:** The required clinical hours should be split across the programme to allow for 6-8hours clinical shift per day instead of 12-hour clinical shifts.

Option	Select ONE option by typing an "X" below	Comment
Not at all important		
Slightly important		
Moderately important		
Very important		
Absolutely essential		

**Statement 2:** Time table arrangement should take into consideration both the clinical and theoretical component of the undergraduate nursing programme.

Option	Select ONE option by typing an "X" below	Comment
Not at all important		
Slightly important		
Moderately important		
Very important		
Absolutely essential		

**Statement 3:** Distribution of modules across the undergraduate nursing programme should be done taking in to account, the relationship between modules, the module content, and complexity of each module and the clinical requirements.

Option	Select ONE option by typing an "X" below	Comment
Not at all important		
Slightly important		
Moderately important		
Very important		
Absolutely essential		

**Statement 4:** Assessment planning should be done in advance and students should be provided with the assessment plan (e.g. date, time, content to be covered) prior to commencing with the module that is to be studied

Option	Select ONE option by typing an "X" below	Comment
Not at all important		
Slightly important		
Moderately important		
Very important		
Absolutely essential		

**Statement 5:** The institution should offer academic support and development to improve students study skills and to ensure deep learning takes place.

Option	Select ONE option by typing an "X" below	Comment
Not at all important		
Slightly important		
Moderately important		
Very important		
Absolutely essential		

**Statement 3:** Based on previous statements above, what other intervention/measures should be put in place to ensure a programme that is friendly to students. Please add any other comment or recommendation in the **COMMENT BOX** below

[please type here]

## 2.8 ENSURE A CONDUCTIVE TEACHING AND LEARNING ENVIRONMENT

**Concluding statement 7:** The teaching and learning environment has a direct effect on teaching and learning and ultimately impacts the academic performance and success of nursing students

**Statement 1:** The school of nursing should ensure provision of the physical environment that promotes physical comfort in **classrooms** (enough space and chairs to sit, adequate, minimal noise, ventilation and temperature regulation)

Option	Select ONE option by typing an "X" below	Comment
Not at all important		
Slightly important		
Moderately important		
Very important		
Absolutely essential		

**Statement 2:** The school of nursing should ensure provision of the physical environment that promotes physical comfort in **skills laboratories** (enough space and chairs to sit, adequate ventilation and temperature regulation)

Option	Select ONE option by typing an "X" below	Comment
Not at all important		
Slightly important		
Moderately important		
Very important		
Absolutely essential		

**Statement 3:** The institution should ensure that students have reliable access to digital resources such as secure WIFI access points, fully functional computer labs that can accommodate the number of undergraduate nursing students.

Option	Select ONE option by typing an "X" below	Comment
Not at all important		
Slightly important		
Moderately important		
Very important		
Absolutely essential		

**Statement 4:** Based on the previous statements regarding the physical teaching and learning environment what other measures should be put in place to ensure a conducive physical teaching and learning environment for undergraduate nursing students. Please add any other comment or recommendation in the **COMMENT BOX** below

[please type here]

## 2.9 ENHANCE CLINICAL SUPPORT TO UNDERGRADUATE NURSING STUDENTS AT ALL TIMES

**Concluding statement 8:** Teaching and learning strategies used and the support provided in the delivery of the theoretical and clinical components of the programme affects the academic performance of undergraduate nursing students

**Statement 1:** The school of nursing should ensure that clinical supervisors are available and visible to all undergraduate nursing students in clinical placements at all times to ensure clinical support.

Option	Select ONE option by typing an "X" below	Comment
Not at all important		
Slightly important		
Moderately important		
Very important		
Absolutely essential		

**Statement 2:** Do you think that professional nurses in the hospital have a role to play in providing clinical support for undergraduate nursing students

Option	Select ONE option by typing an "X" below	Comment
Not at all important		
Slightly important		
Moderately important		
Very important		
Absolutely essential		

**Statement 3:** Based on the previous statement regarding improving clinical support given to students what other measures should be available to ensure adequate clinical support? Please add any other comment or recommendation in the **COMMENT BOX** below

[please type here]

## 2.10 ENSURE UNIFORMITY AND CONSISTENCY IN THE PROCESS OF TEACHING AND LEARNING

**Concluding statement 8:** Teaching and learning strategies used and the support provided in the delivery of the theoretical and clinical components of the programme affects the academic performance of undergraduate nursing students

**Statement 1:** Support should be provided to all nurse educators and clinical supervisors with regular workshops to promote innovative teaching and learning strategies.

Option	Select ONE option by typing an "X" below	Comment
Not at all important		
Slightly important		
Moderately important		
Very important		
Absolutely essential		

**Statement 2:** Nurse educators and clinical supervisors should receive appropriate and ongoing professional training and development to ensure standardization of teaching practices

Option	Select ONE option by typing an "X" below	Comment
Not at all important		
Slightly important		

Moderately important		
Very important		
Absolutely essential		

**Statement 3:** Based on the previous statement regarding uniformity and consistency in the process of teaching and learning improving, what other measures should be available to ensure adequate that the information taught and communicated to students in consistent across all nurse educators and clinical supervisors? Please add any other comment or recommendation in the **COMMENT BOX** below

[please type here]
--------------------

## 2.11 PROVIDE SUPPORT FOR NURSE EDUCATORS AND CLINICAL SUPERVISORS

**Concluding statement 9:** Class size and the educator’s workload influences the quality of teaching and learning process.

**Statement 1:** Nurse educators should be allowed to teach or facilitate modules based on their experience and area of interest and specialization

Option	Select ONE option by typing an “X” below	Comment
Not at all important		
Slightly important		
Moderately important		
Very important		
Absolutely essential		

**Statement 2:** In your opinion, given your experience in higher education or as a nurse practitioner, do you think the intake (selection target) of nursig students should be decreased to reduce the workload.

Option	Select ONE option by typing an “X” below	Comment
Not at all important		
Slightly important		
Moderately important		
Very important		
Absolutely essential		

**Statement 3:** Workload for nurse educators and clinical supervisors should be reviewed on a regular basis to ensure that work is distributed equally

Option	Select ONE option by typing an “X” below	Comment
Not at all important		
Slightly important		
Moderately important		
Very important		
Absolutely essential		

**Statement 4:** More administrative support such as, marking and research assistance should be provided to relive nurse educators.

Option	Select ONE option by typing an “X” below	Comment
Not at all important		
Slightly important		

Moderately important		
Very important		
Absolutely essential		

**Statement 5:** Based on the previous questions regarding support for nurse educators what other measures should be put in place? Please add any other comment or recommendation in the **COMMENT BOX** below

[please type here]
--------------------

**Please indicate who you feel should be approached to participate in this Delphi study in addition to the individuals indicated above (no maximum, potential participants without e-mail will be accommodated):**

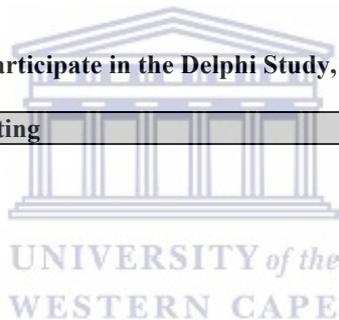
Name	Contact details (e-mail and institutional affiliation)	Notes if any
[please type here]	[please type here]	[please type here]

Thank you for your participation.

---

**In the event that you chose NOT to participate in the Delphi Study, please briefly indicate your reason:**

Reason/motivation for not participating
[Please type reason here]



## Appendix 12: Delphi questionnaire round 2



### UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa

Tel: +27 21-9599702, Fax: 27 21-9593515

E-mail: [kmthimunye@uwc.ac.za](mailto:kmthimunye@uwc.ac.za)

### Round 2 Questionnaire for Experts

#### Improving academic performance, success and retention

#### Building consensus on what should be implemented

##### Instructions:

Thank you very much for your participation in Round 1 of the Delphi study on improving the academic performance, success and retention of undergraduate nursing students.

This questionnaire has two sections: The first one contains intervention statements that did not reach 75% consensus during Round 1. The second section, contains new intervention statements derived from the analysis of the qualitative responses (comments and recommendations) from Round 1 of this Delphi study.

In the event that you wish to adjust any of the responses you gave in Round 1 (section 1 of this questionnaire), please tick the new response, if not ignore the statement/section.

Choose the best answer that suits your thinking. Please use the comment box for any comments or suggestion you wish to share regarding the given statement

**Note:** The **concluding statements** below summarizes the results of phase 1 and 2 of the study that informed the development of this instrument

##### Contact information:

Please enter your name and email address below. Your answers will not be associated with your name in the analysis of the questionnaire.

Name: \_\_\_\_\_

**SECTION 1: INTERVENTION GUIDELINES (below 75% consensus)**

**1.1 Statement 1:** Do you believe that prospective nursing students who have demonstrated aptitude to pass physical science subject from high school or equivalent should be given first priority/preference above those without physical science subject for admission into undergraduate nursing programme?

Option	Select ONE option by typing an "X" below	Comment
Not at all important		
Slightly important		
Moderately important		
Very important		
Absolutely essential		

**1.2 Statement 2:** The required clinical hours should be split across the programme to allow for 6-8hours clinical shift per day instead of 12-hour clinical shifts.

Option	Select ONE option by typing an "X" below	Comment
Not at all important		
Slightly important		
Moderately important		
Very important		
Absolutely essential		

**1.3 Statement 3:** University residence should be available to all undergraduate nursing students.

Option	Select ONE option by typing an "X" below	Comment
Not at all important		
Slightly important		
Moderately important		
Very important		
Absolutely essential		

**1.4 Statement 4:** In your opinion, given your experience in higher education or as a nurse practitioner, do you think the intake (selection target) of nursing students should be decreased to reduce the workload.

Option	Select ONE option by typing an "X" below	Comment
Not at all important		
Slightly important		
Moderately important		
Very important		
Absolutely essential		

**SECTION 2: INTERVENTION GUIDELINES (new statements)**

**2.1 SELECTION OF HIGH QUALITY PROSPECTIVE NURSING STUDENTS (entry requirements for admission)**

**Concluding statement:** The selection criterion set for undergraduate nursing students does not guarantee the admission of students who have potential for satisfactory academic performance and success.

**Concluding statement:** English as second language (ESL) and poor English language proficiency by undergraduate nursing students places them at risk of unsatisfactory academic performance and success

**2.1.1 New Statement 1:** Prospective students should be given pre-reading course material in the subject area (physical science) to complete prior to admission into the undergraduate nursing programme.

Option	Select ONE option by typing an "X" below	Comment
Not at all important		
Slightly important		
Moderately important		
Very important		
Absolutely essential		

**2.1.2 New Statement 2:** Prospective students should be required to produce or complete a portfolio of evidence that include physical science activities prior to admission into the undergraduate nursing programme.

Option	Select ONE option by typing an "X" below	Comment
Not at all important		
Slightly important		
Moderately important		
Very important		
Absolutely essential		

**2.1.3 New Statement 3:** Prospective nursing students should go through an interview process prior to admission in to the undergraduate nursing programme.

Option	Select ONE option by typing an "X" below	Comment
Not at all important		
Slightly important		
Moderately important		
Very important		
Absolutely essential		

**2.1.4. New Statement 4:** Recruitment of undergraduate nursing students should start in high school: Current nursing students and educators should conduct activities, motivational talks and provide role modelling in schools.

Option	Select ONE option by typing an "X" below	Comment
Not at all important		
Slightly important		
Moderately important		
Very important		
Absolutely essential		

## 2.2. PROMOTE CLASS ATTENDANCE

**Concluding statement:** Student's readiness for tertiary education influences class attendance and academic engagement. Creating an environment that promotes academic engagement is pivotal.

**2.2.1 New Statement 1:** Annual merit awards at the university, faculty and/or departmental level should be implemented to promote positive competition amongst nursing students.

Option	Select ONE option by typing an "X" below	Comment
Not at all important		
Slightly important		
Moderately important		
Very important		
Absolutely essential		

**2.2.2. New Statement 2:** Rewards class attendance: awards the students with 100% class attendance with a certificate of full attendance.

Option	Select ONE option by typing an "X" below	Comment
Not at all important		
Slightly important		
Moderately important		
Very important		
Absolutely essential		

**2.2.3 New Statement 3:** Provide surprise unannounced quizzes "spot assessments" in the classroom that contribute towards continuous assessment mark.

Option	Select ONE option by typing an "X" below	Comment
Not at all important		
Slightly important		
Moderately important		
Very important		
Absolutely essential		

### 2.3. ENCOURAGE FAMILY SUPPORT AND INVOLVEMENT

**Concluding statement:** Living off campus with family affects learning and ultimately the academic performance and success of nursing students

**2.3.1 New Statement 1:** Invite parents and family members to open days and programme orientations to share with them the challenges of the course and what role they can play in ensuring satisfactory academic performance and success among undergraduate nursing students.

Option	Select ONE option by typing an "X" below	Comment
Not at all important		
Slightly important		
Moderately important		
Very important		
Absolutely essential		

### 2.4 MAKE THE UNDERGRADUATE NURSING PROGRAMME STUDENT FRIENDLY

**Concluding statement:** The curriculum design and delivery of the undergraduate nursing programme affects the academic performance and success of undergraduate nursing students.

**2.4.1 New statement 10:** Online tutoring should be available to students.

Option	Select ONE option by typing an "X" below	Comment
Not at all important		
Slightly important		
Moderately important		
Very important		
Absolutely essential		

## 2.5 ENHANCE THEORETICAL AND CLINICAL SUPPORT TO UNDERGRADUATE NURSING STUDENTS AT ALL TIMES

**Concluding statement:** Teaching and learning strategies used and the support provided in the delivery of the theoretical and clinical components of the programme affects the academic performance of undergraduate nursing students

**2.5.1 New Statement 1:** Nurse educators should include a variety of teaching strategies to accommodate for diverse learning styles (e.g. Kinaesthetic, Visual, Auditory) and to promote interactive activities in class.

Option	Select ONE option by typing an "X" below	Comment
Not at all important		
Slightly important		
Moderately important		
Very important		
Absolutely essential		

**2.5.2 New Statement 2:** Nurse educators should incorporate effective and appropriate use of technology (electronic devices) in the classroom.

Option	Select ONE option by typing an "X" below	Comment
Not at all important		
Slightly important		
Moderately important		
Very important		
Absolutely essential		

**2.5.3 New Statement 1:** Nurse educators should be provided with the opportunity to consult student's course evaluation at the end of every module and make the relevant and appropriate changes where necessary.

Option	Select ONE option by typing an "X" below	Comment
Not at all important		
Slightly important		
Moderately important		
Very important		
Absolutely essential		

**2.5.4 New Statement 2:** Preceptor Training or Clinical teaching courses should be provided to Registered Nurses based in the hospitals.

Option	Select ONE option by typing an "X" below	Comment
Not at all important		
Slightly important		
Moderately important		
Very important		
Absolutely essential		

**2.5.5 New Statement 3:** Regular communication between nursing staff and clinical supervisor regarding the learning needs of each individual students.

Option	Select ONE option by typing an "X" below	Comment
Not at all important		
Slightly important		
Moderately important		
Very important		
Absolutely essential		

## 2.6. ENSURE UNIFORMITY AND CONSISTENCY IN THE PROCESS OF TEACHING AND LEARNING

**Concluding statement:** Teaching and learning strategies used and the support provided in the delivery of the theoretical and clinical components of the programme affects the academic performance of undergraduate nursing students

**2.6.1 New Statement 1:** Promote a more student-centred approach where students are allowed to be different and unique while focusing on the objectives to be achieved.

Option	Select ONE option by typing an "X" below	Comment
Not at all important		
Slightly important		
Moderately important		
Very important		
Absolutely essential		

## 2.7 PROVIDE SUPPORT FOR NURSE EDUCATORS AND CLINICAL SUPERVISORS

**Concluding statement:** Class size and the educator's workload influences the quality of teaching and learning process.

**2.7.1 New statement 16:** Head of Departments to consult with nurse educators on a regular basis to establish areas where support is needed.

Option	Select ONE option by typing an "X" below	Comment
Not at all important		
Slightly important		
Moderately important		
Very important		
Absolutely essential		

**Thank you for your participation.**

---

## Appendix 13: Delphi round 3 (summary of consensus)



**UNIVERSITY OF THE WESTERN CAPE**

Private Bag X 17, Bellville 7535, South Africa

Tel: +27 21-9599702, Fax: 27 21-9593515

E-mail: [kmthimunye@uwc.ac.za](mailto:kmthimunye@uwc.ac.za)

### **Intervention guidelines towards improving the academic performance, success and retention among undergraduate nursing students**

#### **Summarised results of Delphi procedure**

#### **SELECTION OF HIGH QUALITY PROSPECTIVE NURSING STUDENTS (entry requirements for admission)**

##### **Statement 1**

Prospective nursing students who have demonstrated aptitude to pass physical science subject from high school or equivalent should be given first priority/preference above those without physical science subject for admission into undergraduate nursing programme.

*% of participants that agreed with the statement: Round 1 70%: Round 2= 54.3%*

Decision: **Exclude**

-----

##### **Statement 2**

Students with no previous physical science knowledge to be identified and followed up closely and be given the necessary support.

*% of participants that agreed with the statement: 85%*

Decision: **Include**

-----

##### **Statement 3**

Provide a prerequisite physical science course to prepare students that are provisionally accepted into the undergraduate nursing programme to ensure that they are better prepared for the mainstream physical science module.

*% of participants that agreed with the statement: 80%*

Decision: **Include**

-----

##### **Statement 4**

Compulsory tutoring session for students with no physical science backgrounds or to those that obtained a low score.

*% of participants that agreed with the statement: 85%*

Decision: ***Include***

**Statement 5**

Prospective nursing students who indicate nursing as first choice on the application form given first priority on admission above those who indicate nursing as second or third choice of study.

*% of participants that agreed with the statement: 90%*

Decision: ***Include***

-----

**Statement 6**

Recruitment of undergraduate nursing students to start in high school: Current nursing students and educators should conduct activities, motivational talks and provide role modelling in schools.

*% of participants that agreed with the statement: 88.7%*

Decision: ***Include***

-----

**PROVIDE ENGLISH LANGUAGE SUPPORT (English for academic use)**

**Statement 7**

A compulsory English module for academic development module should be implemented at first-year undergraduate nursing students.

*% of participants that agreed with the statement: 85%*

Decision: ***Include***

-----

**PROMOTE CLASS ATTENDANCE**

**Statement 8**

Students support services should provide all students with regular academic, psychological and emotional support to improve motivation

*% of participants that agreed with the statement: 85%*

Decision: include

-----

**Statement 9**

Students class attendance should be made compulsory.

*% of participants that agreed with the statement: 87.5%*

Decision: ***Include***

-----

**Statement 10**

The School of Nursing (SoN) should provide a platform for peer mentoring. i.e. providing a platform for high achievers to share their experience and guidance to with low performing students

*% of participants that agreed with the statement: 82.5%*

Decision: ***Include***

-----



**Statement 11**

The SoN should provide a platform for graduates that are successful and are role models in the field of nursing to share their success and to inform current students of the possible prospects within the profession.

*% of participants that agreed with the statement: 87.5%*

Decision: **Include**

-----

**Statement 12**

Annual merit awards at the university, faculty and/or departmental level should be implemented to promote positive competition amongst nursing students.

*% of participants that agreed with the statement: 88.6%*

Decision: **Include**

-----

**Statement 13**

Rewards class attendance: awards the students with 100% class attendance with a certificate of full attendance.

*% of participants that agreed with the statement: 80%*

Decision: **Include**

-----

**PROVIDE FINANCIAL SUPPORT TO DESERVING STUDENTS**

**Statement 14**

A comprehensive financial needs assessment should be conducted: needy students and deserving students should be provided with customized funding according to their individual needs.

*% of participants that agreed with the statement: 88.6%*

Decision: **Include**

-----

**Statement 15**

The institution should consider ways in which they can reduce the financial burden on students, through targeted additional financial support (i.e. scholarships, hardship funds, subsidised accommodation or other support) and by providing assistance to access financial aid or contingency funds.

*% of participants that agreed with the statement: 85.7%*

Decision: **Include**

-----

**Statement 16**

The institution should provide paid students assistant positions such as peer tutoring/mentoring and research assistant positions for needy students that perform well academically.

*% of participants that agreed with the statement: 85.7%*

Decision: **Include**

-----



**Statement 17**

The SoN should consider approaching companies and businesses for sponsor ship to provide food drives (feeding schemes) for needy students

*% of participants that agreed with the statement: 82.5%*

Decision: **Include**

**PROVIDE UNIVERSITY RESIDENCE TO UNDERGRADUATE NURSING STUDENTS**

**Statement 18**

University residence should be available to all undergraduate nursing students.

*% of participants that agreed with the statement: 80%*

Decision: **Include**

-----

**Statement 19**

Ensure reliable transport to and from campus/clinical placement for students residing in off-campus accommodation

*% of participants that agreed with the statement: 80%*

Decision: **Include**

**ENCOURAGE FAMILY SUPPORT AND INVOLVEMENT**

**Statement 20**

Family should allow student time engage with his/her academic responsibilities.

*% of participants that agreed with the statement: 92.5%*

Decision: **Include**

-----

**Statement 21**

Invite parents and family members to open days and programme orientations to share with them the challenges of the course and what role they can play in ensuring satisfactory academic performance and success among undergraduate nursing students.

*% of participants that agreed with the statement: 86.7%*

Decision: **Include**

-----

**MAKE THE UNDERGRADUATE NURSING PROGRAMME STUDENT FRIENDLY**

**Statement 22**

The required clinical hours should be split across the programme to allow for 6-8hours clinical shift per day instead of 12-hour clinical shifts

*% of participants that agreed with the statement: 60%*

Decision: **Exclude**

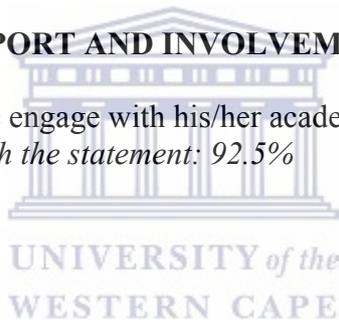
-----

**Statement 23**

Time table arrangement should take into consideration both the clinical and theoretical component of the undergraduate nursing programme.

*% of participants that agreed with the statement: 87.5%*

Decision: **Include**



-----  
**Statement 24**

Distribution of modules across the undergraduate nursing programme should be done taking in to account, the relationship between modules, the module content, and complexity of each module and the clinical requirements.

*% of participants that agreed with the statement: 87.5%*

Decision: ***Include***

-----

**Statement 25**

Assessment planning should be done in advance and students should be provided with the assessment plan (e.g. date, time, content to be covered) prior to commencing with the module that is to be studied

*% of participants that agreed with the statement: 92.5%*

Decision: ***Include***

-----

**Statement 26**

The institution should offer academic support and development to improve students study skills and to ensure deep learning takes place.

*% of participants that agreed with the statement: 92.5%*

Decision: ***Include***

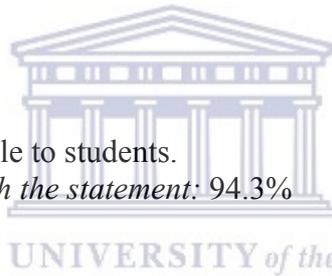
-----

**Statement 27**

Online tutoring should be available to students.

*% of participants that agreed with the statement: 94.3%*

Decision: ***Include***



**ENSURE A CONDUCTIVE TEACHING AND LEARNING ENVIRONMENT**

**Statement 28**

The SoN should ensure provision of the physical environment that promotes physical comfort in **classrooms** (adequate space, enough chairs to sit, minimal noise, adequate ventilation and temperature regulation)

*% of participants that agreed with the statement: 95%*

Decision: ***Include***

-----

**Statement 29**

The SoN should ensure provision of the physical environment that promotes physical comfort in **skills laboratories** (adequate space and enough chairs to sit, adequate ventilation and temperature regulation)

*% of participants that agreed with the statement: 95%*

Decision: ***Include***

-----

**Statement 30**

The institution should ensure that students have reliable access to digital resources such as secure WIFI access points, fully functional computer labs that can accommodate the number of undergraduate nursing students.

*% of participants that agreed with the statement: 92.5%*

Decision: **Include**

-----

**Statement 31**

The SoN should ensure that clinical supervisors/preceptors are available and visible to all undergraduate nursing students in clinical placements at all times to ensure clinical support.

*% of participants that agreed with the statement: 95%*

Decision: **Include**

-----

**Statement 32**

Professional nurses in the hospital should provide clinical support for undergraduate nursing students

*% of participants that agreed with the statement: 92.5%*

Decision: **Include**

-----

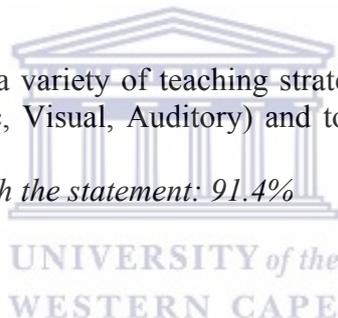
**Statement 33**

Nurse educators should include a variety of teaching strategies to accommodate for diverse learning styles (e.g. Kinaesthetic, Visual, Auditory) and to promote interactive activities in class.

*% of participants that agreed with the statement: 91.4%*

Decision: **Include**

-----

**Statement 34**

Nurse educators should incorporate effective and appropriate use of technology (electronic devices) in the classroom.

*% of participants that agreed with the statement: 91.4%*

Decision: **Include**

-----

**Statement 35**

Provide nurse educators with the opportunity to consult student's course evaluation at the end of every module and make the relevant and appropriate changes where necessary.

*% of participants that agreed with the statement: 94.3%*

Decision: **Include**

-----

**Statement 36**

Preceptor Training or Clinical teaching courses should be provided to Registered Nurses based in the hospitals.

*% of participants that agreed with the statement: 80%*

Decision: **Include**

-----

**Statement 37**

Encourage regular communication between nursing staff and clinical supervisor regarding the learning needs of each individual students.

*% of participants that agreed with the statement: 94.3%*

Decision: **Include**

-----

**ENSURE UNIFORMITY AND CONSISTENCY IN THE PROCESS OF TEACHING AND LEARNING**

**Statement 38**

Provided regular workshops to promote innovative teaching and learning strategies should be provided to all nurse educators and clinical supervisors.

*% of participants that agreed with the statement: 97.5%*

Decision: **Include**

-----

**Statement 39**

Nurse educators and clinical supervisors should receive appropriate and ongoing professional training and development to ensure standardization of teaching practices

*% of participants that agreed with the statement: 85%*

Decision: **Include**

-----

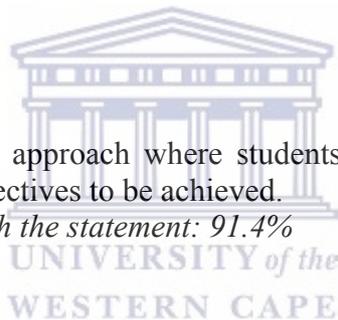
**Statement 40**

Promote a more student-centred approach where students are allowed to be different and unique while focusing on the objectives to be achieved.

*% of participants that agreed with the statement: 91.4%*

Decision: **Include**

-----



**PROVIDE SUPPORT FOR NURSE EDUCATORS AND CLINICAL SUPERVISORS**

**Statement 41**

Nurse educators should be allowed to teach or facilitate modules based on their experience and area of interest and specialization

*% of participants that agreed with the statement: 82.5%*

Decision: **Include**

-----

**Statement 42**

The intake (selection target) of nursing students should be decreased to reduce the workload.

*% of participants that agreed with the statement: 68.6%*

Decision: **Exclude**

-----

**Statement 43**

Workload for nurse educators and clinical supervisors should be reviewed on a regular basis to ensure that work is distributed equally

*% of participants that agreed with the statement: 85%*

Decision: **Include**

-----  
**Statement 44**

More administrative support such as, marking and research assistance should be provided to relieve nurse educators.

*% of participants that agreed with the statement: 80%*

Decision: ***Include***

-----

**Statement 45**

Head of Departments to consult with nurse educators on a regular basis to establish areas where support is needed.

*% of participants that agreed with the statement: 97.1%*

Decision: ***Include***

-----

Note: Kindly report if you are satisfied or dissatisfaction with the decisions made above based on the agreement level.

email: [kmthimunye@uwc.ac.za](mailto:kmthimunye@uwc.ac.za)

**Thank you once again for your valuable input.**



## Appendix 14: Information sheet



### UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa

Tel: +27 21-9599702, Fax: 27 21-9593515

E-mail: [kmthimunye@uwc.ac.za](mailto:kmthimunye@uwc.ac.za)

#### INFORMATION SHEET

**Project Title: An intervention towards the improvement of academic performance, success and retention among Bachelor of Nursing students at a Higher Education Institution in the Western Cape**

#### **What is this study about?**

This is a research project being conducted by Mr Katlego Mthimunye a PhD candidate at the University of the Western Cape. We are inviting you to participate in this research project because you could add great value to this study. The purpose of this research project is to develop an intervention towards the improvement of academic performance, success and retention among Bachelor of Nursing students at a Higher Academic Institution in the Western Cape. The information obtained in the study will guide the researcher to the aim of this study.

#### **What will I be asked to do if I agree to participate?**

You will be asked to participate in an in-depth interview and you will be asked to discuss certain questions posed. The questions that will be addressed will be related to the academic performance and success of Bachelor of Nursing students at the University of the Western Cape (UWC). The interview will be done within an hour and the venue will be communicated with you before the interview.

One to one interviews will be aimed at the nurse educators. The focus group interviews are aimed at the nursing students registered for Bachelor of Nursing programme at UWC. The interviews will be conducted at UWC's School of Nursing (SoN); permission was sort from the university registrar as well as from the head of the school. All information will be kept confidential and that only the researcher and the supervisors will have access to the information given. All information given in both the individual interviews and focus groups will be saved on a computer with a password for security purposes.

#### **Would my participation in this study be kept confidential?**

The researchers undertake to protect your identity and the nature of your contribution. To ensure your anonymity, I will do my best to keep your personal information confidential. To help protect your confidentiality, the information you provide will be totally private; no names will be used so there are no way you can be identified for participating in this study. Your information will be anonymous and treated confidentially. If we write a report or article about this research project, your identity will be protected to the maximum extent possible. To ensure your confidentiality, if we write a report or article about this research project, your identity will be protected.

This study will use focus groups therefore the extent to which your identity will remain confidential is dependent on participants' in the Focus Group maintaining confidentiality.

### **Audio taping**

This research project involves making use of audio taping of you. This will ensure the researcher that everything is captured. All recordings will be saved and stored on a computer with a password to secure access. After the analysis all recordings will be destroyed.

I agree to be audiotaped during my participation in this study.

I do not agree to be audiotaped during my participation in this study.

### **What are the risks of this research?**

There may be some risks from participating in this research study. All human interactions and talking about self or others carry some amount of risks. We will nevertheless minimise such risks and act promptly to assist you if you experience any discomfort, psychological or otherwise during the process of your participation in this study. Where necessary, an appropriate referral will be made to a suitable professional for further assistance or intervention.

### **What are the benefits of this research?**

This research is not designed to help you personally, but the results may help the investigator learn more about the current situation. We hope that, in the future, other nursing students might benefit from this study through improved understanding of academic performance and success in undergraduate nursing studies.

### **Do I have to be in this research and may I stop participating at any time?**

Your participation in this research is completely voluntary. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time. If you decide not to participate in this study or if you stop participating at any time, you will not be penalized or lose any benefits to which you otherwise qualify

### **What if I have questions?**

This research is being conducted by *Mr Katlego Mthimunye*. If you have any questions about the research study itself, please contact *Mr Katlego Mthimunye* at: 074 786 5599 or email to [kmthimunye@uwc.ac.za](mailto:kmthimunye@uwc.ac.za). Should you have any questions regarding this study and your rights as a research participant or if you wish to report any problems you have experienced related to the study, please contact:

Prof J. Chipps  
Head of Department (Acting)  
School of Nursing  
University of the Western Cape  
Private Bag X17  
Bellville 7535  
[jchipp@uwc.ac.za](mailto:jchipp@uwc.ac.za)

Prof José Frantz  
Dean of the Faculty of Community and Health Sciences  
University of the Western Cape  
Private Bag X17  
Bellville 7535  
[chs-deansoffice@uwc.ac.za](mailto:chs-deansoffice@uwc.ac.za)

This research has been approved by the University of the Western Cape's Senate Research Committee.

## Appendix 15: Information sheet (Delphi Study)



### UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa

Tel: +27 21-9599702, Fax: 27 21-9593515

E-mail: [kmthimunye@uwc.ac.za](mailto:kmthimunye@uwc.ac.za)

#### INFORMATION SHEET

(Delphi Study)

**Project Title: An intervention towards the improvement of academic performance, success and retention among Bachelor of Nursing students at a Higher Education Institution in the Western Cape**

#### **What is this study about?**

This is a research project being conducted by Mr Katlego Mthimunye a PhD candidate at the University of the Western Cape. We are inviting you to participate in this research project because you could add great value to this study. The purpose of this research project is to develop an intervention towards the improvement of academic performance, success and retention among Undergraduate Nursing students at a Higher Academic Institution in the Western Cape. The information obtained in the study will guide the researcher to the aim of this study.

#### **What will I be asked to do if I agree to participate?**

You will be asked to participate in the third phase of the study, the Delphi process which will require you to complete a number of questionnaires during the Delphi process. Each questionnaire will take approximately 30 minutes to complete. The questions that will be addressed will be related to the development of the intervention to improve the academic performance and success of Undergraduate of Nursing students at a university in the Western Cape. All stages of this process will involve a series of information collation and engagement through a Likert-scale structured questionnaire until consensus between participants is reached.

Participants that will be taking part in this process will include the experts in the field of nursing education, teaching and learning and experts in nursing curriculum development. Information as well as the questionnaires will be sent via electronic mail to participants. All information will be kept confidential and only the researcher and the supervisors will have access to the information given. All information given in the Delphi process will be saved on a computer and will be password protected for security purposes.

#### **Would my participation in this study be kept confidential?**

The researchers undertake to protect your identity and the nature of your contribution. To ensure your anonymity, I will do my best to keep your personal information confidential. To help protect your confidentiality, the information you provide will be totally private; no names will be used so there are no way you can be identified for participating in this study. Your information will be anonymous and treated confidentially. If we write a report or article about this research project, your identity will be protected to the maximum extent possible. To ensure

your confidentiality, if we write a report or article about this research project, your identity will be protected.

**What are the risks of this research?**

There may be some risks from participating in this research study. All human interactions and talking about self or others carry some amount of risks. We will nevertheless minimise such risks and act promptly to assist you if you experience any discomfort, psychological or otherwise during the process of your participation in this study. Where necessary, an appropriate referral will be made to a suitable professional for further assistance or intervention.

**What are the benefits of this research?**

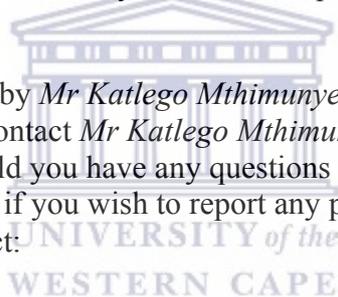
This research is not designed to help you personally, but the results may help the investigator learn more about the current situation. We hope that, in the future, other nursing students might benefit from this study through improved understanding of academic performance and success in undergraduate nursing studies.

**Do I have to be in this research and may I stop participating at any time?**

Your participation in this research is completely voluntary. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time. If you decide not to participate in this study or if you stop participating at any time, you will not be penalized or lose any benefits to which you otherwise qualify

**What if I have questions?**

This research is being conducted by *Mr Katlego Mthimunye*. If you have any questions about the research study itself, please contact *Mr Katlego Mthimunye* at: +27 81 547 2131 or email to [kmthimunye@uwc.ac.za](mailto:kmthimunye@uwc.ac.za). Should you have any questions regarding this study and your rights as a research participant or if you wish to report any problems you have experienced related to the study, please contact:



Prof J. Chipps  
Head of Department  
School of Nursing  
University of the Western Cape  
Private Bag X17  
Bellville 7535  
[jchipps@uwc.ac.za](mailto:jchipps@uwc.ac.za)

Prof José Frantz  
Dean of the Faculty of Community and Health Sciences  
University of the Western Cape  
Private Bag X17  
Bellville 7535  
[chs-deansoffice@uwc.ac.za](mailto:chs-deansoffice@uwc.ac.za)

This research has been approved by the University of the Western Cape's Senate Research Committee.

## Appendix 16: Information sheet (Delphi Round 1 - Expert briefing)



### UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa

Tel: +27 21-9599702, Fax: 27 21-9593515

E-mail: [kmthimunye@uwc.ac.za](mailto:kmthimunye@uwc.ac.za)

#### Round 1 Questionnaire for Experts

#### Improving academic performance, success and retention

#### Building consensus on what should be implemented

#### Motivations for the study

A study conducted by Mc Lachlan (2010) at the Western Cape College of Nursing (WCCN) to investigate the attrition rate of nursing students reported 34.4% attrition for the 2003 admission year. In another study conducted at the Cape University of Technology an attrition rate of 70% among nursing students was found (Jeptha, 2008). A study conducted by Swarts (2013) at the University of the Western Cape (UWC) investigating the “completion in minimum time” of students in the Community and Health Science (CHS) faculty found that from the cohorts of 2009 to 2012 only 48% of the students enrolled for the Bachelor of Nursing programme completed in the minimum time allocated. Therefore, the aim of this study is to develop an intervention towards the improvement of academic performance, success and retention among Undergraduate nursing students at a university in the Western Cape, South Africa

#### Concluding statements

**Statement 1:** Students lack motivation, interest, dedication and commitment, emotional intelligence, self-control and resilience leads no poor class attendance and ultimately academic disengagement. Creating an environment that promote academic engagement is pivotal.

**Statement 2:** The selection criterion set for undergraduate nursing students has serious gaps that allow admission of low quality prospective students.

**Statement 3:** Poor socio-economic status, paid part-time employment and number of hours spent in part-time employment negatively influence academic performance, success and

retention of undergraduate nursing students

**Statement 4:** English as second language and poor English language proficiency by undergraduate nursing students places them at risk of unsatisfactory academic performance and success

**Statement 5:** Staying off campus residence during the course of undergraduate nursing programme negatively affected learning and untimely have a negative impact on the academic performance and success of nursing students.

**Statement 6:** The design and delivery of the undergraduate nursing programme negatively affected the academic performance, success and retention of undergraduate nursing students. Students deploy desperate measures such as memorising content without understanding in order to cope with programme demands.

**Statement 7:** The unfavourable teaching and learning environment negatively affected teaching and learning and ultimately had a negative impact on the academic performance and success of nursing students

**Statement 8:** Unsatisfactory delivery of content and poor implementation of teaching and learning strategies as well as Inadequate academic and clinical support from educators, clinical supervisors and hospital staff negatively affects the academic performance of undergraduate nursing students

**Statement 9:** Large number of students in the classroom, work allocation and unreasonable workload leads to frustration and job dissatisfaction thus have a negative influence the quality of teaching and learning process.

## Appendix 17: Information sheet (Delphi Round 2)



### UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa

Tel: +27 21-9599702, Fax: 27 21-9593515

E-mail: [kmthimunye@uwc.ac.za](mailto:kmthimunye@uwc.ac.za)

#### Information sheet (Delphi study)

#### Round 2 Questionnaire for Experts

#### Improving academic performance, success and retention

#### Building consensus on what should be implemented

Dear [Name]

Thank you very much for your participation in Round 1 of the Delphi Study on improving the academic performance, success and retention of undergraduate nursing students.

In Round 2, the result of Round 1 as well as four (4) statements that did not receive 80% consensus during round 1 are circulated and participants are invited to adjust the responses supplied in Round 1 in the light of the new information received.

In the event that you wish to adjust any of the responses you gave in Round 1, please type the new response(s) only in the spaces provided in the attached text document and return the completed document to [kmthimunye@uwc.ac.za](mailto:kmthimunye@uwc.ac.za) as an e-mail attachment before 30 May 2018.

Thank you

Mr Katlego Mthimunye

[kmthimunye@uwc.ac.za](mailto:kmthimunye@uwc.ac.za)

## Appendix 18: Consent form



### UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa

Tel: +27 21-9599702, Fax: 27 21-9593515

E-mail: [kmthimunye@uwc.ac.za](mailto:kmthimunye@uwc.ac.za)

#### CONSENT FORM

**Title of Research Project: An intervention towards the improvement of academic performance, success and retention among Bachelor of Nursing students at a Higher Education Institution in the Western Cape**

The study has been described to me in language that I understand. My questions about the study have been answered. I understand what my participation will involve and I agree to participate of my own choice and free will. I understand that my identity will not be disclosed to anyone. I understand and I agree that this study involves the audio recording of my interview with the researcher. Neither my name nor any other identifying information will be associated with the audio recording or the transcript. All recordings will be saved and stored on a computer with a password to secure access. After the analysis all recordings will be destroyed. I understand that I may withdraw from the study at any time without giving a reason and without fear of negative consequences or loss of benefits.

- I hereby agree to participate in the research being conducted.
- I hereby agree to contribute and assist the researcher with the needed information.
- I hereby agree to be as truthful and honest without the discussion.

**Participant's name.....**

**Participant's signature.....**

**Date.....**

## Appendix 19: Consent form (Delphi study)



### UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa

Tel: +27 21-9599702, Fax: 27 21-9593515

E-mail: [kmthimunye@uwc.ac.za](mailto:kmthimunye@uwc.ac.za)

#### CONSENT FORM

(Delphi study)

**Title of Research Project: An intervention towards the improvement of academic performance, success and retention among Bachelor of Nursing students at a Higher Education Institution in the Western Cape**

The study has been described to me in language that I understand. My questions about the study have been answered. I understand what my participation will involve and I agree to participate of my own choice and free will. I understand that my identity will not be disclosed to anyone. I understand that I may withdraw from the study at any time without giving a reason and without fear of negative consequences or loss of benefits.

- I hereby agree to participate in the research being conducted.
- I hereby agree to contribute and assist the researcher with the needed information.
- I hereby agree to be as truthful and honest without the discussion.

**Participant's name.....**

**Participant's signature.....**

**Date.....**

## Appendix 20: Focus group confidentiality binding form



### UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa

Tel: +27 21-9599702, Fax: 27 21-9593515

E-mail: [kmthimunye@uwc.ac.za](mailto:kmthimunye@uwc.ac.za)

### FOCUS GROUP CONFIDENTIALITY BINDING FORM

**Title of Research Project: An intervention towards the improvement of academic performance, success and retention among Bachelor of Nursing students at a Higher Education Institution in the Western Cape**

The study has been described to me in language that I understand. My questions about the study have been answered. I understand what my participation will involve and I agree to participate of my own choice and free will. I understand that my identity will not be disclosed to anyone by the researchers. I understand that I may withdraw from the study at any time without giving a reason and without fear of negative consequences or loss of benefits. I understand that confidentiality is dependent on participants' in the Focus Group maintaining confidentiality.

I hereby agree to uphold the confidentiality of the discussions in the focus group by not disclosing the identity of other participants or any aspects of their contributions to members outside of the group.

**Participant's name.....**

**Participant's signature.....**

**Date.....**

## Appendix 21: Permission from Registrar



**STUDENT  
ADMINISTRATION**  
Administration Building, 1<sup>st</sup> Floor  
ashaikjee@uwc.ac.za, nschoeman@uwc.ac.za  
021 959 2110

14 February 2017

Dear Katlego Dumisani Trevor Mthimunye

**RE: PERMISSION TO CONDUCT RESEARCH AT THE UNIVERSITY OF THE WESTERN CAPE**

As per your request, we acknowledge that you have obtained all the necessary permissions and ethics clearances (application outcome pending) and are welcome to conduct your research as outlined in your proposal and communication with us.

Please note that while we give permission to conduct such research (i.e. interviews and surveys) staff and students at this University are not compelled to participate and may decline to participate should they wish to.

Should you wish to make use of or reference to the University's name, spaces, identity, etc. in any publication/s, you must first furnish the University with a copy of the proposed publication/s so that the University can verify and grant permission for such publication/s to be made publicly available.

Should you require any assistance in conducting your research in regards to access to student contact information please do let us know so that we can facilitate where possible.

Yours sincerely

A handwritten signature in black ink, appearing to read 'A. Shaikjee'.

DR AHMED SHAIKJEE  
MANAGER: STUDENT ADMINISTRATION  
OFFICE OF THE REGISTRAR

## Appendix 22: Permission from Director of School of Nursing



School of Nursing  
Faculty of Community and Health  
THE UNIVERSITY OF THE WESTERN CAPE

Dear Mr Mthimunye (3406922)

RE: PERMISSION TO CONDUCT RESEARCH AT THE UNIVERSITY OF THE WESTERN CAPE

As per your request, we acknowledge that you have obtained all the necessary permissions and ethics clearances (HS17/1/42) and are welcome to conduct your research as outlined in your proposal and communication with the School of Nursing.

Please note that while we give permission to conduct such research (i.e. interviews and surveys) staff and students at this School are not compelled to participate and may decline to participate should they wish to.

Should you wish to make use of or reference to the School's name, spaces, identity, etc. in any publication/s, you must first furnish the School with a copy of the proposed publication/s so that the School can verify and grant permission for such publication/s to be made publicly available.

Should you require any assistance in conducting your research in regards to access to student contact information please do let us know so that we can facilitate where possible.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Jennifer Chipps'.

A/Prof Jennifer Chipps  
A/Director School of Nursing  
Faculty of Community and Health  
THE UNIVERSITY OF THE WESTERN CAPE

T: +27 21 959 3024  
E: [jchipps@uwc.ac.za](mailto:jchipps@uwc.ac.za)

## Appendix 23: Proof of language editing



### LETTER OF CERTIFICATION

Gareth O P H Lowe  
9 Lamborghini Avenue  
Wierda Park  
Centurion  
0157  
Tel: +27 83 726 6868  
Email: gareth\_lowe@yahoo.com

6 November 2018

To whom it may concern

I hereby certify that I, Gareth Lowe, edited the thesis written by **Katlego Mthimunye** entitled "**AN INTERVENTION TOWARDS THE IMPROVEMENT OF ACADEMIC PERFORMANCE, SUCCESS AND RETENTION AMONG BACHELOR OF NURSING STUDENTS AT A HIGHER EDUCATION INSTITUTION IN THE WESTERN CAPE**".

Regards

A handwritten signature in black ink, appearing to read "Gareth Lowe", written over a dotted line.

Gareth Lowe  
Editor





## LETTER OF CERTIFICATION

Gareth O P H Lowe  
9 Lamborghini Avenue  
Wierda Park  
Centurion  
0157  
Tel: +27 83 726 6868  
Email: gareth\_lowe@yahoo.com

6 November 2018

To whom it may concern

I hereby certify that I, Gareth Lowe, edited the article written by **Katlego Mthimunye** entitled "**AN INTERVENTION FOR THE IMPROVEMENT OF ACADEMIC PERFORMANCE, SUCCESS AND RETENTION OF NURSING STUDENTS AT THE UNIVERSITY IN THE WESTERN CAPE, SOUTH AFRICA**".

Regards

A handwritten signature in black ink, appearing to read "Gareth Lowe", written over a horizontal dotted line.

Gareth Lowe

Editor





## LETTER OF CERTIFICATION

Gareth O P H Lowe  
9 Lamborghini Avenue  
Wierda Park  
Centurion  
0157  
Tel: +27 83 726 6868  
Email: gareth\_lowe@yahoo.com

3 October 2018

To whom it may concern

I hereby certify that I, Gareth Lowe, edited the article written by Katlego Mthimunye entitled **"Exploring the challenges and corresponding measures implemented to improve academic performance and success of undergraduate nursing students at a university in the Western Cape, South Africa"**.

Regards

A handwritten signature in black ink, appearing to read "Gareth Lowe", written over a dotted line.

Gareth Lowe

Editor



UNIVERSITY *of the*  
WESTERN CAPE



## LETTER OF CERTIFICATION

Gareth O P H Lowe  
9 Lamborghini Avenue  
Wierda Park  
Centurion  
0157  
Tel: +27 83 726 6868  
Email: gareth\_lowe@yahoo.com

4 July 2018

To whom it may concern

I hereby certify that I, Gareth Lowe, edited the article written by Katlego Mthimunye entitled "Nurse educator's challenges and corresponding measures to improve the academic performance, success and retention of undergraduate nursing students at a university in the Western Cape, South Africa".

Regards

A handwritten signature in blue ink, appearing to read "Gareth Lowe", written over a dotted horizontal line.

Gareth Lowe

Editor



UNIVERSITY *of the*  
WESTERN CAPE

## Appendix 24: Correspondence with South African Journal of Higher Education (SAJHE) – Study 1

### Editor/Author Correspondence

Editor Subject: [SAJHE] Editor Decision [DELETE](#)  
2017-09-29 07:49 PM  
Katlego Mthimunye:

We have reached a decision regarding your submission to SAJHE, "Predictors of academic performance, success and retention amongst Bachelor of Nursing students: A systematic review".

Our decision is: Resubmit

SAJHE Administrator  
sajhe@sun.ac.za

---

South African Journal of Higher Education  
<http://www.journals.ac.za/index.php/sajhe>

Author Subject: Predictors of academic performance, success and retention amongst Bachelor of Nursing students: A systematic review [DELETE](#)  
2017-10-26 04:14 PM  
Dear Reviewer

We thank you for your useful comments which we believe it substantially improved the quality of the manuscript. We have addressed all the comments of the reviewer and we trust that this meets with your favorable consideration.

Regards

---

South African Journal of Higher Education  
<http://www.journals.ac.za/index.php/sajhe>

Editor Subject: [SAJHE] Editor Decision [DELETE](#)  
2017-11-15 01:44 PM  
Katlego Mthimunye:

We have reached a decision regarding your submission to South African Journal of Higher Education, "Predictors of academic performance, success and retention amongst Bachelor of Nursing students: A systematic review".

Our decision is to: Accept Submission

SAJHE Administrator  
sajhe@sun.ac.za

---

South African Journal of Higher Education  
<http://www.journals.ac.za/index.php/sajhe>

Close



# Appendix 25: Correspondence with the Journal of the Democratic Nursing Organisation of South Africa (*Curationis*) - Study 2

Round 1: 30 May 2018

## EDITOR/AUTHOR CORRESPONDENCE

Editor **DELETE**  
2018- (HTTPS://CURATIONIS.ORG.ZA/INDEX.PHP/CURATIONIS/AUTHOR/DELETECOMMENT/1914/4270)  
05-30 Subject: CURATIONIS External Review Decision 1914 - Resubmit for review  
10:01 \*\*\*\*\*  
PM Ref. No.: 1914

Manuscript title: Student nurses' perceptions of their educational environment at a school of nursing in Western Cape Province, South Africa: A cross-sectional study  
Journal: Curationis  
\*\*\*\*\*

Dear Mr Katlego D.T. Mthimunye

We thank you for the submission of your manuscript. The editorial and peer reviews of your manuscript have now been completed and we have reached a decision regarding your submission.

As you can see from the comments included, the reviewers recommend significant revisions to your manuscript. We strongly encourage you to submit a revised version that addresses the reviewers' concerns.

Should you choose to revise the manuscript, please be sure to take into careful consideration the suggestions of the reviewers. Please include with your revised submission an itemised, point-by-point response to the reviewers which details the changes made. Please inform me should you plan on resubmitting a revision to the Curationis - I would like to ensure a quick start of the next peer review round.

The revised manuscript should be submitted by 30 June 2018; if you anticipate that you will be unable to meet this deadline, please notify the Editorial Office.

Below my signature, you will find steps to resubmit your manuscript to the journal. If you need any assistance, kindly contact the Editorial Office at [submissions@curationis.org.za](mailto:submissions@curationis.org.za) with any questions or concerns.

Yours sincerely,  
Prof. Fhumulani M. Mulaudzi  
University of Pretoria  
Phone 082 563 4758  
[editor@curationis.org.za](mailto:editor@curationis.org.za)

\*\*\*\*\*

## Round 2

\*\*\*\*\*

Ref. No.: 1914

Manuscript title: Student nurses' perceptions of their educational environment at a school of nursing in Western Cape Province, South Africa: A cross-sectional study

Journal: Curationis

\*\*\*\*\*

Dear Mr Katlego D.T. Mthimunye

We thank you for the submission of your manuscript. The peer review process of your manuscript has now been completed and we have reached a decision regarding your submission.

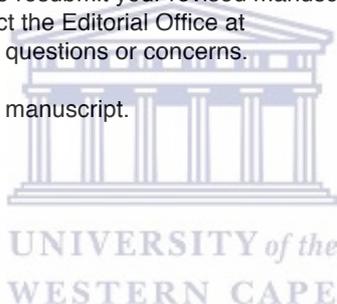
At present, your manuscript requires minor revisions to address the concerns of the reviewers. Their comments are attached to the email and/or to the bottom of this letter. If not, for your convenience log onto your profile to view the reviewers' comments.

Please include with your revised submission an itemised, point-by-point response to the reviewers which details the changes made. The revised manuscript should be submitted by 7 November 2018; if you anticipate that you will be unable to meet this deadline, please notify the Editorial Office.

Below my signature, you will find steps to resubmit your revised manuscript. If you need any assistance, kindly contact the Editorial Office at [submissions@curationis.org.za](mailto:submissions@curationis.org.za) with any questions or concerns.

We look forward to receiving the revised manuscript.

Yours sincerely,  
Prof. Fhumulani M. Mulaudzi  
University of Pretoria  
Phone:  
[editor@curationis.org.za](mailto:editor@curationis.org.za)



\*\*\*\*\*

Editor **DELETE**  
2018-12-05 01:01 PM  
([HTTPS://CURATIONIS.ORG.ZA/INDEX.PHP/CURATIONIS/AUTHOR/DELETECOMMENT/1914/4525](https://curationis.org.za/index.php/curationis/author/deletecomment/1914/4525))  
Subject: CURATIONIS - 1914: Manuscript Accepted for Publication, Sent to Editing  
\*\*\*\*\*

Ref. No.: 1914  
Manuscript title: Student nurses' perceptions of their educational environment at a school of nursing in Western Cape Province, South Africa: A cross-sectional study  
Journal: Curationis  
ISSN: 0379-8577, E-ISSN: 2223-6279  
\*\*\*\*\*

Dear Mr Katlego D.T. Mthimunya

Ref. No.: 1914

You will be pleased to know that your manuscript has been accepted for publication on 12-11-2018.

We would like to confirm that your manuscript has now been sent to our publishing department for finalisation.

Kindly note:

1. If you need to make contact with the publisher during the finalisation stage of your manuscript, kindly contact us per email or phone. Your new publisher contact will be

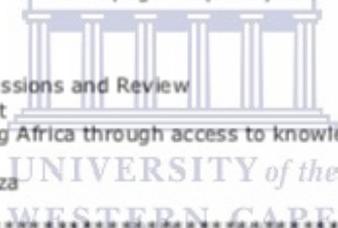
---

Lehane van der Merwe, email: [publishing@curationis.org.za](mailto:publishing@curationis.org.za) and telephone extension: 512

2. The finalisation procedure works as follows: (a) The first stage is the language editing that is returned to the corresponding author for review. This will be the final opportunity for the corresponding author to make text changes to the manuscript. (b) At a later stage, the editorial staff will send the corresponding author one set of galley proofs, at which time the author will have two working days to mark any typographical errors.

3. Manuscript tracking is available on the submitting authors' journal profile. The submitting Author could visit their home page frequently to assess the stage of the manuscript.

Kind regards,  
Chantal Adams: AOSIS Submissions and Review  
Scholarly Journals Department  
AOSIS Publishing, Empowering Africa through access to knowledge  
Phone +270219752602  
[6ts.fpsupport@curationis.org.za](mailto:6ts.fpsupport@curationis.org.za)



\*\*\*\*\*  
Frequently Asked Question  
What can I expect from the publication procedure?  
\*\*\*\*\*

## Appendix 26: Correspondence with the Journal of the Democratic Nursing Organisation of South Africa (*Curationis*) - Study 3

From: aosis@curationis.org.za  
Subject: CURATIONIS Submission 2027 - Confirmation and acknowledgement of receipt  
Date: 02 November 2018 at 17:38  
To: Mr Katlego D.T. Mthimunye katlegomthimunye@icloud.com

A

\*\*\*\*\*  
Ref. No.: 2027  
Manuscript title: Exploring the challenges and corresponding measures implemented to improve academic performance and success of undergraduate nursing students at a university in the Western Cape, South Africa.  
Journal: Curationis  
\*\*\*\*\*

Dear Mr Katlego D.T. Mthimunye

Your submission has been received by the journal and will now be processed in accordance with published timelines.

Processing time guidelines are available under the journal's 'About' section, however, please note that each submission is assessed on its individual merit and in certain circumstances processing times may differ.

You can check the status of your submission in three ways:

- Journal Website: login to your account at <https://curationis.org.za/index.php/curationis/author/submission/2027>.
- Publisher Enquiry Service: telephone numbers are +27(0)21 975 2602 and/or 0861000381.
- Publisher FAQ and Email Service: visit the Publisher FAQ and Email service at <https://publishingsupport.aosis.co.za/index.php>

You will receive additional emails from the journal as your submission passes through the phases of the editorial process.

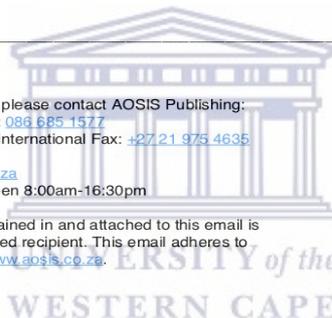
Kind regards,  
AOSIS Publishing  
Curationis

Curationis  
<https://www.curationis.org.za>

If you require immediate assistance, please contact AOSIS Publishing:  
RSA Tel: 086 1000 381 | Fax to mail: 086 685 1577  
International Tel: +27 21 975 2602 | International Fax: +27 21 975 4635

Support email: [publishing@aosis.co.za](mailto:publishing@aosis.co.za)  
Business hours are weekdays between 8:00am-16:30pm

Confidentiality: The information contained in and attached to this email is confidential and for use of the intended recipient. This email adheres to the email disclaimer described on [www.aosis.co.za](http://www.aosis.co.za).



## Appendix 27: Correspondence with the Independent Journal of Teaching and (IJTL) Learning - Study 4

From: **Portia Sindane** [psindane@iie.ac.za](mailto:psindane@iie.ac.za)   
Subject: IJTL ONLINE SUBMISSION  
Date: 05 November 2018 at 10:08  
To: [katlegomthimunye@icloud.com](mailto:katlegomthimunye@icloud.com)

PS

Good day

Thank you very much for your online submission, everything is in order

Kindest regards

Portia Sindane  
Research and Development Administrator



ADvTECH, Building 7, Inanda Greens Business Office Park, 54 Wierda Road West, Wierda Valley,  
Sandton, South Africa, 2196  
P.O. Box 2369, Randburg, Gauteng, 2125.  
Tel: +27 11 676 8021 | Fax: +27 11 783 2574  
Email: [psindane@iie.ac.za](mailto:psindane@iie.ac.za)  
Website: [www.iie.ac.za](http://www.iie.ac.za)



### Disclaimer

This message and any attachments and or links are confidential and intended solely for the addressee. If you have received this message in error, please notify ADvTECH immediately, telephone number +27 11676 8000 or e-mail [disclaimer@advtech.co.za](mailto:disclaimer@advtech.co.za). Any unauthorized use; alteration or dissemination of the contents of this email is strictly prohibited. In no event will ADvTECH or the sender be liable in any manner whatsoever to any person for any loss or any direct, indirect, special or consequential damages arising from use of this email or any linked website, including, without limitation, from any lost profits, business interruption, loss of software programs or other data that may be stored on any information handling system or otherwise from any assurance that this email is virus free even if ADvTECH is expressly advised of the possibility of such damages.

5<sup>th</sup> March 2019

Dear Mr Katlego Duminsani Trevor Mthimunye and Prof Daniels



*Nurse educators' challenges and corresponding measures to improve the academic performance, success and retention of undergraduate nursing students at a university in the Western Cape, South Africa*



Thank you so much for submitting your paper for consideration – your contribution is valued. Please see the reviewer comments related to your article below. This paper was part of a double blind peer review process as well as an internal review. The review process has yielded that this article **should only be accepted** for publication subject to substantive revisions being made and evaluated for suitability and acceptance that these requirements are met by our review team. We hope that you will make these changes that have been suggested.



We would like you to please submit a Turnitin or similar referencing software report for your article.

If you wish to submit the changes please send to [editor@iie.ac.za](mailto:editor@iie.ac.za). The deadline for the revised article is **14 March 2019**. **Please use track changes on the article. Make comments next to each change request documenting the change either on the letter or in the text itself for ease of reference. All comments must please be addressed and evidenced**

Yours Faithfully

Prof. Dolina Dowling (Editor-in-Chief)

Dr. Brenda van Wyk (Managing Editor)

[editor@iie.ac.za](mailto:editor@iie.ac.za)

ADVTECH HOUSE

Inanda Greens  
54 Wierda Rd West  
Wierda Valley 2196  
P.O. Box 2369  
Randburg 2125

T. (011) 676 8021  
F. (011) 783 2574  
E. [info@iie.co.za](mailto:info@iie.co.za)  
[www.iie.co.za](http://www.iie.co.za)



**Directors:** RJ Douglas (UK), JDR Oesch\*, MD Aitken\*, FJ Coughlan\* (\*Non-Executive) **Company Secretary:** DM Dickson

The Independent Institute of Education (Pty) Ltd is registered with the Department of Higher Education and Training as a private higher education institution under the Higher Education Act, 1997 (reg. no. 2007/HE07/002). Company registration number: 1987/004754/07.

## Appendix 28: Correspondence with the International Journal of Africa Nursing Sciences- Study 5

From: Nelouise Geyer (International Journal of Africa Nursing Sciences) EviseSupport@elsevier.com  
Subject: Invitation to revise manuscript IJANS\_2018\_150  
Date: 04 February 2019 at 08:31  
To: katlegomthimunye@icloud.com

Ref: IJANS\_2018\_150  
Title: An intervention for the improvement of academic performance, success and retention of nursing students at the university in the western cape, South Africa  
Journal: International Journal of Africa Nursing Sciences

Dear Mr. Mthimunye,

Thank you for submitting your manuscript to International Journal of Africa Nursing Sciences. We have completed the review of your manuscript. A summary is appended below. While revising the paper please consider the reviewers' comments carefully. We look forward to receiving your detailed response and your revised manuscript.

To submit your revised manuscript:

- Log into EVISE® at: [http://www.evise.com/evise/faces/pages/navigation/NavController.jspx?JRNL\\_ACR=IJANS](http://www.evise.com/evise/faces/pages/navigation/NavController.jspx?JRNL_ACR=IJANS)
- Locate your manuscript under the header 'My Submissions that need Revisions' on your 'My Author Tasks' view
- Click on 'Agree to Revise'
- Make the required edits
- Click on 'Complete Submission' to approve

In the revision process we would like to request you return three files:

- (1) Please submit a table of changes (or your rebuttal) against each point raised when you upload your revised article and upload this as your 'Response to Reviewers' file/doc - note our system will not allow you to complete the resubmission process without this file.
- (2) Please submit a second word document which highlights any revised text using coloured highlighting in the word document itself. This will enable the Editor /Reviewers to identify the amendments and subsequently make faster decisions on the revisions.
- (3) In addition we request one final file, a 'clean' word document of the revised manuscript without any annotations, highlighting or comments, in font 10 or 12 pt with double line spacing.

#### What happens next?

After approving your submission you will receive a notification that the submission is complete. To track the status of your paper throughout the editorial process, log into EVISE® at: [http://www.evise.com/evise/faces/pages/navigation/NavController.jspx?JRNL\\_ACR=IJANS](http://www.evise.com/evise/faces/pages/navigation/NavController.jspx?JRNL_ACR=IJANS)

I look forward to receiving your revised manuscript as soon as possible.

Kind regards,

Nelouise Geyer  
Assistant Editor-in-Chief  
International Journal of Africa Nursing Sciences

#### Comments from the editors and reviewers:

##### -Reviewer 1

- Thank you for the submission.

The focus of the article is valuable for nursing education and nursing profession as a whole. There were inconsistencies and repetitions noted in the paper, and these need to be attended to. For example, the aim of the study indicate design, develop and validate inconsistently, as design is not included in every mention of the aim. Retention is included in the title, but not consistently referred to in the paper. The 'Intervention statements' are repeated in table 3 and text box 1.

Information about the previous phase should be summarized and presented in the background, not in the methodology section. There are some minor errors in the referencing technique, they must be corrected. The discussion and conclusion are not well supported by the findings. For example, indicating that the findings of the study indicate that improving attendance improves performance, while none of the two were measured. There is a need to include all aspects of ethical considerations, as well as rigor for the quantitative data. Comments and suggestions are included in the attached document. The paper can be restructured for re-submission

##### -Reviewer 2

- The author states that the focus of this article is the Delphi process applied to review and validate interventions to address unsatisfactory academic performance amongst B Nursing students. While the article is generally well written and structured, I suggest that the author critically review the content identified below with this claimed focus in mind. The balance of the article between the earlier phases of the project and the author's discussion of Delphi process needs attention to ensure that the stated focus of the article is prominent, and as integrated and readable as the discussion of the preceding phases.
- The underpinning arguments to the problem and the specific research project are well described.
- The discussion of the research design and the two preceding phases can be more concise to provide the reader with insight into the development and design of the proposed interventions without losing any essential grounding for describing the third phase of the study.

- It will be useful to provide a summary of the 'prescriptive intervention statements' generated in phase 2 as a bridge to these being applied into the Delphi process.
- There is some repetition between the data collection and results sections to attend to.
- Review and revise the discussion of round 1 and 2 of the Delphi process - this is needed to make the message of these sections more substantial, this particular true of the qualitative results. The discussion can be more integrated to provide well rounded discussion that explicitly leads the reader to the final designed interventions.
- Reconsider each of the tables in relation to how these fit with and support the content under discussion, as well as the detail provided in each.
- Ensure that the stated 'golden thread' focus of the article is consistent throughout. At times the preceding phases are more prominent in the article than the actual focus, namely the Delphi process to validate the intervention statements.

**Have questions or need assistance?**

For further assistance, please visit our [Customer Support](#) site. Here you can search for solutions on a range of topics, find answers to frequently asked questions, and learn more about EVISE® via interactive tutorials. You can also talk 24/5 to our customer support team by phone and 24/7 by live chat and email.

PLEASE NOTE: As an author, you are responsible for submitting your study in an understandable and well-written English. In such case that you are not a native-speaker, please would you be so kind and check with a native speaker or language editing service on the quality of your manuscript. You can also contact Elsevier language editing services at <https://webshop.elsevier.com/languageservices>

One or more files have been made available to you as part of this decision. You can access them by clicking on the link(s) below.

[Manuscript.docx](#)

-----

Copyright © 2018 Elsevier B.V. | [Privacy Policy](#)

Elsevier B.V., Radarweg 29, 1043 NX Amsterdam, The Netherlands, Reg. No. 33156677.

