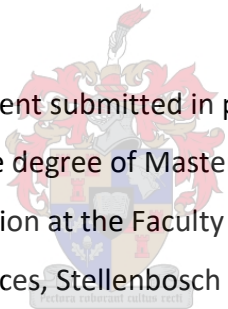


Facilitating critical thinking in nursing students: Lecturers' perspectives

By

Amanda Jane Went



Research Assignment submitted in partial fulfilment of the
requirements for the degree of Masters of Philosophy in Health
Professions Education at the Faculty of Medicine and Health
Sciences, Stellenbosch University

Supervisor:

Dr E. Archer

Co-supervisor:

Dr J. Bell

Stellenbosch University

April 2019

DECLARATION

By submitting this research assignment electronically, I declare that the entirety of the work contained therein is my own, original work, that I am the sole author thereof (save to the extent explicitly otherwise stated), that reproduction and publication thereof by Stellenbosch University will not infringe any third party rights and that I have not previously in its entirety or in part submitted it for obtaining any qualification.

Signature:

A J Went

Date: 28 November 2018

ACKNOWLEDGEMENTS

Grateful thanks:

To my colleagues who willingly gave of their precious time to be interviewed.

To my supervisors, Dr Elize Archer and Dr Janet Bell, for all their support and guidance.

To my friends and family who believed in me and waited patiently.

ABSTRACT

As health care systems become more complex, health professionals are faced with multifaceted situations requiring suitable critical thinking skills. These critical thinking skills allow health professionals to integrate information and make prompt, appropriate decisions resulting in safe and effective health care practice. Health professional education is fundamental to facilitating the development of critical thinking skills in students. However, there are many factors affecting this process including teaching strategies, the lecturers, the students, academic literacy, the educational institution, and various societal factors.

The aim of this study was to explore lecturers' perspectives of strategies that could facilitate the development of critical thinking in nursing students in class room teaching, in order to make recommendations for lecturers. A qualitative study using semi-structured interviews was conducted at a nursing college in the Western Cape. The data were analysed using an iterative process that involved repeated readings of the transcripts, identification of codes, and the subsequent generation of two focus areas.

The understanding of critical thinking by the lecturers revealed in the first focus area, was found to be primarily related to cognitive skills in nursing students with more limited reference to their affective skills. The general finding related to the second focus area, was that lecturers continue to use the lecture method as their main teaching strategy, rather than more student-centred strategies that promote active learning and assist with the facilitation of critical thinking in students. There was a realisation among the respondents that the lecture method did not necessarily facilitate critical thinking in nursing students. Yet, resource constraints such as large student numbers and the large amount of content in the curriculum were the reasons proposed by the lecturers for continuing with the lecture method. Other resource constraints mentioned by the lecturers included the lack of availability of Wi-Fi in classrooms and the lack of a well-equipped simulation laboratory that could assist with the facilitation of critical thinking in the student.

The preparedness of lecturers to teach critical thinking seemed to be problematic with lecturers expressing a desire for further education and training on critical thinking and various appropriate teaching strategies to facilitate it. Language was also seen as a challenge in the facilitation of critical thinking.

This study represents the first of its kind in this institution and it is hoped that this contribution would add to the conversations that are currently being held about the knowledge, skills, and attitudes that educators have in relation to critical thinking.

OPSOMMING

Aangesien gesondheidsorgstelsels meer kompleks word, word gesondheidswerkers gekonfronteer met veelvlakkige situasies wat gepaste kritiese denkvaardighede vereis. Hierdie kritiese denkvaardighede stel gesondheidswerkers in staat om inligting te integreer en vinnig toepaslike besluite te neem wat lei tot veilige en effektiewe gesondheidsorgpraktyke. Gesondheids Professionele Onderwys is fundamenteel om die ontwikkeling van kritiese denkvaardighede in studente te fasiliteer. Daar is egter baie faktore wat hierdie proses beïnvloed, insluitend onderrigstrategieë, die dosente, die studente, akademiese geletterdheid, die opvoedkundige instelling en verskeie samelewingsfaktore.

Die doel van hierdie studie was om dosentpersepsies van strategieë te ondersoek wat die ontwikkeling van kritiese denke in verpleegstudente in klaslokale onderrig kan fasiliteer ten einde aanbevelings vir dosente te maak. 'n Kwantitatiewe studie met behulp van semi-gestruktureerde onderhoude is by 'n verpleegkollege in die Wes-Kaap gevoer. Die data is geanaliseer met behulp van 'n iteratiewe proses wat herhaalde lees van die transkripsies, identifikasie van kodes en die daaropvolgende generasie van twee fokusareas behels.

Die begrip van kritiese denke deur die dosente wat in die eerste fokusarea geopenbaar is, is hoofsaaklik verwant aan kognitiewe vaardighede in verpleegstudente met meer beperkte verwysing na hul affektiewe vaardighede. Die algemene bevinding wat verband hou met die tweede fokusarea, was dat dosente steeds die lesingsmetode as hul hoofonderrigstrategie gebruik, eerder as meer studentgesentreerde strategieë wat aktiewe leer bevorder en help met die fasilitering van kritiese denke in studente. Daar was 'n besef onder die respondente dat die lesingsmetode nie noodwendig kritieke denke in verpleegstudente fasiliteer nie. Hulpbronbeperkings soos groot studentegetalle en die groot hoeveelheid inhoud in die kurrikulum is egter as die redes deur die dosente voorgestel om met die lesingsmetode voort te gaan. Ander hulpbronbeperkings wat deur die dosente genoem word sluit in die gebrek aan beskikbaarheid van Wi-Fi in klaskamers en die gebrek aan 'n goed toegeruste simulasielaboratorium wat kan help met die fasilitering van kritiese denke in die student.

Die bereidwilligheid van dosente om kritiese denke te onderrig, was problematies met dosente wat 'n begeerte vir verdere opleiding en opleiding oor kritiese denke en verskeie toepaslike onderrigstrategieë tot uitdrukking bring om dit te fasiliteer. Taal is ook gesien as 'n uitdaging in die fasilitering van kritiese denke.

Hierdie studie verteenwoordig die eerste van sy soort in hierdie instelling en dit word gehoop dat hierdie sal bydrae tot die gesprekke wat tans gehou word oor die kennis, vaardighede, en houdings wat opvoeders ten opsigte van kritiese denke het.

TABLE OF CONTENTS

Declaration	ii
Acknowledgements	iii
Abstract	iv
Opsomming	v
Table of contents	vii
List of tables	xiv
List of figures	xv
 Chapter 1: Orientation to the study	 1
1.1 Introduction	1
1.2 Background and context	2
1.3 Rationale	4
1.4 Problem statement	5
1.5 Aim of the study	5
1.6 Research question	5
1.7 Research assignment outline	6
 Chapter 2: Literature review	 7
2.1 Introduction	7
2.2 Critical thinking: A broad overview	7
2.3 Critical thinking defined in the health professions	9
2.4 Critical thinking defined in nursing	10
2.4.1 Components of critical thinking in nursing	10
2.4.2 Reviews of critical thinking in nursing	11
2.4.3 Surrogate terminology for critical thinking in nursing	11
2.5 Critical thinking for this study	12

2.6	Teacher-centred versus student-centred teaching	13
2.7	Teaching methods to enhance critical thinking.....	13
2.7.1	Questioning	13
2.7.2	Case study	14
2.7.3	Concept mapping	15
2.7.4	Debates, discussions and group work.....	15
2.7.5	Role-play	16
2.7.6	Simulation.....	16
2.7.7	Reflection	16
2.7.8	e-Learning	17
2.7.9	The flipped class room.....	17
2.7.10	Role modelling and mentoring	17
2.7.11	Summary of teaching methods	18
2.8	Factors affecting the development of critical thinking	18
2.8.1	The lecturer	18
2.8.2	The student.....	20
2.8.3	Academic literacy.....	21
2.8.3.1	Language	21
2.8.3.2	Critical reading.....	21
2.8.3.3	Critical writing	22
2.8.4	Educational institutions	22
2.8.4.1	Interprofessional education.....	22
2.8.4.2	Instilling critical thinking in the curricula	22
2.8.4.3	Content overload	23
2.8.4.4	Programme time constraints	23
2.8.4.5	Programme assessments	24
2.8.4.6	Learning environment.....	24
2.8.5	Societal factors	25

2.8.5.1	The use of technology across the generational divide.....	25
2.8.5.2	Cultural factors	26

Chapter 3: Research methodology.....28

3.1	Introduction.....	28
3.2	Research design.....	28
3.3	Population and sampling.....	28
3.4	Data collection	29
3.5	Data management	30
3.6	Data analysis	31
3.7	The role of the researcher.....	32
3.7.1	Reflexivity: Self-reflection of the researcher	32
3.8	Quality criteria.....	33
3.8.1	Credibility.....	33
3.8.2	Transferability	33
3.8.3	Dependability.....	33
3.8.4	Confirmability.....	33
3.9	Ethical considerations.....	34
3.10	Summary	34

Chapter 4: Findings.....35

4.1	Introduction.....	35
-----	-------------------	----

Focus area A: Lecturers' perspectives of what critical thinking in nursing students means and how it is displayed.....35

4.2	Focus area A - Theme 1: Cognitive skills.....	36
4.2.1	Category A 1.1: Knowledge	36
4.2.2	Category A 1.2: Information seeking	37
4.2.3	Category A 1.3: Discriminating information	37

4.2.4	Category A 1.4: Thought processing.....	38
4.2.5	Category A 1.5: Justifying the process.....	38
4.2.6	Category A 1.6: Thinking beyond.....	38
4.2.7	Category A 1.7: Problem solving.....	39
4.2.8	Category A 1.8: Thinking out of the box.....	39
4.3.	Focus area A - Theme 2: Affective skills	39
4.3.1	Category A 2.1: Interest.....	40
4.3.2	Category A 2.2: Questioning.....	40
4.3.3	Category A 2.3 : Confidence.....	40
4.3.4	Category A 2.4: Flexibility	41
4.3.5	Category A 2.5: Reflection	41
4.3.6	Category A 2.6: Perseverance.....	42
4.4	Focus area A - Theme 3: Application of critical thinking skills in practice	42
4.4.1	Category A 3.1: Application of information in the clinical setting.....	42
4.4.2	Category A 3.2: Thinking in different contexts.....	43

Focus area B: Factors that lecturers perceive to influence the development of critical thinking in nursing students		44
4.5	Focus area B - Theme 1: Lecturer preparedness.....	46
4.5.1	Category B 1.1: Subject preparedness	46
4.5.2	Category B 1.2: Relational abilities	46
4.5.3	Category B 1.3: Technological preparedness	48
4.5.4	Category B 1.4: Critical thinking readiness	49
4.6	Focus area B - Theme 2: Student preparedness	50
4.6.1	Category B 2.1: Previous education system.....	50
4.6.2	Category B 2.2: Language	51
4.6.3	Category B 2.3: Selection	53
4.7	Focus area B - Theme 3: Teaching strategies	53
4.7.1	Category B 3.1: Teacher-centred approaches to learning.....	54

4.7.2	Category B 3.2: Student-centred approaches to learning.....	55
4.7.2.1	Subcategory 1: Group work	56
4.7.2.2	Subcategory 2: Visual media	57
4.7.2.3	Subcategory 3: Scenarios.....	57
4.7.2.4	Subcategory 4: Debate	57
4.7.2.5	Subcategory 5: Role-play.....	58
4.7.2.6	Subcategory 6: Reflection.....	59
4.7.2.7	Subcategory 7: Other teaching strategies	60
4.8	Focus area B - Theme 4: Programme planning	60
4.8.1	Category B 4.1: Programme leadership	61
4.8.2	Category B 4.2: Curriculum design	61
4.8.3	Category B 4.3: Assessment	62
4.8.4	Category B 4.4: Interprofessional education	64
4.9	Focus area B - Theme 5: The education environment	65
4.9.1	Category B 5.1: The classroom environment	65
4.9.2	Category B 5.2: The simulation laboratory	67
4.9.3	Category B 5.3: The student environment.....	67
4.9.4	Category B 5.4: The clinical environment.....	68
Chapter 5: Discussion		70
5.1	Introduction.....	70

Focus area A: Lecturers' understanding of what critical thinking in nursing students means and how it is displayed

5.2	Focus area A - Theme 1: Cognitive skills of critical thinking.....	70
5.3	Focus area A - Theme 2: Affective skills of critical thinking	71
5.4	Focus area A - Theme 3: Application of critical thinking	72

Focus area B: Factors that lecturers perceive as influencing the development of critical thinking in nursing students	72
5.5 Focus area B - Theme 1: Lecturer preparedness.....	72
5.5.1 Technological uncertainty	73
5.5.2 Critical thinking readiness.....	73
5.5.3 Mentoring relationships.....	73
5.6 Focus area B - Theme 2: Student preparedness	74
5.7 Focus area B - Theme 3: Teaching strategies	74
5.8 Focus area B - Theme 4: Programme planning	76
5.9 Focus area B - Theme 5: The education environment	77
5.9.1 The simulation laboratory.....	77
5.9.2 The clinical environment	78
Chapter 6: Conclusion	80
6.1 Summary of the study.....	80
6.2 Limitations of the study	81
6.3 Recommendations of the study.....	82
6.3.1 General recommendations.....	82
6.3.2 Recommendations for the lecturers	83
6.4 Contribution of the study	83
References:	85
Addenda:	99
Addendum 1: Memorandum of agreement between the nursing college and higher education institution, 2005.....	99
Addendum 2: Prospectus for Bachelor of Technology in Nursing	103
Addendum 3: Ethics approval – Stellenbosch University	104

Addendum 4: Department of Health, Western Cape – Permission to proceed.	107
Addendum 5: Nursing College – Permission to proceed.....	109
Addendum 6: Cape Peninsula University of Technology – Permission to proceed	110
Addendum 7: Participant information and informed consent.....	112
Addendum 8: Guide to the facilitation of the semi-structured interview	115
Addendum 9: Example of the initial coding of a single transcript	116
Addendum 10: Example of the coding of various transcripts into categories and themes	117

LIST OF TABLES

Table 1. Details of participants29

Table 2. Focus area A: Themes and categories36

Table 3. Focus area B: Themes and categories45

LIST OF FIGURES

Figure 1. The coding method used for data analysis.....31

CHAPTER 1

ORIENTATION TO THE STUDY

1.1 Introduction

The significance of critical thinking in the health professions was highlighted in 2010 when a group of twenty international academic and professional health leaders met to call for radical changes to the training of health professionals to accommodate the health demands of the 21st century (Frenk, Chen, Bhutta, Cohen, Crisp *et al.*, 2010). Known as the Lancet commission on education of health professionals for the 21st century, this commission highlighted the tremendous pace of health care development and the impact of globalisation on the provision of health care. A vision emerged from the Lancet commission to have all health professionals become active participants in critical thinking, with a view to enhance the provision of quality comprehensive health care services (Frenk *et al.*, 2010).

The understanding of critical thinking has been influenced by many different schools of thought including philosophy, psychology and education, resulting in numerous definitions that have emerged, affected by these varying perspectives (Lai, 2011). At its most fundamental level, critical thinking is regarded as “thinking about thinking” (Paul & Elder, 2014:11), which is an awareness and understanding of one’s own cognitive thought processes (Paul & Elder, 2014).

Critical thinking is a prerequisite for effective clinical judgment and its absence can result in the provision of inadequate health care by health professionals (Huang, Newman & Schwartzstein, 2014). Professional educators are seen as key role players in facilitating the future education of health professionals (Frenk *et al.*, 2010). Since nurses comprise a significant proportion of health care providers, it is important that their training is examined in the light of fostering competent, critical thinking health professionals.

In this study, the perspectives of nursing lecturers regarding the facilitation of critical thinking in undergraduate nursing students at a nursing college in the Western Cape were explored. The subsequent findings of the study offer a contextual description, which can contribute to the current scholarly conversation on critical thinking and its importance in health professional education.

1.2 Background and context

Nursing education has progressively moved from vocational training as a hospital-based apprenticeship to programmes affiliated to higher education institutions (Morrall & Goodman, 2013; Spitzer & Perrenoud, 2006). Following the promulgation of the Nursing act in 1944, the South African Nursing Council became responsible for the training of nurses in South Africa (Blaauw, Ditlopo & Rispel, 2014). Subsequently, nursing training took place in hospital schools where a three-year diploma was required to qualify as a registered nurse (Uys, 1989). These courses were regarded as vocational training and student nurses were guided through technical nursing skills into competencies by their nursing tutors or clinical mentors with no specific emphasis on critical thinking.

During the mid-1980s, nursing education in South Africa was aligned with post-secondary education and moved from hospital schools to nursing colleges that were then affiliated to universities (Uys, 1989). Simultaneously, the South African Nursing Council established a four-year nursing diploma with registration in psychiatry, community health, and midwifery which was first offered by these nursing colleges in 1986 (South African Nursing Council, 2014a). This programme, known as the R425 programme, was aligned with the National Qualification Framework (NQF) at the time but was later identified as a legacy qualification when the qualifications were readjusted on the new Higher Education Qualifications Framework (HEQF) (Blaauw *et al.*, 2014). The development of critical thinking skills in nursing students was not stated as an outcome in the R425 programme objectives (South African Nursing Council, 2014a).

Once more, 1999, saw the restructuring of the educational environment throughout South Africa, resulting in the amalgamation of government funded colleges with a view to cost saving and the equitable delivery of education (Van Dyk, Van Rensburg & Tjallinks, 2009). During this time, all government funded nursing colleges in the Western Cape were united under the current college in the Western Cape. Affiliation of this amalgamated nursing college with a dedicated higher education institution occurred in 2005 under a memorandum of agreement, with a view to later complete integration (Addendum 1). The Bachelor of Technology in Nursing (BTech) curriculum, formulated by the higher education institution, was accepted by the South African Nursing Council and the nursing college received the first intake of BTech nursing students in 2014 (Addendum 2). Critical thinking was regarded as a graduate attribute for this programme and contained within some of the curricula outcomes (Cape Peninsula University of Technology, 2011).

Prior to the affiliation of nursing colleges with higher education institutions, nursing educators required a minimum qualification of a nursing diploma with a postgraduate diploma in nursing education to order to teach students at nursing colleges (South African Nursing Council, 2014a). With the move to higher education, nurse educators were still bound by the South African Nursing Council requirements but were also required to register for a master's qualification in order to abide by the requirements for teaching at a higher education institution (Council on Higher Education, 2004). Lecturers found themselves in transition between college and higher education having to obtain a master's degree and adjust teaching strategies to align with the critical thinking requirements of higher education. Additionally, despite the affiliation with higher education, the college infrastructure still lacked many of the related benefits of higher education, such as Wi-Fi access and the availability of ongoing staff development programmes for lecturers. Furthermore, the lecturers remained as employees of the department of health until the merger was completed. Consequently, the lecturers experienced difficulties accessing resources such as libraries and training provided by the higher education institution as they were not yet regarded as their employees. Complete integration with the higher education institution remained an ongoing process.

Lecturers presenting the theoretical modules for the BTech nursing programme at this nursing college in the Western Cape, for approximately 600 nursing students, formed the cohort for this study. Although the theoretical component of the BTech is the lecturers' core function, they are also responsible for clinical accompaniment of the students. Clinical accompaniment is related to the students' practical assessments that occur in the surrounding hospitals including Groote Schuur, Red Cross War Memorial, Tygerberg, Victoria, Somerset, and Khayelitsha hospitals. Moreover, lecturers in discipline specific areas such as midwifery and community health are required to attend to clinical assessments in the related midwife obstetric units and community health clinics.

The facilitation of the development of critical thinking in nursing students at the nursing college was considered within the experiences related by these lecturers.

1.3 Rationale

As health care systems become more complex, health professionals are faced with multifaceted situations and they need suitable critical thinking skills to integrate the information and to make prompt, appropriate decisions (Fitzpatrick & Smith, 2013; Potgieter, 2012). Critical thinking is an essential skill that enables the provision of safe and effective health care practice (Papathanasiou, Kleisaris, Fradelos, Kakou & Kourkouta, 2014). Moreover, in a resource constrained environment critical thinking is paramount to avoid unnecessary diagnostic investigations (Huang et al., 2014). Continued advances in health care have challenged nurse education systems to produce nursing graduates who are capable of functioning in increasingly complex conditions and in unfamiliar environments (Simpson & Courtney, 2002). Coping effectively with these complexities and demands necessitates that nurses become even more skilled in critical thinking than in the past.

Nursing education is pivotal in improving critical thinking in nurses. Therefore, nurse educators need to develop strategic methods to facilitate critical thinking in students (Burrell, 2014). The facilitation of critical thinking in students focuses upon increasing the involvement of students in their own learning. Hence there is a move away from traditional teacher-centred approaches to more student-centred approaches (Walsh & Seldomridge, 2006). However, not all nurse education systems have embraced this paradigm shift in teaching strategies towards more student-centred approaches (Mangena & Chabeli, 2005). Training and upskilling of nurse educators enables them to adequately facilitate the development of critical thinking skills in nursing students (Gul, Khan, Ahmed, Cassum, Saeed, Parpio & Profetto-Mcgrath, 2014).

Comparatively fewer published studies focusing on developing critical thinking skills in nursing have been noted in developing countries, such as South Africa, than in developed countries. A systematic review exploring critical thinking in nursing education noted only three studies in developing countries including South Africa (Jenkins, 2011; Mangena & Chabeli, 2005; Kaya, Şen & Keçeci, 2011) and 17 studies in developed nations (Chan, 2013). Similarly, a scoping review of critical thinking in nursing education revealed a small percentage of published articles from developing countries (Pérez, Canut, Pegueroles, Llobet, Arroyo & Merino, 2015). Studies focusing on the development of critical thinking in nursing students appear to be frequently based in developed countries and institutions with long standing baccalaureate programmes (Rowles, Morgan, Burns & Merchant, 2013). This study will provide a contribution to the discussion on critical thinking in nursing within South Africa.

1.4 Problem statement

Nursing graduates are required to be effective, efficient and safe practitioners. Fundamental to this requirement is the ability to problem solve and think critically (Papathanasiou *et al.*, 2014). Currently, at a nursing college in the Western Cape, there is a concern from the lecturers that the nursing students are not being effectively equipped with critical thinking skills that enable them to deal with the issues that they encounter in practice. Although the development of critical thinking skills in undergraduate nurses is known to be essential, it is not always overtly highlighted in the nursing programmes currently offered at the nursing college in the Western Cape. The college has transitioned over a relatively short period (three years) from offering an undergraduate diploma in nursing, where critical thinking skills are not obviously mentioned in programme outcomes, to a BTech in nursing, affiliated with higher education, where critical thinking outcomes are stated. Additionally, lecturers may not be familiar with teaching strategies that can enhance critical thinking. Furthermore, the academic milieu may not be seen to be obviously proactive or even conducive to the development of critical thinking skills in nursing students. All these aspects could have an impact on equipping nursing students with essential critical thinking skills for safe practice.

1.5 Aim of the study

The aim of this study was to explore lecturers' perspectives of strategies that could facilitate the development of critical thinking in nursing students in class room teaching in order to make recommendations for lecturers.

1.6 Research question

The overarching research question was thus formulated as: "What are the perspectives of lecturers regarding the facilitation of critical thinking in undergraduate nursing students in the classroom?"

The following sub-questions assisted in addressing the main research question:

- What do lecturers understand as critical thinking skills?
- What factors do lecturers think influence critical thinking in nursing students?
- What are the barriers and enablers that lecturers experience to facilitating critical thinking skills in nursing students?
- How do lecturers think they can facilitate the development of critical thinking in nursing students?

1.7 Research assignment outline

This research assignment consists of six chapters. The next chapter is a literature review, detailing the research that has taken place regarding critical thinking, particularly related to facilitating critical thinking in nursing students. Chapter three will focus on the qualitative methodology of the study that investigated the perspectives of ten lecturers regarding critical thinking, followed by chapter four that describes the findings of this study. Chapter five presents a discussion of the results and provides future recommendations. The last chapter, Chapter six, concludes the assignment with some final thoughts.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

It is widely acknowledged that critical thinking skills must be included in tertiary education and many universities and academia have critical thinking skills listed as part of their essential outcomes (Rowles *et al.*, 2013). Critical thinking in the health professions is mandatory, as patient management is profoundly affected by the outcome of critical thinking (Rowles *et al.*, 2013). The development of critical thinking skills is frequently entrenched in competency frameworks and associated attainment of milestones throughout the different health professions (Huang *et al.*, 2014).

The inclusion of critical thinking skills as a core component in nursing curricula was mandated in the United States in 1993 and, following that, was integrated globally throughout undergraduate degree nursing programmes (Sullivan, 2012). Inclusion of critical thinking skills as a core component in nursing curricula highlighted the need for nurse educators to develop skills to facilitate this process (Banning, 2006). In South Africa, the South African Nursing Council has listed clinical judgement and critical thinking skills under its outcomes for its new bachelor programme for nurses (South African Nursing Council, 2014b). Subsequently, critical thinking has been included in the competencies required for a nurse educator (South African Nursing Council, 2014c).

2.2 Critical thinking: A broad overview

Despite the pervasive nature of critical thinking in education there are many differences in its understanding as illustrated throughout the literature (Kahlke & Eva, 2018). While the importance of critical thinking is acknowledged, consensus on a definition of critical thinking remains elusive (Rowles *et al.*, 2013). In order for educators to foster critical thinking in their students it is, however, vital that they are clear on what critical thinking means (Rowles *et al.*, 2013).

The concept of critical thinking was initially shaped by philosophers, educators and, historically, the seminal architect Socrates. In the last century, various authors contributed to the understanding of critical thinking. Dewey saw critical thinking as reflective thought: “[a]ctive, persistent and careful consideration of any belief or supposed form of knowledge in light of the grounds that support it, and the further conclusions to which it tends, constitutes reflective thought” (1910:6). Although Dewey (1910) generally wrote more about reflective thinking, he also proposed a definition of critical thinking that entailed halting all decision making until the full situation had been totally examined. He stated that the “essence of critical

thinking is suspended judgment; and the essence of this suspense is inquiry to determine the nature of the problem before proceeding to attempts at its solution. This, more than any other thing, transforms mere inference into tested inference, suggested conclusions into proof” (1910:74).

Ennis defined critical thinking as “[r]easonable reflective thinking focused on deciding what to believe or do” (1962:81). Although appreciative of his brief definition, this definition was criticised for its simplicity when dealing with complex issues (Adams, 1999). Watson and Glaser (1964) were the ones who defined critical thinking as composed of different attitudes, knowledge and the skills that allowed the appropriate application of the knowledge and attitude. The Watson-Glaser Critical Thinking Appraisal (WGCTA) measurement tool was developed from these attributes that the authors described (Watson & Glaser, 1980). Paul and Elder (2014) went on to integrate reflection and action into critical thought. They maintained that “[c]ritical thinking begins, then, when we start thinking about our thinking with a view to improving it” (Paul & Elder, 2014:366).

As a next step, the American Philosophical Association, comprising a group of critical thinking experts from different disciplines, attempted to clarify the concept of critical thinking in the 1990s (Facione, 1990). Following two years of interactive discussion by the panellists, they published a consensus statement on critical thinking. This was known as the APA Delphi report and defined critical thinking as comprising cognitive skills including “purposeful, self-regulatory judgement which results in interpretation, analysis, evaluation, and inference” and included an explanation of the concepts upon which the judgement is based (Facione, 1990:2). Affective attributes of the critical thinker were also described in this report with the characteristics of inquisitiveness, being well informed, open-minded, flexible, fair, honest and prudent in judgement decisions, a willingness to revise views, as well as being clear, orderly and focused (Facione, 1990). Affective skills, dispositions, attitudes or habits of the mind are all terms ascribed by the APA Delphi report to a person’s aptitude or ability to carry out a cognitive skill (Facione, 1990). The affective dispositions are required for the cognitive skills to “take root” (Facione, 1990:11).

The conceptual definition of the APA Delphi report marked a turning point in the understanding of critical thinking and has become a frequently cited understanding of critical thinking since it is not discipline specific (Facione, 1990).

2.3 Critical thinking defined in the health professions

Definitions of critical thinking in the health professions also remain elusive and there is no acknowledged pervading definition. Illustrating this absence of literature around critical thinking in the health professions, other than nursing, is an index review of PubMed with critical thinking in the heading or abstract. A total of 2800 articles were extracted of which most studies were more concerned with critical thinking in nursing than in the other health professions (Sharples, Oxman, Mahtani, Chalmers, Oliver, *et al.*, 2017).

Critical thinking has more recently been introduced explicitly as a competency in regulatory bodies in medicine in the United Kingdom and the United States of America (Krupat, Sprague, Wolpaw, Haidet, Hatem, *et al.*, 2011). Attention was previously assigned to critical appraisal, a subset of critical thinking, that uses research evidence to make informed decisions (Sharples *et al.*, 2017).

The lack of awareness regarding the teaching and assessment of critical thinking skills within health professions education motivated the convening of the Millennial Conference on Critical Thinking in 2011. For the conference, critical thinking was defined as “[t]he application of higher cognitive skills ...to information.... in a way that leads to action that is precise, consistent, logical and appropriate” (Huang *et al.*, 2014:95). This definition was used to develop strategies and task teams to implement critical thinking into health professions curricula and to design assessment methods of critical thinking (Huang *et al.*, 2014).

A recent study involving health professional educators indicated that the understanding of critical thinking differed and moved between contexts, within individual educators as well as within the different health professions disciplines (Kahlke & Eva, 2018). Hence, this study proposes a new approach to defining critical thinking, which does not focus on a single definition of critical thinking but rather embraces the diversity of the many conceptions of critical thinking. This flexibility and diversity of the concept of critical thinking offers a vehicle for dialogue between different educators in different contexts. Their complementary and incompatible viewpoints promote discussions involving “good thinking”, thus promoting critical reflection in individuals and across the health professions (Kahlke & Eva, 2018).

The literature review below will be presented in three sections. The first section will be concerned with the definitions of critical thinking specifically in nursing. The second section will discuss the different teaching methods that facilitate critical thinking and the third section highlights the challenges experienced in the implementation of critical thinking.

2.4 Critical thinking defined in nursing

Similar to the broader literature in health professions education there is also no dominant definition of critical thinking applied in nursing (Chan, 2013; Simpson & Courtney, 2002; Turner, 2005). Initially, views on critical thinking in nursing were confined to simple problem solving or the nursing process that progresses linearly through assessing a situation, diagnosing the problem, planning the solution, implementing the solution to evaluating the action (Jones & Brown, 1991). However, Ford and Profetto-McGrath (1994) believed that critical thinking involves far more than problem solving or the nursing process and they proposed that critical thinking was a process involving a mutual relationship between action and knowledge that was facilitated by critical reflection within a specific social context with associated assumptions and ideologies.

Critical reflection was combined with rational thought by Kataoka-Yaahiro and Saylor (1994) who also saw good clinical practice as an outcome of good critical reasoning. They stated that “[t]he critical thinking process is reflective and reasonable thinking about nursing problems without a single solution and is focussed on deciding what to believe and do” (Kataoka-Yaahiro & Saylor, 1994:352). Reflection continues to be a pivotal component of critical thinking in nursing. Some definitions of critical thinking were simply based on rational thought. Critical thinking was seen as a “[r]ational explanation of ideas, inferences, assumptions, principles, arguments, conclusions, issues, statements, beliefs, and actions” (Bandman & Bandman, 1995:5). Bittner and Tobin emphasised the role of experience in critical thinking and defined critical thinking as “influenced by knowledge and experience, using strategies such as reflective thinking as a part of learning to identify the issues and opportunities, and holistically synthesize the information in nursing practice” (1998:268). Critically thinking nurses constantly need to reflect before action or experiences, within the experience and following the action or experience to maximise their assimilation of information so that they will be able to make the best decisions for nursing practice.

2.4.1 Components of critical thinking in nursing

The APA Delphi report (Facione, 1990) was followed by the Delphi consensus statement of critical thinking skills specific to nursing (Scheffer & Rubenfeld, 2000). Out of this meeting between nursing experts developed a consensus statement that was more comprehensive than previous definitions, since it focused on identifying components of critical thinking. The consensus statement contained seven cognitive components known as ‘skills’ of critical thinking and ten affective components otherwise known as ‘habits of the mind’ (Scheffer & Rubenfeld, 2000). This terminology was used in an attempt to capture the cognitive and affective aspects of critical thinking. The skills of critical thinking included information seeking,

discriminating, analysing, transforming knowledge, predicting, applying standards, and logical reasoning. The habits of the mind, on the other hand, included perseverance, open-mindedness, flexibility, confidence, inquisitiveness, reflection, intuition, creativity, intellectual integrity, and contextual perspective (Scheffer & Rubenfeld, 2000).

2.4.2 Reviews of critical thinking in nursing

A number of major nursing literature reviews of critical thinking have been conducted over the past decades noting the use of surrogate terminology and the tendency towards explaining critical thinking as opposed to defining the concept.

Turner (2005) reviewed studies on critical thinking in nursing between 1981-1991 and 1992-2002. In this article, Turner argued that critical thinking in nursing matured over this time and is well defined using clear characteristics, with the majority of the literature taking its cue from the APA Delphi study (Facione, 1990; Turner, 2005). The precursors and consequences of critical thinking, however, remain poorly defined. As a result, many consequences of critical thinking are used as surrogate terms for critical thinking, such as problem solving, decision making and the nursing process (Turner, 2005). Clinically orientated terms associated with critical thinking were used considerably more in the analysis of the second decade between 1992 and 2002. The use of more clinically orientated terms during this period was explained by the fact that it was during this time that the concept of critical thinking moved from nursing education to nursing practice. Hence the surrogate terms such as clinical judgement and clinical decision making arose within the literature (Turner, 2005).

A literature review of critical thinking from 2002 to 2011 revealed that, while the diversity in the definitions of critical thinking continues, certain components of the critical thinker are more frequently identified (Chan, 2013). These components included gathering information, seeking information, questioning, investigating, analysing, evaluating, inferencing, problem solving, and applying theory (Chan, 2013). These components are all essential for good clinical practice and nurse educators should be encouraging their development in nursing students.

2.4.3 Surrogate terminology for critical thinking in nursing

The increased use of the term critical thinking has resulted in it acquiring surrogate terms that are used interchangeably with critical thinking in the literature (Turner, 2005). These surrogate terms include clinical decision making, clinical judgement and clinical reasoning (Simmons, 2010; Menezes, Corrêa, Silva & Cruz, 2015; Victor-Chmil, 2013). Hence, to avoid misrepresentation in this study, clarification of these terms is provided:

- Critical thinking focuses on cognitive processes, is based on knowledge and is found across all disciplines (Simpson & Courtney, 2002).
- Clinical reasoning is regarded as the application of critical thinking within a practical clinical setting (Banning, 2008).
- Clinical judgement may be seen as an expansion of clinical reasoning that includes affective and psychomotor skills (Tanner, 2006).

Other terms that are often used interchangeably with critical thinking include problem solving and creative thinking (Simpson & Courtney, 2002). Problem solving highlights problems and their resolution, while creative thinking is a term that primarily indicates combining knowledge with imagination (Simpson & Courtney, 2002). These terms may be seen as interrelated concepts that, when considered together, lead to competent evidence-based health professional practice (Victor-Chmil, 2013). However, it is thought that further research is required to clarify the definitions and boundaries of these terms (Turner, 2005). Despite a lack of consensus regarding a definition of critical thinking (Rowles *et al.*, 2013) most experts believe that affective dispositions and cognitive abilities are essential components required in the student for effective critical thinking to occur (Huang *et al.*, 2014; Simpson & Courtney, 2002).

2.5 Critical thinking for this study

The complexities of critical thinking are evident in the absence of a universally accepted definition. Critical thinking is regarded as such a multifaceted concept that it cannot be adequately covered by a single definition, rather it can be more fully described by an explanation of its features, characteristics or components (Riddell, 2007). In keeping with a description of the components of critical thinking, the Delphi consensus report is such an explanation that includes critical thinking skills and habits of the mind or affective dispositions (Scheffer & Rubenfeld, 2000). The components of critical thinking identified by the nursing experts in the Delphi report will be used to examine the aspects of critical thinking mentioned by the interviewed lecturers. The Delphi report was chosen for this study because it was nursing specific and more comprehensive than most definitions, highlighting both affective and cognitive skills associated with critical thinking.

The following section of the literature review focuses on the different teaching methods that are available and the influence that they have on the development of critical thinking.

2.6 Teacher-centred versus student-centred teaching

There has been a move in higher education since the early 90's away from passive lecture-based methods of teaching towards student-centred learning (Frambach, Driessen, Beh & Van der Vleuten, 2014; Prosser, M & Trigwell, K, 2017). Lecture methods tend to focus on the role of the lecturer, while student-centred learning is more concerned with learners' roles in the learning process (Cannon & Newble, 2000). Lecture methods are useful for delivering knowledge to students, however it may be seen as inadequate when encouraging student-centred teaching (Shell, 2001). Student-centredness is thought to enable critical thinking and self-directed learning in the student, which in turn should set the platform for lifelong learning (Cannon & Newble, 2000; Gibby, 2013). However, some students who are familiar with traditional teacher centred methods may struggle when making the change to more student-centred techniques (Choi, Lindquist & Song, 2014; Sommers, 2018).

2.7 Teaching methods to enhance critical thinking

Traditional lecture-based strategies have been criticised by various authors in the past, as they often focus on delivering information that is passively received by students, rather than focusing on the development of critical thinking in the student (Alexander, McDaniel, Baldwin & Money, 2002). Engaging students in critical thinking requires teaching methods that demand active participation of the student (Popil, 2011). Non-traditional teaching strategies, such as Socratic questioning, case studies, concept maps, debating, discussions, role-playing, gaming, simulation, and reflective writing are examples of active student participation and have been found useful in developing critical thinking in undergraduate student nurses (Chan, 2013; Orique & McCarthy, 2015; Royse & Newton, 2007; Xu, 2016). These methods allow learning through processes of collaboration, self-discovery and the development of self-directed learning skills (Orique & McCarthy, 2015).

2.7.1 Questioning

Questioning students stimulates their thinking process far more effectively than just providing them with the answers (Elder & Paul, 1998). Deep questioning or Socratic questioning is particularly important in the development of critical thinking in students (Burrell, 2014; Elder & Paul, 1998). Socratic questioning is based on the work of the Greek philosopher Socrates and means "questioning that deeply probes the meaning, justification, or logical strength of a claim, position, or line of reasoning" (Paul & Elder, 2014:429). Socratic questioning comprises questions such as 'what else?' and 'why?' or 'what if?' (Simpson & Courtney, 2002:94).

The type of questions teachers ask has a direct effect on the development of critical thinking in students (Shim & Walczak, 2012; Tofade, Elsner & Haines, 2013). The stimulation of critical thinking requires questions that are higher cognitively, encouraging students to manipulate information and create a rationale or justification, rather than questions that simply require recall, recognition and simple application (Profetto-McGrath, Smith, Day & Yonge, 2004). However, students in the classroom may be averse to this type of questioning as they may feel threatened by being selected to answer or not knowing the answer (Walsh & Seldomridge, 2006). Nursing educators have been shown to favour lower order questioning, which does not enhance critical thinking (Profetto-McGrath *et al.*, 2004). Development of the questioning skills of nurse educators, enabling them to achieve higher order questioning skills, is recommended (Gul *et al.*, 2014).

2.7.2 Case Study

Case studies or scenarios are descriptions of actual 'cases' within the identified profession that allow students to experience and problem-solve real life scenarios in a safe environment. The important role of case studies as a teaching method in implementing critical thinking has been related by numerous authors (Kaddoura, 2011; Neill, Lachat & Taylor-Panek, 1997; Popil, 2011). Developing case studies often provides a freshness and innovation that may have been lost in lecturer-centred teaching (Popil, 2011). The problems are open-ended and, as such, have many solutions and can lead to considerable discussion, promoting student-lecturer communication. The drawback of case studies is that they can have a limited scope, are time consuming to prepare, and the students who are less prepared struggle with them (Popil, 2011).

More recently, the reverse case study has been promulgated as a method of instilling critical thinking where students are provided with a list of patient specific medications, diagnostic results, a limited list of orders, the patient's complaints and the vital signs (Jones, 2017). From these, students have to construct the appropriate scenario that will correctly match all the information (Beyer, 2011). This is based upon Benner's theory of progression in nursing competency moving through the five stages from novice, advanced beginner, competent, proficient and expert (Benner, 1984). This format of the reverse case study emerged out of a concern that students were not necessarily adequately prepared to apply what they had learned in practice. Therefore this method focuses on improving critical thinking for practice or clinical reasoning skills (Jones, 2017).

2.7.3 Concept mapping

Concept mapping is the arrangement of visual diagrams in a hierarchical manner to capture concepts and the associations between them (Novak & Cañas, 2006). Concept mapping has been demonstrated as a teaching strategy that can further increase critical thinking skills in nursing students compared to the lecture method (Wahl & Thompson, 2013). However, other studies showed no significant increase in critical thinking between the lecture method and the use of concept mapping (Chen, Liang, Lee & Liao, 2011; Wheeler & Collins, 2003). A meta-analysis study on concept mapping revealed measurable improvement in critical thinking when compared with traditional methods of teaching (Yue, Zhang, Zhang & Jin, 2017). Initial problems with time constraints experienced by lecturers and students' lack of familiarity in utilising concept mapping were seen to decrease with repetition (Hicks-Moore, 2005).

2.7.4 Debates, discussions and group work

Debates, discussions and group work are proposed as methods for developing critical thinking in students (Simpson & Courtney, 2002). Debate stimulates critical thinking as students are expected to provide reasoned arguments regarding the pros and cons of a controversial situation (Garrett, Schoener & Hood, 1996). The limitation of debate is that it only has two opposing viewpoints; however, this can be overcome by having a discussion after the debating session (Garrett *et al.*, 1996).

Discussion as a teaching method requires active engagement from students with dialogue and questions providing an opportunity for students to develop their critical thinking skills. It is important that the lecturer facilitates the session adequately with appropriate questions and procedures as not all discussions will promote critical thinking (Brookfield, 2012). The use of different methods such as the fishbowl technique where an outer circle of students watches an inner circle of students discuss a topic are effective discussion techniques (Quinn, 2000).

Group work allows participants to interact by sharing ideas and assumptions (Simpson & Courtney, 2007). Groups can be less intimidating and students can compare critical thinking styles with their peers (Simpson & Courtney, 2007). Small group discussions were found to increase students' critical thinking skills, improve their self-directed learning, and increase learner satisfaction (Sanasuttipun, Tungjairob, Musiksukont, Lerthamatewe & Chanwatana, 2009).

2.7.5 Role-play

Role-play provides an imaginary environment where students can explore potential problems and behaviours that may arise in authentic scenarios (Kim, 2018). Role-play has been found to enhance students' perception of a situation and their critical thinking skills (Redden, 2015). The value of role-play is that it causes the student to interact with the material using their cognitive, affective and psychomotor skills. This student interaction is associated with increased retention of learning compared with other teaching methods such as lecturing (Vizeshfar, Dehghanrad, Magharei & Sobhani, 2016). Critical thinking in nursing students is particularly improved using role-play as a teaching method when associated with problem-based learning (Chan, 2013).

2.7.6 Simulation

Simulation allows students to use critical thinking and psychomotor skills to manage authentic nursing scenarios in a safe learning environment where neither they nor the patient are at risk (Burrell, 2014). Simulation is reported to improve critical thinking in nursing students (Munshi, Lababidi & Alyousef, 2015). Reflection and a debriefing session following the simulation exercise is seen as a major component of promoting critical thinking where students are encouraged to analyse and reflect on the simulation process (Billings & Halstead, 2012). A combination of simulation with role-play is found to further heighten critical thinking skills (Redden, 2015).

The use of high fidelity patient simulation (HFPS), which involves manikins that generate very sophisticated patient scenarios, improve critical thinking skills in nursing students compared with students subjected only to case studies containing the same information (Goodstone, Goodstone, Cino, Glaser, Kupferman & Dember-Neal, 2013). A review comparing low fidelity and high fidelity simulation demonstrated inconclusive evidence regarding which one is more beneficial to learning (Munshi *et al.*, 2015). Rather the presence of reflection, repetitive practice and the alignment of the learning objectives with the curriculum played important roles in the success of the simulation and not necessarily the fidelity of the simulation (Munshi *et al.*, 2015).

2.7.7 Reflection

Reflection is an ongoing iterative process whereby critical thought informs theory and or practice (Burrell, 2014). The use of reflective writing or journaling where students document their thoughts and experiences in written form can enhance critical thinking (Fonteyn & Cahill, 1998; Kennison, 2006). Reflection is particularly valuable to health professionals in their practice. Therefore, it needs to be embedded in teaching strategies when teaching student

health professionals (Kauffman & Mann, 2014). However, educators are often unable to adequately teach critical thinking skills through reflection due to absence of reflection in their own teaching practices (Choy, 2012). Accordingly, educators themselves need to practice reflection to effectively implement it in their classrooms (Choy, 2012).

2.7.8 e-Learning

Multimedia such as flip charts, videos, and models all play an important role in learning and if used with appropriate teaching strategies such as questioning. Advances in media technology have also brought with it further opportunities for students to participate in their own learning by creating pod casts, digital stories, videos, games and websites (Oermann, 2015). This active learning must be encouraged as it stimulates critical thinking. However, the integration of technology should be regulated, based on course outcomes and not just exciting new trends (Oermann, 2015).

2.7.9 The flipped classroom

Flipped classrooms have been used effectively to increase students' critical thinking skills (Smith, Rama & Helms, 2018). The flipped classroom technique involves students accessing any resource such as watching a video of a lecture at home and then answering questions or completing an activity in a facilitated setting in the classroom (De Ruisseau, 2016). This teaching method is found to increase student participation and critical thinking skills (Smith *et al.*, 2018).

2.7.10 Role modelling and mentoring

Critical thinking is regarded as a social learning process that can be learned from peers and, importantly, role modelled by the lecturers (Brookfield, 2012). The lecturers' role modelling, facilitating and guiding of students are pertinent in developing critical thinking in students (Myrick, 2002). A study within the clinical setting indicated that the nurse educator's ability to develop critical thinking in the students through teaching and role modelling was affected by the following factors: student-educator relationship; the nurse educator's active role modelling of critical thinking; their astute use of resources; and their awareness of factors that affect their own critical thinking (Raymond, Profetto-McGrath, Myrick & Streat, 2018). Thus, lecturers need to be continuously mindful of the role model that they present to their students.

Role modelling may be perceived as a one-way process, where the student only passively observes and imitates the nurse educator. No formal discussions are necessarily undertaken to explain why a role model acts in a certain manner in a specific situation. Additionally, there is no obligation by the role model to guide or counsel the observing student (Bedell, 2005).

However, this one-way process in role modelling can be overcome if the nurse educator develops a conscious recognition of his/her importance as a role model. The nurse educator needs to take time to explain situations as they arise also known as thinking out loud. This active reflection, makes the implicit explicit by clarifying the reasons for the role modelling of specific behaviours (Cruess, Cruess & Steinert, 2008).

Mentoring is a relationship between an experienced professional nurse educator and an inexperienced novice or student where the student receives guidance and critique as they are encouraged to develop their abilities and ask questions (Bedell, 2005). Mentoring allows for the guided development of clinical, technical and critical thinking skills in the student within a safe environment (Bedell, 2005).

2.7.11 Summary of teaching methods

The value of nurse educators, embracing specific teaching methods to assist in the development of critical thinking in students is acknowledged (Tiwari, Lai, So & Yuen, 2006). Critical thinking skills may be taught explicitly in courses dedicated to critical thinking or, alternatively, taught implicitly, embedded in discipline specific courses (Abrami, Bernard, Borokhovski, Waddington, Wade & Persson, 2014). All the teaching strategies mentioned above can facilitate the development of critical thinking. Yet, dialogue and questioning, exposure to authentic problems, and mentorship or role modelling have been identified by a meta-analysis as the most successful methods (Abrami *et al.*, 2014). It is highly recommended that nurse educators receive formal training to enable them to enhance their teaching of critical thinking skills to nursing students through using many of the teaching methods mentioned above (Gul *et al.*, 2014).

2.8 Factors affecting the development of critical thinking

There are many factors including, enablers and challengers, that affect the facilitation of critical thinking in nursing students. These factors will be discussed under the following headings: lecturer, student, academic literacy, educational institution, environment and society.

2.8.1 The lecturer

The preparedness of nurse educators to teach critical thinking is relatively unexplored in the literature, with the primary focus being rather on the critical thinking of the student (Raymond *et al.*, 2018). A study in Iran identified poor understanding and a lack of knowledge regarding the implementation of critical thinking amongst nurse educators (Aliakbari & Sadeghdaghighi, 2013). This decreased self-efficacy for teaching critical thinking in nurse educators is

supported by Mangena and Chabeli (2005) in a study in South Africa. Even lecturers who themselves demonstrate advanced critical thinking abilities may be unable to maximise critical thinking in their students (Huang, *et al.*, 2014). However, a study in Tennessee, United States of America, revealed that most nurse educators were confident with their knowledge of critical thinking yet they were open to receiving additional training courses on critical thinking (Shell, 2001). These educators were also confident in their knowledge and their ability to define critical thinking (Shell, 2001).

Many lecturers experienced teacher-centred learning while they were still students and were not exposed to a student-centred approach that promotes active learning and critical thinking (Mangena & Chabeli, 2005). This lack of exposure to the role modelling of critical thinking as students may decrease the lecturer's ability to role model critical thinking to their current students and can become a barrier to the facilitation of critical thinking (Gul, Cassum, Ahmad, Khan, Saeed & Parpio, 2010; Haas & Keeley, 1998; Mangena & Chabeli, 2005).

Despite the trend towards introducing more student-centred learning, lecturing is reported as the primary method of instruction used by nurse educators (Aliakbari & Sadeghdaghighi, 2013; Mangena & Chabeli, 2005). Other teaching strategies were often used to supplement the lecture method (Shell, 2001). Some lecturers declared openness to the introduction of new teaching methods (Shell, 2001). However, unwillingness of other lecturers to change from didactic lecturing methods to new teaching strategies that encourage active student participation is noted to be a barrier to the facilitation of critical thinking in nurse educators (Aliakbari & Sadeghdaghighi, 2013; Mangena & Chabeli, 2005). Additionally, the lack of knowledge by nurse educators of teaching strategies that encourage critical thinking has been highlighted as a challenge (Mangena & Chabeli, 2005).

Lecturer qualities identified as important for the facilitation of critical thinking include approachability, open-mindedness and flexibility particularly where lecturers were able to articulate their own ideas and beliefs thereby encouraging the sharing of these by their students (Kawashima, 2003). Lecturers require good questioning skills, as lecturers deficient in this area may particularly struggle with the facilitation of critical thinking in students (Twibell, Ryan & Hermiz, 2005). Lecturers must also be adequately prepared and their sessions must be well planned, focusing on providing students with numerous active learning opportunities to developing critical thinking (Mangena & Chabeli, 2005).

Overcoming lecturers' barriers to facilitating critical thinking requires that lecturers move out of their teacher-centred comfort zones, update themselves regarding the implementation and

facilitation of critical thinking, and become lifelong learners (Mangena & Chabeli, 2005). “One cannot teach thinking if one is not a critical thinker” (Mangena & Chabeli, 2005:293). Nurse educators are a key component to facilitating critical thinking in nursing students and more studies are required to investigate the nurse educator’s role and critical thinking abilities (Raymond, Profetto-McGrath, Myrick & Strean, 2017).

2.8.2 The student

Student resistance to active learning is a major challenge noted by lecturers even though active learning assists students with the development of their critical thinking skills (Shell, 2001). Student characteristics that challenge active learning include a lack of motivation, students expecting a lecture format, and students ascribing more importance to the mark achieved versus the learning that has occurred (Shell, 2001). Lack of student cooperation in active learning may prevent the implementation of teaching strategies that encourage active learning and promoting critical thinking (Shell, 2001).

Although questioning is seen as an important teaching strategy in facilitating critical thinking, students may be unwilling to respond to questions that encourage active learning, especially if class participation is not part of a subject mark (Walsh & Seldomridge, 2006). Questioning students may also be problematic as students may dislike being put on the spot and respond with negative course evaluations (Walsh & Seldomridge, 2006). This corresponds with other research where increased student participation was waived due to perceived student resistance and the fear of negative educator evaluations (Shell, 2001).

Students may not have the confidence to participate in discussions if they are fearful of making mistakes (Zygmunt & Schaefer, 2006). Additionally, nonverbal and verbal suppressions from other students who are only concerned with covering the content can dampen those who want to ask questions (Walsh & Seldomridge, 2006). In certain cultures questioning is also not encouraged as young people are not allowed to question adults and must believe everything that adults say (Mangena & Chabeli, 2005).

The selection of students, who do not have a basic foundation in critical thinking skills, for nursing courses was perceived as an obstacle to obtaining students who can think critically in the nursing profession (Mangena & Chabeli, 2005). Specially designed psychometric testing to be used as part of selection criteria is proposed to remedy this problem (Mangena & Chabeli, 2005). Appropriate student selection and overcoming negative student traits to promote active student participation are necessary actions in developing critical thinking in nursing students (Mangena & Chabeli, 2005; Shell, 2001).

2.8.3 Academic literacy

Academic literacy is much more than the traditional understanding of simply being able to read and write within an academic context (Braine, 2002). Academic literacy is regarded as a critical discourse, utilising the various media of language such as reading and writing (Papashane & Hlalele, 2014). As a critical discourse, critical thinking is a fundamental requirement to academic literacy (Papashane & Hlalele, 2014). The many challenges experienced by students in developing language, critical reading, and critical writing skills will be discussed below.

2.8.3.1 Language

The use of a person's natural or mother tongue is recommended to enhance critical thinking, as the natural language is easily accessible and contains the "critical analytical vocabulary of everyday language" (Paul, 2014:368). However, this is not always possible in education departments serving multilingual societies. Critical thinking is problematic when students have to focus on translating before they can continue with group discussions and debates (Mangena & Chabeli, 2005). Proficiency in a language is required to demonstrate critical thinking using the language (Kabilan, 2000). Literature reviews of nursing students where English is not the first language reveal that students are unwilling to participate in discussions in class due to fear of embarrassment or of being misunderstood (Olson, 2012; Sanner, Wilson & Samson, 2002).

2.8.3.2 Critical reading

The ability to read for understanding is a necessary skill required for critical thinking (Worrell, 1990). Critical readers enter into the point of view of the writer and are able to look for assumptions and key concepts that can assist with their understanding and interpretation of the written text (Paul, 2014). Students who cannot read critically are unable to engage in critical thinking and this is often typical of students who come from inadequate education systems (Mangena & Chabeli, 2005). Reading courses have been found to overcome this barrier by improving students' in-depth thinking and their abilities to identify critical concepts (Chen & Lin, 2003).

2.8.3.3 Critical writing

Critical or academic writing stimulates critical thinking as it requires analysis, reflection and processing of knowledge, skills that are also important in developing critical thinking (Cowles, Strickland & Rodgers, 2001). Critical writing requires clear, substantive critical thought and it is regarded as both the process and the outcome of critical thinking (Paul, 2014). Hence, improvement in critical thinking will improve critical writing and vice-versa (Bean, 2011). It is

often assumed that only those whose second language is English require assistance with writing; however, it is not only these students that require help (Chen & Lin, 2003). Integrating critical thinking using critical writing is shown to improve both critical thinking and critical writing skills in first and second English language students (Dong, 2015).

2.8.4 Educational institutions

An educational institution's understanding of critical thinking plays an essential role in the development of critical thinking students. The institution's concept of critical thinking is infused in the academic programmes through curricula and assessment processes. Additionally, interprofessional education and the educational environment impact the development of critical thinking in the student. These factors will be discussed next under the headings: interprofessional education, instilling critical thinking in curricula, content overload, programme time constraints, programme assessments, and the educational environment.

2.8.4.1 Interprofessional education

Interprofessional education is defined as “occasions when two or more professions learn with, from, and about each other to improve collaboration and the quality of care” (World Health Organisation, 2010:7). Crucial attributes of interprofessional education include active involvement, experiential learning, participants learning from each other across disciplines, non-hierarchical experiences, knowledge and value sharing, and collaborative patient-centred care (Olenick, Smego & Ryan, 2010). Shared reflections and problem solving have important roles in the development of critical thinking in health professionals (Walrath, Muganlinskaya, Shepherd, Awad, Reuland, Makary & Kravet, 2006). The deconstruction of stereotypes assists in levelling the status between the professions, enhancing teamwork and optimising the delivery of safe healthcare to the patient. (Olenick *et al.*, 2010).

2.8.4.2 Instilling critical thinking in the curricula

The development of critical thinking skills in students is an essential outcome of all programmes in higher education (Mundy & Denham, 2008) and must be embedded in the curricula in the form of appropriately aligned learning outcomes and assessment criteria (Biggs & Tang, 2011). However, the manner in which an educational institution designs its curricula and teaching, is influenced by its definition of critical thinking, which is formulated by the leadership of the educational institution (Rowles *et al.*, 2013). The lack of a universal definition of critical thinking promulgated by the academic leadership can result in varying interpretations and teaching of critical thinking by the various lecturers (Mundy & Denham, 2008; Rowles *et al.*, 2013). Cody (2002) suggests that poor understanding of the critical thinking process can

also lead to 'pseudo critical thinking' where the word is used by staff members but no real change is made to implement critical thinking.

Resistance within educational institutions to changing teaching approaches to a more student-centred approach have also been encountered (Shell, 2001). Additionally, not all lecturers members may be comfortable with teaching and evaluating critical thinking in students (Huang *et al.*, 2014). It is recommended that a core of staff members, experts in the use of critical thinking, serve as trainers and a general resource to other lecturers. This resource would include a video library of best practices, which could be examples of various facilitation techniques aiming to enhance critical thinking in students. These core members can also provide peer observation with feedback to staff members who want to improve their teaching strategies to enhance critical thinking (Huang *et al.*, 2014).

2.8.4.3 Content overload

Use of didactic lectures to communicate large amounts of content may be important in certain faculties to enable completion of the programme (Walsh & Seldomridge, 2006). The need to cover large amounts of content was raised as a reason for not adequately implementing teaching strategies that support critical thinking (Shell, 2001; Van Wyngarden, 2017). Teaching an increasing amount of content was also proposed as a reason why students are unable to apply their knowledge (Del Bueno, 2005). An overloaded curriculum was seen as a constraint as it did not afford the student adequate opportunity to practice critical thinking (Aliakbari & Sadeghdaghighi, 2013). Regular evaluation of the content for relevance to prevent overload of the curriculum is recommended (Shell, 2001).

2.8.4.4 Programme time constraints

Lack of lecture time was quoted by lecturers as a barrier to implementing critical thinking activities in the classroom in specific programmes (Shell, 2001). This is particularly seen as a problem in higher education where lecturers' time is divided between teaching, research and service (Shell, 2001). Lecturers reported that the time constraints were particularly related to preparation time for utilising new teaching methods and inadequate time available in the classroom to implement critical thinking (Shell, 2001). Additionally, discussions and questions may be seen to take up valuable teaching time and were therefore not encouraged (Shell, 2001). Teaching large amounts of content in a small time period has been associated with having decreased time available to teach critical thinking skills (Ironsides, 2004). Time constraints, however, are not always the reason why lecturing is preferred. Other reasons are

rather a lack of knowledge of critical thinking and a reluctance to implement new teaching methods (Aliakbari & Sadeghdaghighi, 2013).

2.8.4.5 Programme assessments

Assessment practices in a programme directly influence the development of critical thinking skills in students (Shim & Walczak, 2012). Higher level cognitive questioning requires manipulation of the information to create the appropriate response and is supportive of critical thinking, whereas recall, simple application and recognition are lower level questions and do not promote critical thinking (Tofade *et al.*, 2013). Consensus statements from the health professions education millennial conference, highlight the important role of assessment in promoting critical thinking (Huang *et al.*, 2014). Assessment of critical thinking reinforces the importance of critical thinking to all the relevant role players, namely the students, lectures and the educational institution. Critical thinking, however, should not be assessed as a standalone component, but the thread of critical thinking should run through all areas of learning and thus all assessments. Assessments should include outcomes that actively target critical thinking. Furthermore, single strategies of assessment are not recommended, but rather a portfolio of assessments that provide a more complete picture of the student's critical thinking abilities (Huang *et al.*, 2014). The uniqueness of each student, requires diverse approaches to assessment to adequately develop their critical thinking skills within each programme (Paul, 2014).

2.8.4.6 Learning environment

A safe, encouraging and culturally sensitive learning environment is required for the development of critical thinking (Chan, 2013). This is supported by Burrell who states that "Nurse educators have a professional and ethical role in creating an environment conducive for learning" (2014:54). Student protests at South African universities from October 2015 to October 2017 saw the environment of academic learning disrupted by the fees must fall campaign (Jansen, 2017). This reactive situation affected all academic processes and was a time of heightened stress for lecturers and students alike (Jansen, 2017). Learning and the stimulation of critical thinking could no longer take place in the classroom in many institutions due to safety concerns and was channelled, where possible, through the safer option of online portals (ITWeb, 2016; Hypertext, 2016). The provision of a physically and psychologically safe environment, that promotes active participation in which the students can think and reason in an atmosphere that is "relaxed, psychologically safe with a climate of trust and mutual respect" promotes critical thinking (Billings & Halstead, 2012:207).

Lack of resources when teaching critical thinking in nursing students continues to remain a challenge and may be an issue particularly in developing countries (Boso & Gross, 2015). The challenges of providing a student-centred environment in third world societies was illustrated by a study in Nigeria where there were problems with large classes and infrastructure challenges, including insufficient electricity and internet facilities (Anyanwu & Iwuamad, 2015). Similarly, a nursing college in South Africa reported poor availability of internet connectivity, information technology (IT) equipment, teaching aids such as videos, digital video displays (DVDs), flip charts and models that assist in the development of student centred-learning (Van Wyngarden, 2017).

2.8.5 Societal factors

Influences and challenges that society places on the development of critical thinking skills in students will be discussed below under the following headings: technology across the generational divide and cultural factors.

2.8.5.1 The use of technology across the generational divide

The use of technology and various online resources as teaching methods for critical thinking continues to be an area of extreme growth. Examples include online student information systems, multimedia presentations, or animated pedagogic agents (APSSs). APSSs are caricatures that simulate various scenarios and options for the student via a computer screen to encourage interaction and promote critical thinking (Morey, 2012).

These teaching methods that utilise technology tend to suit the technological generations, which include the Millennials and Generation Z (Chicca & Shellenbarger, 2018). The Millennials, also known as Generation Y, were born during the early 1980s and the mid-90s. Generation Z emerged around the same time as the advent of the World Wide Web and incorporates those born between 1995 and 2012. They are presently in and continue to enter tertiary or higher education (Chicca & Shellenbarger, 2018).

Both Millennials and Generation Z respond positively to technologically driven teaching methods. Generation Z has a short attention span and learns by watching; therefore, short video clips are effective and even assessments via computer are recommended for these students (Chicca & Shellenbarger, 2018). The conflict with technology arises as students are often taught by lecturers from previous generations. Some lecturers may even fit into the baby boomer category born between 1943 and 1960. They generally struggle with technology and prefer using lecture teaching (Erlam, Smythe & Wright-St Clair, 2018; Johnson & Romanello, 2005). Baby boomers have considerable years of experience in the nursing field and expect

respect for this. Conversely, they should also acknowledge the technological expertise of Millennials and Generation Z, encouraging these students to use technology to further their understanding of nursing (Johnson & Romanello, 2005). Lecturers who fit into Generation X born between 1961 and 1981 are more technologically proficient having been exposed to digital technology for most of their lives (Swanzen, 2018). They are also comfortable with the change that new teaching methods require (Johnson & Romanello, 2005).

2.8.5.2 Cultural factors

Culture has an influence on learning and learning preferences and, as such, can also affect critical thinking. Different cultures may have different preferences as to how they are taught and different interpretations of critical thinking (Sommers, 2018). Some cultures may contain hierarchical or seniority systems that hinder students' inclination to challenge or debate, as any form of questioning is seen as unacceptable and this might deter the development of critical thinking (Gul *et al.*, 2010; Kawashima, 2003; Mangena & Chabeli, 2005). Additionally, cultural sensitivities and traditional education systems that support rote learning, disempower learners, discouraging the development of critical thinkers (Kawashima, 2003). Cultural teaching, however, enhances culture awareness and could potentially be used to enhance critical thinking in students as they explore the different understandings of critical thinking in different cultures (Jenkins, 2011).

Cultures can condition members of a society to hold certain beliefs, values and norms (Ricci & Su, 2013). This is known as cultural conditioning and can be an obstacle to the development of critical thinking. Cultural conditioning implies a preconception of what is right without necessarily perceiving a need to investigate further. Certain concepts are seen as the norm and there is no need to challenge the status quo. This results in decision-making abilities being influenced or narrowed by specific cultural backgrounds (Ricci & Su, 2013). This process of cultural conditioning can occur across cultures, gender, classes and professional groups. An example of this would be where greater status is summarily assigned to higher education standards than to manual activities (Fagin, 1992). This relates to the concept of the traditional hierarchical relationship between the doctor and nurse where the doctor is ascribed greater status for many reasons including having received a higher education. This hierarchical relationship may be regarded as problematic when developing critical thinking skills in nurses, as critical thinking has traditionally been seen as the doctor's role and the nurse is there simply to carry out their orders (Kawashima, 2003; Vazirani, Hays, Shapiro & Cowan, 2005). In paternalistic societies with predominantly male doctors the nurse continues to function in a subservient role to the doctors (Kawashima, 2003). A study in Japan reported that nurses have to ask for permission from the doctor before they can perform basic hygiene tasks on a

patient (Kawashima, 2003). The nature of the doctor-nurse relationship has changed over the years moving towards doctors and nurses working together as equal partners with a greater interdependence, yet with different roles (Fagin & Garelick, 2004). However, an influencing disparity may be perceived to remain that may yet influence the development of critical thinking in nursing (Fagin & Garelick, 2004).

This discussion creates an awareness regarding the different cultural backgrounds of lecturers and students and the role of perceived status. It also elicits a consciousness of the generational diversity between lecturers and students. Each person brings their own specific worldview to education, affecting the use of and receptivity to the various teaching methods that are available in the facilitation of critical thinking (Johnson & Romanello, 2005).

The challenges to the development of critical thinking in nursing students are seen to be pervasive throughout society, the environment, the educational institution, the lecturers, and even amongst the students themselves. An awareness of these barriers will provide a stepping-stone to surmounting them.

The development of critical thinking skills in health professionals has a positive impact on the provision of quality patient care. Considering the lack of a consensus on the definition of critical thinking, it appears that the debate has moved on from defining critical thinking and explaining it to forming a dialogue around critical thinking. That is in itself demonstrative of critical thinking. Critical thinking is most appropriately developed in a student-centred learning environment using student-centred teaching strategies, where the emphasis is on active learning. There are numerous challenges to be addressed in the facilitation of critical thinking in students. Primarily, it is essential that lecturers receive adequate training in understanding critical thinking and that they are empowered with the ability to facilitate the development of critical thinking in students by integrating appropriate student-centred teaching strategies.

The next chapter will focus on the qualitative methodology used in this study. .

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the methodology used to explore the perspectives of lecturers regarding the facilitation of critical thinking in undergraduate nursing students in the classroom. The research design, data collection, analysis, and ethical considerations will be discussed in this section.

3.2 Research design

The design of this study is influenced by the researcher's worldview, the strategies of inquiry and the research method selected (Creswell, 2009). The researcher is inclined towards a social constructivist viewpoint where individuals are seen to create meaning from their own experiences (Creswell, 2009). As a nurse educator with seven years experience, the researcher is interested in drawing on the wealth of understanding of more experienced nurse educators. The qualitative research approach was best suited to understanding the experiences and perspectives of the lecturers whose inputs were investigated (Fouché & Delport, 2011). The strategy of inquiry took the form of an exploratory study using semi-structured interviews to collect qualitative data. The exploratory approach allowed for the researcher to probe the lecturers' understanding and experience of critical thinking in students with a view to obtaining data that was rich in detail.

The data obtained were analysed using an inductive approach. This approach involves moving from the "particular to the general" where a common pattern is discovered following the examination of specific observations (De Vos, 2005:47). The 'particular' codes or small sections that were obtained from analysis of the interviews were then grouped together according to the development of 'general' themes. These emerging broad themes were then captured in the findings. This inductive approach provides for the potential creation of new knowledge (De Vos, 2005).

3.3 Population and sampling

The study population comprised all fourteen nurse educators who will be referred to as lecturers, who were actively teaching the four-year Bachelor of Technology (BTech) Nursing programme at the relevant nursing college. Lecturers were also required to have had five years or more teaching experience in an undergraduate nursing programme to maximise the possibility of obtaining rich data. This inclusion criterion of five years teaching experience enabled a level of expertise and knowledge to be investigated that may not have been

available in less experienced lecturers. Only ten of the fourteen lecturers were available and willing to participate; convenience sampling was utilised for selecting the sample population. Convenience sampling is guided by the availability of participants (Maree & Petersen, 2007). Table 3.1 details the lecturing experience of the ten participants and the student year in which they were currently teaching the BTech Nursing programme.

Table 1: Details of participants

RESPONDENT	NUMBER OF YEARS AS A NURSING LECTURER	NUMBER OF YEARS LECTURING UNDERGRADUATE NURSING STUDENTS	CURRENT YEAR TAUGHT AT THE NURSING COLLEGE
1	7	7	2 nd year
2	7	7	4 th year
3	12	10	4 th year
4	27	17	4 th year
5	27	17	4 th year
6	20	15	1 st year
7	5	5	4 th year
8	17	17	3 rd year
9	24	17	2 nd , 3 rd and 4 th year
10	8	8	2 nd year

3.4 Data collection

The study took place at a nursing college in the Western Cape where lecturers were interviewed in their offices or in a place convenient for the participants. Following ethical approval for the research from Stellenbosch University, Health Research Ethics Committee 2 (Addendum 3), permissions to proceed with the study were obtained from the Western Cape Department of Health (Addendum 4), the relevant nursing college (Addendum 5), and the Cape Peninsula University of Technology (Addendum 6). Subsequently, each lecturer who met the inclusion criteria was sent an email, requesting their participation in the study. Included in the documents attached to the email was an explanation of the study, the ethical approval details and an informed consent form (Addendum 7). Once lecturers had indicated either verbally or by return email their willingness and availability to participate in the study, they were requested to sign and return the informed consent form. Further to the explanatory document accompanying the initial email, the study was also explained verbally to all

participants. The researcher's telephonic and email contact details were also made available to the participants in the event that the participants have any queries related to the study. An appointment convenient to both parties was then set up to conduct the interviews.

The researcher conducted all the face-to-face semi-structured interviews taking between fifteen to thirty minutes for each interview. These semi-structured interviews allowed for the development of ideas and an in-depth exploration of information that may not have been elicited with the option of less flexible structured interviews or verbal questionnaires (Gill, Stewart, Treasure & Chadwick, 2008). A weakness of using semi-structured interviews is that the information provided by the participants is filtered through their memory and is affected by the social context of the interview (Ng, Lingard & Kennedy, 2014). Hence adequate time was provided for the interviews to allow for optimal recall of information. Additionally, interviews were conducted in a non-threatening environment, such as the participants office.

Each participant was asked a series of questions in a similar order using probing questions as necessary (Addendum 8). Every interview was audio-recorded with the participant's permission. Two recording devices were used in case one device malfunctioned. Brief notes were made in a book detailing the participants' codes against their names to enable researcher-participant communication for later member checking. This book was kept separately from all interview recordings and transcriptions maintaining their anonymity. Additionally, the researcher refrained from using any names when addressing the participants during the interview thus maintaining their anonymity.

3.5 Data management

Following each interview, an anonymous file of the audio recording was generated and labelled according to the sequential number of the interview. Names were not used in the identification of the participants during the audio recording. The audio files were sent via email to an independent transcriber where they were transcribed verbatim into Word documents and returned via email to the researcher, each with the same name as the original audio file, for example, 01 Respondent. The researcher then checked the transcriptions by replaying the audio files while reading the transcribed document and correcting any errors detected. The transcriptions were then sent via email to the respective respondents for member checking. The transcriptions and audio files were stored securely as recommended in an electronic format on a password-protected computer only accessible by the researcher (Creswell, 2014).

3.6 Data analysis

The transcribed information from the semi-structured interviews were analysed as soon as all the interviews were completed. The researcher read through the interviews several times. The

analysis of the data continued with the researcher performing in vivo coding by examining each line of the text and capturing a phrase verbatim into an Excel spread sheet (Addendum 9; Saldana, 2013). In vivo coding was also occasionally combined with descriptive coding, where a phrase was assigned a code. Next axial coding was done by reading through the interviews again and grouping similar codes together around a comparable axis to form broader sub-categories and categories (Saldana, 2013). These categories were grouped together using the Excel spreadsheets for easier sorting (Addendum 10; Saldana, 2013). Identified themes were gathered together generating two focus areas, which allowed for a more distilled reporting of the findings (figure 1).

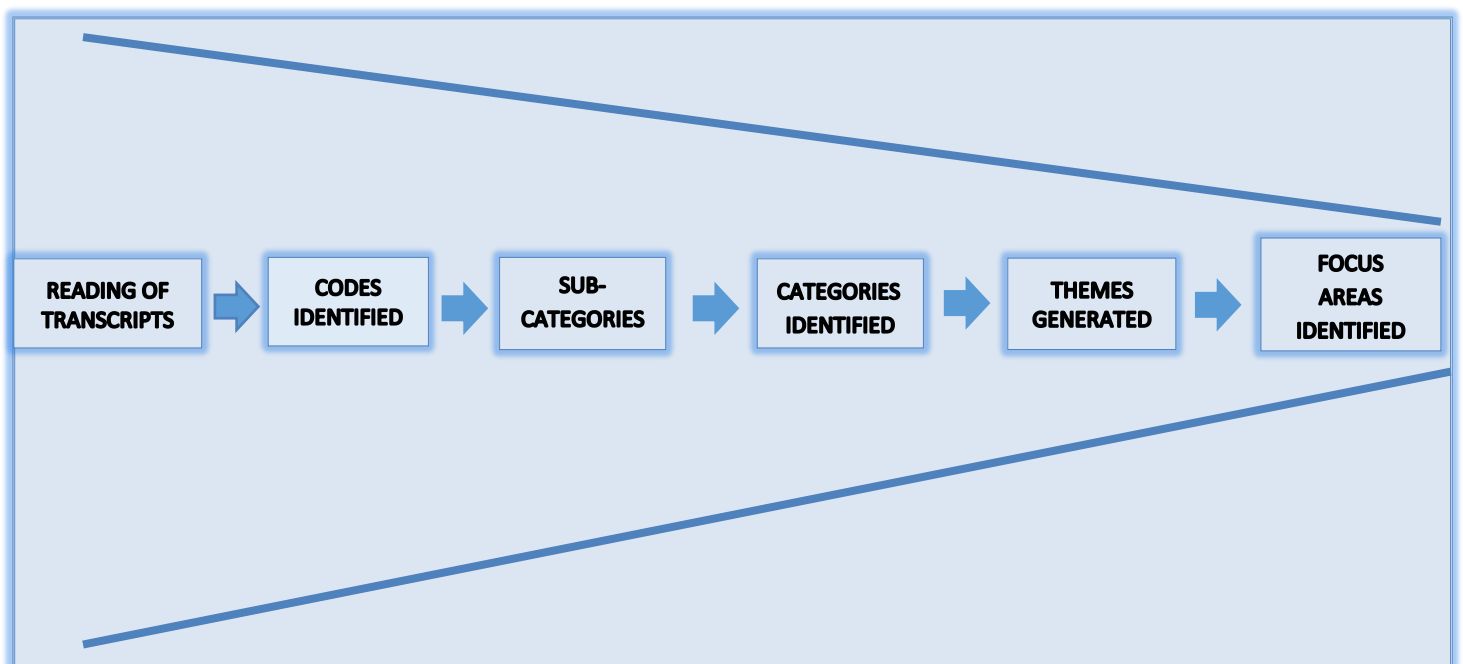


Figure 1: The coding method used for data analysis. Adapted from Creswell's coding process (Creswell, 2009:244).

The focus areas and accompanying themes were described in the findings and supported with quotations from the interviews (Creswell, 2014). This was an iterative process where the interviews were returned to and reread many times to ensure that the codes were correctly assigned to specific categories, which were correctly assigned to specific themes. During this process, some categories were added and others were reassigned to different themes as they developed. This dynamic practice ensured that themes were appropriately readjusted and finely tuned to provide the most precise representation of the data. Ongoing liaison and guidance was received from the supervisor during this process.

3.7 The role of the researcher

Reflexivity requires that the researcher clarifies his/her point of departure and worldview (Creswell, 2014). For this study, the researcher was also the interviewer and a member of the lecturing staff that were interviewed. Insider researchers bring advantages and disadvantages to data collection (Unluer, 2012). An advantage is that, as a colleague, the researcher was easily able to engage in deep discussions with participants that could potentially elicit rich data. Increased subjectivity of the researcher is a disadvantage of insider researchers. As a member of staff, the researcher was at risk of being overly sympathetic to the problems and experiences that were raised in the interviews. Thus, every effort was made to ensure that the participants' voices were paramount during the data generation process. Reflexivity was enhanced by self-reflection and introspection during and following interviews thus enhancing the credibility of the study (Frambach, Van Der Vleuten & Durning, 2013).

3.7.1 Reflexivity: Self-reflection of the researcher

Self-reflection was performed as the interviews progressed and as the different themes were constructed. The researcher, as a member of the lecturing staff for the past seven years, was inherently aware of many potential undertones and overtones that existed in the interviews and made every attempt to obtain clarity in the interviews so that nebulous inferences would not be made. This process required asking respondents to repeat statements as necessary. Additionally, the transcripts were transposed verbatim, to ensure all issues mentioned by the respondents were captured. Communication with an objective supervisor throughout the process assisted the researcher to step away from the data as necessary, to clarify certain themes, and review the data from a different perspective.

Student protests and a waxing and waning of leadership powers between the institutions controlling the nursing college were some of the environmental influences experienced by the lecturers at the time. Lecturer shortages and large classes were the norm during this very uncertain period of instability. Unsurprisingly, these resource constraints, which affected all academic functioning, also permeated into the discussion on critical thinking. While being mindful of these issues, the researcher attempted to consider all topics brought by the respondents impartially and factually. Yet the researcher realised that as a staff member, interviewer and researcher, all data generated, will be interpreted through the researcher's own subjective viewpoint and preconceptions.

3.8 Quality criteria

The criteria of credibility, transferability, dependability and confirmability are important in determining the quality of a study (Frambach *et al.*, 2013). A discussion of how this study met these criteria now follows.

3.8.1 Credibility

The credibility of the study is the trustworthiness of the findings and how plausible they are to others (Frambach *et al.*, 2013). Credibility was maintained by ensuring that there was precise attention paid to the capturing of the interviews and the transcribing thereof. Transcribed documents were then sent back via email to each respondent for member checking (Creswell, 2014). This was a process where the participants checked the accuracy of their transcriptions (Frambach *et al.*, 2013). Areas where the participants were unclear were identified and participants were requested to clarify, if they could, or respond that all was in order. Only two lecturers replied with very minor adjustments to their interviews.

3.8.2 Transferability

Transferability is about how the findings from this study can be transferred into other contexts (Frambach *et al.*, 2013). This study was small and used a convenience sampling technique, thus has limited capacity for transferability to other settings. However, the data collected in this study was richly described and the collection of such detailed data facilitates the potential transfer of the findings to other situations. Additionally, sufficient description of the context was provided as this allows for others to judge for the potential for transferability to a setting that may be similar.

3.8.3 Dependability

The dependability of the data relates to the extent to which the findings remained consistent within the study context. The data collection continued within each interview until it became evident that no new themes were emerging and a point of saturation had been reached (Frambach *et al.*, 2013). During data analysis the researcher continuously reviewed categories and themes in an iterative process to ensure that all new insights were appropriately captured (Frambach *et al.*, 2013).

3.8.4 Confirmability

Confirmability is the extent to which the findings are associated with the study's participants and not affected by researcher bias (Frambach *et al.*, 2013). In this study, consideration was given to the potential for researcher bias due to insider interviewing. The researcher practiced

reflexivity by reflecting on the interviews and generated themes in order to minimise the researcher's subjective voice and ensure that the voice of the participants dominated. Presentation of rich descriptive quotes assists with confirmability. Additionally, emerging themes were compared with the literature (Saldana, 2013) and member checked with the facilitating supervisor to avoid the unwitting embedding of assumptions, thus enhancing confirmability.

3.9 Ethical considerations

The required ethical approval for the study and permissions to proceed were obtained as indicated in section 3.3.

The principle of justice was upheld in the selection of participants, as all lecturers who met the selection criteria had equal opportunity to participate. Autonomy was upheld, as participation in the study was voluntary and there was no form of coercion or enticement (Creswell, 2014). The process was set out in the participant information guide including the fact that the interviews would be audio-recorded (Addendum 7). Following completion of the informed consent (Addendum 7), the autonomy of the participants to withdraw from the process at any time was respected. Confidentiality and anonymity were maintained throughout the study upholding the principle of non-maleficence. Participants' names did not appear on any forms or interview transcriptions, rather they were number coded throughout, including in the reported findings. All data was stored securely.

The principle of beneficence will be upheld by distributing the findings to the general repositories of knowledge. The findings will be disseminated through the portals of departmental presentations, the submission of an article to a journal for possible publication, and the submission of the research assignment to Stellenbosch University and relevant Health Professions education conferences.

3.10 Summary

This chapter has addressed the methodology practiced in the operationalisation of this study, from the preparation, design, data collection, data, management and data analysis to the ethical considerations that were maintained throughout. The following chapter will detail the findings that were elicited from this process.

CHAPTER 4

FINDINGS

4.1 Introduction

The following section provides the findings of this study that illustrate the lecturers' understanding of critical thinking in nursing students, as well as how it can be facilitated at the selected college of nursing in the Western Cape. Two focus areas were generated from the themes and these will be discussed. The first focus area includes the lecturers' perspectives of what critical thinking in nursing students means and how it is displayed. The second focus area includes factors that lecturers perceive to influence the development of critical thinking in nursing students.

Focus area A: Lecturers' perspectives of what critical thinking in nursing students means and how it is displayed

The first focus area embraced the lecturers' perspectives of what critical thinking in nursing students means and how it is displayed. It is comprised of three themes. These themes are cognitive skills, affective skills, and the application of knowledge in practice (see table 4.1).

The following table details the first identified focus area and the related themes as well as the categories that were generated from the findings.

Table 2: Focus area A: Themes and categories

Focus area A: Lecturers' perspectives of what critical thinking in nursing students means and how it is displayed	
THEMES	CATEGORIES
A Theme 1: Cognitive skills	Category A 1.1 Knowledge Category A 1.2 Information seeking Category A 1.3 Discriminating information Category A 1.4 Thought processing Category A 1.5 Justifying the process Category A 1.6 Thinking beyond Category A 1.7 Problem solving Category A 1.8 Thinking out of the box
A Theme 2: Affective skills	Category A 2.1 Interest Category A 2.2 Questioning Category A 2.3 Confidence Category A 2.4 Flexibility Category A 2.5 Reflection Category A 2.6 Perseverance
A Theme 3: Application of critical thinking skills in practice	Category A 3.1 Application of information in the clinical setting Category A 3.2 Thinking in different contexts

4.2 Focus area A - THEME 1: Cognitive skills

Most lecturers referred to the importance of the presence of cognitive skills in the critically thinking student. These cognitive skills that were described included knowledge, information seeking, discriminating information, analysis and synthesis of information, justifying the thinking process, problem solving, and thinking out of the box.

4.2.1 Category A 1.1: Knowledge

Lecturers inferred that students must first be able to demonstrate a basic knowledge level from which critical thinking can develop.

“They [the students] actually have to know the work first of all” (02 Respondent).

“They [the students] should be able to display evidence that they’ve got good knowledge of their topic and their subject” (04 Respondent).

4.2.2 Category A 1.2: Information seeking

This skill of actively seeking out or gathering knowledge was mentioned by most lecturers as a requirement of a critical thinking student.

“I think the student must be able to gather information” (01 Respondent).

Lecturers reported that information seeking is demonstrated in students who are not satisfied with one answer but seek out more evidence and have a desire to learn. The students therefore engage in the searching and gathering of information using multiple sources.

“The critical thinker would not only just look at one textbook, but they would use different sources and compare” (07 Respondent).

Students demonstrating critical thinking often pre-empted the lecturers’ material in their own quest for knowledge.

“They were self-driven, they did not wait for the lecturer to come with the content. They searched for information” (02 Respondent).

4.2.3 Category A 1.3: Discriminating information

Lecturers mentioned that critically thinking students can distinguish between information, recognising similarities and differences, and are able to sort, categorise and rank information.

“You [a student demonstrating critical thinking] don’t just accept one version, you will look for other versions and you will compare” (07 Respondent).

“Being able to take a large volume of information and ... narrow it down until it comes to the relevant thing” (02 Respondent).

4.2.4 Category A 1.4: Thought processing

Once students have gathered the information, it is important that the critical thinking student knows what to do with this information. Several lecturers alluded to the thought processes required in critical thinking and related this in terms of students having the ability to analyse and synthesise the information.

“They must be able to break it down, apply it and construct it again for critical thinking”
(10 Respondent).

“They [the critical thinking students] must be able to first analyse and then put it all together to form a picture” (01 Respondent).

Another lecturer focused on the rationality of the required thinking processes.

“Do they [the critically thinking students] make sense of things; are they able to think logically?” (09 Respondent).

4.2.5 Category A 1.5: Justifying the process

Lecturers mentioned argumentation and the ability of students to provide persuasive justification for their ideas as an important critical thinking skill.

“They [critically thinking students] can argue their point why ...they think differently than what is put on the table” (06 Respondent).

“I [critically thinking students] must identify the problem and defend why I am making the judgement that I am making” (10 Respondent).

4.2.6 Category A 1.6: Thinking beyond

The essence of forward thinking or predicting was noted as important in critical thinking where students were able to visualise the potential outcomes.

“The student that’s actually critically thinking, you can see the progress in thought process, they are a step ahead of where I [the lecturer] am or where I’m heading to”
(03 Respondent).

“They are thinking beyond of what I’m asking and that to me is quite exciting, if they actually ask questions on the questions that I’ve been asking” (03 Respondent).

4.2.7 Category A 1.7: Problem solving

Many lecturers responded that problem solving was an important ability that need to be demonstrated by critically thinking students.

“If you present them [critically thinking students] with a problem, they should be able to think about it and solve that problem” (05 Respondent).

“Without critical thinking they [the students] cannot identify problems or they cannot link a problem to a possible cause or a possible solution” (04 Respondent).

“Critical thinking is taking a problem and trying to solve it yourself, it is like a puzzle. It’s like taking pieces and putting it together to solve a problem. So it’s not somebody giving you a problem and telling you the answer it’s you discovering the answer by yourself” (07 Respondent).

4.2.8 Category A 1.8: Thinking out of the box

When asked to demonstrate their understanding of critical thinking, a number of lecturers replied that it was the ability of students to:

“Think out the box” (06, 07 Respondent).

When asked to clarify this understanding the lecturer responded:

“Thinking out of the box is [] finding or looking at different ways of how you’re going to address that problem” (07 Respondent).

4.3 Focus area A - THEME 2: Affective skills

This theme incorporates identified student attitudes or affective dispositions that play a role in enhancing critical thinking, which were mentioned by a few lecturers. These affective skills identified in the interviews include interest, questioning, confidence, flexibility, reflection, and perseverance.

4.3.1 Category A 2.1: Interest

An important requirement of critical thinking voiced by many of the lecturers was that the students demonstrated interest in the information being presented. This interest was illustrated by the students' probing questions, motivation and enthusiasm.

"They [the critically thinking students] are a lot more interested in their studies and they are the ones that ask more questions" (05 Respondent).

"I think if the student shows interest [they are demonstrating critical thinking skills]... from that interest they ask you questions" (01 Respondent).

"You can actually see they [the students] are actively paying attention, so if you pose a question some of them will actually attempt to answer or attempt to reason or engage with the discussion....[they are] engaging in a process of thinking" (03 Respondent).

"They [critically thinking students] were inquisitive, motivated... self-driven" (02 Respondent).

4.3.2 Category A 2.2: Questioning

Questioning helps the student to engage with the material and is noted as important in developing critical thinking. The students with critical thinking skills do not just receive information without interrogating it further. They are inquisitive and not constrained by subject, syllabus or curriculum boundaries with their investigative questioning.

"They [critically thinking students] actually ask probing questions instead of you asking them. They actually challenge you with the question" (03 Respondent).

"They question. They don't just accept things as it is" (07 Respondent).

"[A] student that will now challenge and will ask questions... even if the question doesn't concern the topic" (06 Respondent).

4.3.3 Category A 2.3: Confidence

Emerging out of the concept of the importance of questioning is the characteristic of confidence. Students who demonstrate critical thinking skills are seen by lecturers to be confident and enquiring in their critical thinking capacity.

“The [critically thinking] student is confident, they are self-assured. They question you” (07 Respondent).

“Confidence to know I have the knowledge to do this critical thinking” (02 Respondent).

4.3.4 Category A 2.4: Flexibility

Critically thinking students were identified as flexible and open to change. They respond maturely to correction or criticism and modify their behaviour accordingly.

“[Critically thinking students will have the] ability to adapt to change, because a student that can do critical thinking for me must be somebody that isn’t stuck in... this subject we did it this way” (02 Respondent).

“They [critically thinking students] need to be open to criticism” (04 Respondent).

“They [critically thinking students] are intellectually mature but also emotionally mature, because they don’t become offended easily if you ask them or... if you probe them, they don’t become defensive. They understand why you are probing them because they are engaging with the content of the thought process rather than the probing itself” (03 Respondent).

4.3.5 Category A 2.5: Reflection

The ability to reflect was noted by some lecturers to be an important ability in critical thinking students as it allows for a deeper understanding of concepts. Lecturers referred to reflection in action, that is during an event, and on action, that is after an event.

“...Our students... must be able to reflect...” (10 Respondent).

“They [critically thinking students] should be able to reflect on what they are doing and what they’ve done” (04 Respondent).

“Sometimes a student doesn’t understand an event, but if they reflect on the event and look back on it afterwards, it makes sense, but while they are in the situation, they might not understand it but afterwards they realise what went wrong or what went right” (03 Respondent).

An awareness of possible positive and negative results of actions can be highlighted through reflection.

“Reflection is very critical to the process of critical thinking because you do things and any action that you perform has consequences. The consequences could either be positive or negative and if you don’t think about your action and reflect on what you did, you might just miss the good or the bad in those” (03 Respondent).

4.3.6 Category A 2.6: Perseverance

Students demonstrating critical thinking are not easily distracted from their task of information seeking, despite facing certain barriers, for example computer availability. The critical thinking students circumvent these problems in their quest for information.

“So that [getting students to search for information] is a problem because as soon as you give them things to do where they have to go and find information, you’ll get a lot of feedback, that they don’t get it or they don’t want it or it’s a problem, they can’t get into computers and all those kind of things. While [with] your students.... [that] are thinking more critically about things, you never get that kind of complaints from them. They are eager to find information for themselves” (05 Respondent).

The above-mentioned attitudes were shared by the interviewed lecturers as being important critical thinking skills. The following theme concerns the application of critical thinking skills.

4.4 Focus area A - THEME 3: Application of critical thinking skills in practice

Although the study was directed primarily at investigating critical thinking in the classroom, many of the lecturers referred to critical thinking as the ability of students to function effectively in a practical environment by applying the information that they had learnt in the classroom.

4.4.1 Category A 3.1: Application of information in the clinical setting

Some lecturers made general statements about the ability of students to apply information within the practical field.

“The [critically thinking] student that can apply whatever they’re learning with what you’re teaching, if they can apply it to some practical situation” (01 Respondent).

A few lecturers made more specific statements about students applying their critical thinking to a specific situation in practice through observation, reporting and treatment.

“[Critical thinking is] immediately noticing that something is wrong, but not just noticing it tying it up with something, reporting it, asking questions” (04 Respondent).

“You’ve [the critically thinking student has] got to apply because in nursing things don’t just happen like they do in the textbook. You can see ten cases that are the same but they will all be different, so you’ve got to apply that knowledge to the specific individual that you are treating” (08 Respondent).

4.4.2 Category A 3.2: Thinking in different contexts

Several lecturers referred to the application of critical thinking skills in the practical area as a situation where nursing students are required to think with a sense of urgency, as an individual, in a team situation, and in different contexts.

“[The critical thinking student is] somebody who not only can think for themselves but can think in terms of part of a team as well. They can work independently but they can function within a team expertly as well” (08 Respondent).

“It’s not just learning of information, recording information, like we did in the old days. They [the critically thinking students] have got to learn to think on their feet. They’ve got to be able to apply their knowledge” (08 Respondent).

“So I would expect them, if anything should go wrong in the unit, that they must be able to think on the spot, think of ways to remedy the situation or how to deal with the situation” (03 Respondent).

“They are going out into the field, they are required to function on their own...they must be able to think critically and make [use of] clinical reasoning at that moment” (02 Respondent).

Application of information in a practical or clinical situation was seen as important by many lecturers. The student was required to think instantly within the different contexts be it on the spot, on their feet, on their own or as part of a team. Clinical reasoning was also used as a term for critical thinking thus inferring its application within a practical situation.

This first focus area relating to the lecturers’ understanding of critical thinking skills in students, has highlighted three themes: the students’ cognitive skills, affective skills, and the practical

application of critical thinking within the clinical setting. The findings related to focus area B will be described next.

Focus area B: Factors that lecturers perceive to influence the development of critical thinking in nursing students

Focus area B endeavours to answer the second part of the research question by identifying the factors that lecturers believed could positively or negatively affect the development of critical thinking in nursing students. Moreover, this focus area highlights the measures lecturers thought could be employed to adequately facilitate the development of critical thinking in nursing students. Five themes developed in this focus area and each will be discussed with their accompanying categories. These themes are: lecturer preparedness, student preparedness, teaching methods, programme planning and the education environment. The following table (Table 3) illustrates the development of the various categories and their corresponding themes in focus area B.

The following table details the second identified focus area and the related themes and categories that emerged from the findings.

Table 3: Focus area B: Themes and categories

Focus area B: Factors that lecturers perceived to influence the development of critical thinking in nursing students	
THEMES	CATEGORIES
B Theme 1 - Lecturer preparedness	Category B 1.1 Subject preparedness Category B 1.2 Relational abilities Category B 1.3 Technological preparedness Category B 1.4 Critical thinking readiness.
B Theme 2 - Student preparedness	Category B 2.1 Previous education system Category B 2.2 Language Category B 2.3 Selection
B Theme 3 - Teaching strategies	Category B 3.1 Teacher-centred approaches to learning Category B 3.2 Student-centred approaches to learning
B Theme 4 - Programme planning	Category B 4.1 Leadership Category B 4.2 Curriculum design Category B 4.3 Assessment Category B 4.4 Interprofessional education
B Theme 5 - Education environment	Category B 5.1 The class room environment Category B 5.2 The simulation laboratory Category B 5.3 The student environment Category B 5.4 The clinical environment

4.5 Focus area B - THEME 1: Lecturer preparedness

The lecturers who were interviewed generally all acknowledged the importance of their own role in promoting critical thinking in nursing students. Lecturer preparedness was the theme that was generated from incorporating all areas of preparedness mentioned by the lecturers. Lecturer preparedness is comprised of several different categories, each of which has been elicited through inductive interrogation of the data. These categories include the lecturers' subject preparedness, their relational abilities, technological skills, and their own critical thinking abilities. These mentioned categories will be discussed below.

4.5.1 CATEGORY B 1.1: Subject preparedness

During the interviews, the feeling was that lecturers who are well prepared for a classroom session and knowledgeable regarding the content to be delivered, are suitably positioned to facilitate critical thinking in the classroom.

"With critical thinking you [the lecturer] are facilitating learning...You need to be well prepared, because you need to go in there [the classroom] with a definite plan.... She [the lecturer] needs to know her subject well" (07 Respondent).

Knowledge of the subject material was also regarded as important as it enabled the lecturer to guide the student towards critical thinking.

"You as a lecturer must still guide ... the students ... Then you have to know the knowledge to guide them" (10 Respondent).

"And the lecturer, himself or herself, must also have a broader knowledge" (06 Respondent).

Lecturers' believed that being well informed about the subject was a requirement to stimulating critical thinking in nursing students.

4.5.2 Category B 1.2: Relational abilities

This category of relational abilities highlights the importance of open, trusting communication and positive interaction between lecturers and students in building critical thinking skills. Lecturers' perspectives were that they need to create an environment that is conducive to dialogue and debate where reciprocal trust relationships can be formed between lecturers and students. Trust relationships enable students to interact with the material and build platforms

for further facilitation of critical thinking by the lecturer. Hence, lecturers must be able to assess the needs of the student and adjust the classes appropriately.

“She [the lecturer] needs to read her audience and get to know the group. So, she also needs to build up a rapport with that group, because the students also need to trust. There needs to be a trust relationship where students feel comfortable voicing their opinions or debating or speaking up in class because some students may feel a bit intimidated to speak up” (07 Respondent).

“Allow them [the students] to disagree and I think we [the lecturers]..., sometimes don’t allow the student to differ because we’re so pressed [for time]” (06 Respondent).

The violation of the trust relationship was seen as a barrier to the development of critical thinking.

“No sarcasm, no negativity when [the students] give an opinion...we [the lecturers] should be building the student up. Because for them to have good critical thinking, they need to have confidence and if we’re going to tear them down, once they use their critical thinking, next time they don’t want to” (02 Respondent).

Lecturers stimulate critical thinking through a relationship of reciprocal engagement between both student and lecturer. Asking questions that require not only answers but also a rationale are often catalysts to this developing relationship.

“I think allowing students or encouraging students to give a rationale for an answer. That is also how you create [critical thinking] because it makes them think” (01 Respondent).

“A lecturer should be able to stimulate critical thinking with the student. So, one thing [question] would be, is the person [the lecturer] actually stimulating the [students]’ thought process or not? The other one would be the student themselves, are they engaging with content or the lecturer or with the process or not? So, it has to come from both sides” (03 Respondent).

Various qualities were highlighted as required by the lecturer to better facilitate this process of engagement.

"I think the lecturer who is teaching, who is facilitating critical thinking needs to be adaptable. She needs to be able to adapt to her environment and to the type of student... So, your lecturer needs to...have self-confidence... She needs to be able to move with change" (07 Respondent).

However, it was also noted that lecturers struggle to adapt to the needs of their students and this can be a barrier to facilitating critical thinking.

"I think we [lecturers] struggle to get down to sometimes to the level of the student, where they are currently and we expect without understanding where they are. We have expectations but we struggle to get down to their [the students' academic] level" (02 Respondent).

The formation of a trust relationship, facilitated by confident adaptable lecturers who allow space for nursing students to voice their own opinions, agreeing or disagreeing with the provided material or concepts was seen as important in developing critical thinking skills.

4.5.3 Category B 1.3: Technological preparedness

Some of the participants perceived this process of promoting critical thinking in students as dependent upon the appropriate use of technology by the lecturers.

"She [the lecturer] has to have technical abilities because if the students are going to be using the internet and other methods of social media, she also needs to be on par with that" (07 Respondent).

Another lecturer saw the improved use of technology, such as video streaming through YouTube, as significant in facilitating critical thinking.

"We could expose them to more situations that they have to comment on. And of course, we could use technology more effectively, you know YouTube" (04 Respondent).

Some lecturers, when commenting on how they could enhance critical thinking in the classroom referred to the need to improve their own technological skills.

"Personally, I feel I need more guidance and assistance in either attending more classes, extra outside. Especially when it comes to technology, this is the one area

that I still need a lot of guidance in that, because I know our students now...They are technologically inclined and I always feel I'm a bit behind where this is concerned" (01 Respondent).

"I mean, I myself is technologically disadvantaged, what can I say, impaired" (06 Respondent).

It appeared that lecturers viewed technology as important in implementing critical thinking in the classroom, however, they felt that they required skills updates before they could utilise the technology adequately.

4.5.4 Category B 1.4: Critical thinking readiness

A notable constraint stated by several lecturers was that they themselves might be unsure as to what critical thinking is and how to implement it in the classroom.

"I wonder sometimes if we had to be tested on our critical thinking as lecturers, how much critical thinking do we really apply in our teaching methods?" (02 Respondent).

"Maybe what I'm doing is also not 100% right, I'm not sure. So, for myself I must also go and read up on critical thinking and make sure that I'm doing what you're supposed to do" (06 Respondent).

Lecturers suggested that they had a sense of inadequacy when teaching critical thinking in the classroom. Thus, they required additional skills training to enable them to implement critical thinking appropriately.

"Personally, for me it's that lack of effective critical thinking, that I don't have the skill to teach it. I'm still trying to find it myself in a teaching capacity... I can identify within myself a lack of expertise... creating that critical thinking platform for the student to fall into" (03 Respondent).

"I think nursing lecturers also need to be trained and upskilled in critical thinking... I think other lecturers... need to come on board as to what critical thinking is. Maybe me as well" (09 Respondent).

Generally, it appeared that the lecturers were insecure about their knowledge of critical thinking and strategies of facilitating critical thinking in the classroom. Yet, they were open to further training in critical thinking.

4.6 Focus area B - THEME 2: Student preparedness

Student preparedness was the theme that arose out of three categories indicating student readiness for entering the higher education system. These are the students' previous education system, the language barrier, and the selection of students. These mentioned categories will be discussed below.

4.6.1 Category B 2.1: Previous education system

Previous education systems refer to the primary and secondary level schooling that learners have undertaken. This is regarded by some lecturers as having a concomitant influence on the students' demonstration of critical thinking. Students coming from disadvantaged backgrounds with ineffectual primary and secondary education systems were perceived as being inadequately prepared for tertiary education.

"I think the school system is a huge barrier because the students are not well prepared for studying here" (05 Respondent).

"[The development of critical thinking] has to do actually with their [the students] own disadvantaged background which you know [plays a role in] education" (04 Respondent).

This problem is compounded by the large volume of material that must be covered by teachers, thus encouraging superficial learning.

"I think that one of the things that I think is a problem is the school system that they're coming from. The students they...I know that in the school system they are very pushed to get through a certain amount of work" (05 Respondent).

"So I think a lot has got to do with our secondary and primary education system. I don't know what it is about numbers that they have to pass, so you just give them. So, it's surface learning, not really going in-depth" (01 Respondent).

Consequently, the students bring their experiences of surface learning to tertiary education where they simply want to be “spoon fed” the facts without having to provide the reasoning.

“It’s the education system itself where they come from, its spoon feeding, they just want the information they feel very uneasy about ‘the why’” (01 Respondent).

“But most of the students are very happy when you lecture and give them all the information. That is what they want and not searching for information on their own” (05 Respondent).

Lecturers felt that the effect of inadequate preparedness in previous education systems negatively impacts the critical thinking ability of students in higher education.

4.6.2 Category B 2.2: Language

Many of the lecturers interviewed implicated language as a barrier to the development of critical thinking in nursing students. This barrier is created by the lack of students’ familiarity with English as the medium of instruction as English is not their mother tongue.

“Language ability first of all is one of the biggest [constraints]...[For the] majority of the students, English is their third language” (02 Respondent).

Understanding new concepts becomes difficult in another language as the student becomes more focused on the language than on understanding what is being said. Consequently, students do not always have a basic foundational vocabulary that can serve as a stepping-stone to understanding deeper concepts.

“So they don’t really think about the concept or think about the scenario as deeply as you want them to because they are struggling with the language itself” (03 Respondent).

“If people don’t engage a lot with the language then they miss these key words, words that’s [sic] could be a guide, they actually miss what that word means” (03 Respondent).

A lack of fluency in a language causes associated problems of poor understanding and a reluctance to engage in questions and answers due to poor articulation or embarrassment, all of which can negatively impact critical thinking.

“And then the language skills in the English language, often students will ask you in class, there’s a question in a test, they don’t understand that question. And that’s the things that you were talking about the whole time in class, when they don’t ask questions and when you ask them you know, ‘are there any questions?’ They don’t ask you, they don’t say they don’t understand the words that you are using and then you assume that they understand. But then when you get to the test, then you see that they don’t understand the words and then you have to give them simpler words in the test. So, that they can understand the question but then often many of them will not ask the question [yet] you know that they don’t understand that word” (05 Respondent).

“Some students don’t want to ask questions in class because they are too embarrassed” (01 Respondent).

The difficulties experienced by second language students may be compounded by lecturers who use technical terms without explaining them adequately and ensuring that the student understands the terms.

“Sometimes, as a lecturer, if you direct them [the students] in an activity and you use certain words, they will not grasp what it means but that’s also our mistake because we don’t always check if the student really understands the task. ... [lecturers] tend to think using highfalutin jargon...sounds knowledgeable. We have to make sure that our students actually understand” (02 Respondent).

Reading may be regarded as a tool to overcoming language shortfalls and assist with the promotion of critical thinking, although it is generally not enthusiastically received by students.

“This might be also a way to promote critical learning. But sometimes I just say, okay take out your textbook, read paragraph one, two and three and let’s discuss this question because what I’ve noted is students don’t like to read” (06 Respondent).

“Our students these days they don’t really like reading” (01 Respondent).

The inadequate language skills of students in English, the language of instruction, is perceived by lectures as a barrier to the facilitation of critical thinking in the nursing student.

4.6.3 Category B 2.3: Selection

Lecturers alluded to the fact that selection criteria must be reconsidered in terms of selecting students who are optimally suited for the task of nursing and able to become critical thinkers within the nursing profession.

“[Contributing factors towards critical thinking in our students include] our selection criteria – Are we choosing the right students for nursing?” (09 Respondent).

Moreover, the mechanisms of selection need to be addressed so that it is not simply an online procedure but rather a holistic process involving a selection panel that includes qualified, experienced nursing personnel.

“Are we selecting them as a nurse or ...is everything just online?.....Nursing students, they used to be selected by a panel of nurses... and the experience of that [panel] will pick up on the selection of the nurses” (09 Respondent).

Optimal selection criteria were regarded by some lecturers as fundamental in choosing students who would be receptive to nurturing the necessary critical thinking skills required in nursing students.

“[To improve critical thinking in our students] I think one should start with selection, where you really select students that are able to do this course” (05 Respondent).

These aforementioned categories – previous education system, language, and student selection – were grouped under the theme of student preparedness and were all perceived by interviewed lecturers to impact the development of critical thinking in the student.

4.7 Focus area B - THEME 3: Teaching strategies

Teaching strategies that facilitate the development of critical thinking in students was a pivotal theme that was generated by the researcher. Lecturers were able to name and describe many methods that could be used to enhance critical thinking in the student. Lecturing as a teaching strategy appeared to dominate as the teaching strategy of choice, despite not necessarily being the most desirable for stimulating critical thinking in the students. There was a perception that increased student participation in the classroom stimulated critical thinking along with a sense that some lecturers were attempting to implement more student-centred methods of teaching.

4.7.1 Category B 3.1: Teacher-centred approaches to learning

The didactic lecture was seen by the participants as a teaching strategy that reduces student participation and active learning, two aspects that are associated with stimulating critical thinking in nursing students.

“With the lecture method, it’s basically the lecturer that’s talking, unless she asks questions but the questions are limited as well. So, with your lecture method it’s mostly just the lecturers Students are passive, passive learning” (07 Respondent).

“When you’re doing a lecture method, the student only hears the lecturers’ point of view. So, it’s a top-down approach, there’s only one person’s view being given there” (07 Respondent).

Despite the lack of student participation, many lecturers admitted to primarily using didactic lectures as their primary teaching strategy. Lecturers mentioned the large student numbers as a constraint to implementing other, more student-centred teaching strategies.

“The majority of my teaching methods ... [are] lecturing” (01 Respondent).

“We are still using a lot of lecturing because of our environment where students are sitting rows and we have huge numbers of students in classes” (05 Respondent).

The delivery of large amounts of content to students within a limited time frame was also seen to be more effectively imparted through the lecture strategy.

“It would be easier to do a lecture method with large numbers just because of the numbers, so you need to get a certain amount of information across in a certain amount of time” (07 Respondent).

“You are sometimes constrained by the fact that you have to push because you have to get a certain amount of content through, so then the lecturing method becomes much easier” (02 Respondent).

The lack of availability of adequate facilities was reiterated as being problematic. Lecture halls were often the only venues available, thus entrenching lecturing as the teaching method of choice.

“And the main reason [for using the lecturing method] is just the educational facilities here that we are often in like boiler room, which is like lecture theatre and yes, lack of facilities” (04 Respondent).

There was also the thought that using teaching strategies other than lecturing required more effort and the result was not perceived to be necessarily more effective.

“Also, [another reason for using the lecturing method] in this particular college, I think there’s not the will, I think amongst students and definitely, also not amongst lecturers, always...to go do that extra mile, to do the extra bit, which I’m not sure would make so much difference” (04 Respondent).

Although the lecturing method tended to be the dominant teaching method used by the lecturers, some lecturers alluded to integrating other methods such as questioning to enhance student participation.

“Currently we are probably using [the] lecture method most predominately but combining it with questions, answers, trying to get quiet people to take part in class” (04 Respondent).

Covering a large amount of content in a short period of time, inadequate facilities, large student numbers, student and lecturer inclination were provided as the main reasons for continuing with lecturer-centred methods. The implementation of a predominantly teacher-centred strategy contrasted with more student orientated strategies that would stimulate participation and critical thinking in the nursing students. Student-centred strategies will be discussed next.

4.7.2 Category B 3.2: Student-centred approaches to learning

The quest for student participation that would enhance critical thinking in student nurses appeared to guide some participants away from teacher-centred lecturing, towards more student-centred teaching strategies. Some of these lecturers verbalised that they had had good results with other teaching strategies that required increased student participation.

“I’m trying to move away from that because the lecture method, it doesn’t encourage active participation [of the student]” (07 Respondent).

“We’ve had more opportunities with the BTechs [students] to use different [teaching] methods ...[encouraging] critical thinking, which has stimulated the students much more. We’ve moved away from the traditional lecture method where we have asked the students to do presentations and it was amazing to see what the students have come up with. The ways that they have come up with things, the ingenuity that they have used especially with the way that [they] have presented things” (08 Respondent).

“We are still very old-fashioned teaching based ...‘students in the seat and still a teacher in the centre, teaching. We are trying to make it ..more student centred adult learning.’

... But we do try to create opportunities for critical thinking with regards to questioning styles that we post, scenarios that we create” (03 Respondent).

Questioning as a teaching strategy was further developed by a lecturer as important in eliciting critical thinking in students, as they had to provide reasons for their thinking.

“I think allowing students or encouraging students to give a rationale for an answer, that is also how you create [critical thinking] because it makes them think, ...But why are you saying that ? ... giving reasons why or motivating why you are standing for that or agree or don't agree” (01 Respondent).

When sharing different teaching strategies that they use to develop critical thinking in students, participants tended to list several different strategies and then describe a few in greater detail. Some lecturers were able to move seamlessly through a variety of teaching strategies in their classroom sessions. These facilitated sessions included group work, scenarios/case studies, debating, role-playing, and reflection.

4.7.2.1 Subcategory 1: Group work

Some lecturers mentioned that they commenced their classes by dividing students into groups. Group work often served as a springboard enabling further student participation.

“So, I found that this year, dividing them into small groups and giving them each, whether it was a scenario or case study. That facilitated critical thinking because they could each participate, each person could participate in that group, each person had a point of view. And like I said, they can hear other people's points of view....So, for me I've used lots of group activities, case studies, scenarios, reflection” (07 Respondent).

4.7.2.2 Subcategory 2: Visual media

The use of visual media, relevant videos in particular, to supplement other teaching methods, such as group work and scenarios, was alluded to by some lecturers.

“My teaching methods [to facilitate critical thinking are] ... lots of small group teachingwhen we do a condition... I will do the definition of that condition and then from there divide them in smaller groups and then they've got to identify the risk factors; what would be the causes in that way. The other method that I would also implement is playing a video of a patient that comes in sick, coughing a lot. Specific symptoms

relating to the condition and from there then ask them, 'right so what do you think?'" (01 Respondent).

"And other [teaching] methods [to promote critical thinking in the classroom] are by showing them videos but the video must be relevant to the topic that you're going to teach" (06 Respondent).

4.7.2.3 Subcategory 3: Scenarios

The use of scenarios in enabling student participation to stimulate critical thinking was mentioned by lecturers and associated with problem solving.

"[To develop critical thinking skills in the classroom] I give them a scenario. That's also the other method where again, I give a lot of symptoms and from there they've got to work what could be the problem with patient" (01 Respondent).

"[Teaching methods employed to increase critical thinking in nursing students included] debating, scenarios, problem-based education in midwifery, especially the high-risk component. Because you're ... [presenting the students] them with a scenario and they must be able to reason about it and think critically on the point because depending on the vitals and the information you provide them, they must be able to adjust their plan of action and adjust their course of what they're going to do as a midwife" (02 Respondent).

Scenarios and problem-solving teaching methods appeared to be effectively used when teaching various nursing conditions, patients' symptoms and appropriate management.

4.7.2.4 Subcategory 4: Debate

Additionally, lecturers noted the importance of stimulating the students' critical thought processes by encouraging interaction and dialogue through debates and questioning.

"Debates are another way of encouraging critical thinking; you can give them a problem and divide them into two groups and ask them to debate the issue, things like that" (07 Respondent).

"The newest method I'm trying is where they actually debate about stuff. Where we...I just throw something out there. I divide them into two groups and I will give them what the background of the problem is ...First discussing it in their own groups and then ... they've got to literally defend it, like, 'Why were you saying that?'" (01 Respondent).

“The fishbowl means like you have a panel really, discussions or debate and the peer group criticism to say it’s right or wrong. But then you as a lecturer must still guide [the students]” (10 Respondent).

The lecturer plays an important role in facilitating and guiding the critical thinking and emerging discussions addressed in the debating process.

4.7.2.5 Sub-category 5: Role-play

Role-play was particularly used by lecturers to prepare students for potential real situations. Role-play produces a unique environment for immediate critique and reflection, thus enhancing critical thinking in the nursing students.

“Like say we did a role-play on...For example with midwifery I did a role-play on shoulder dystocia. So, we simulated an emergency and then we did a reflection on the role-play. So, we looked at, okay what did they do well, what could they have improved upon, what would we do different next time” (07 Respondent).

“[Teaching methods to encourage critical thinking] Role-play... we do a lot of role-playing. Especially, now once again, not only the ethical stuff but I mean it’s important like the students are faced with a neonatal death or a still born, how are they going to deal with it? It’s impossible to prepare them unless we do it as an activity and not just as teaching” (02 Respondent).

“So, you know the role-play also helps them a bit and they also seem to communicate better as well” (09 Respondent).

Role-play encourages student participation and stimulates critical thought, as students have to actively communicate their application of concepts and understanding.

4.7.2.6 Subcategory 6: Reflection

The importance of reflection as a teaching method to enhance critical thinking in nursing students was emphasised. Reflection can be used by students as a tool for their future behaviour modification and the impact of reflection on critical thinking is that students are then able to become self-correcting.

“Effective use of reflection would create and stimulate critical thinking because you are thinking critically about what you have done and what you could have maybe done different, could have done better. So, that your future action is now informed by your past actions” (03 Respondent).

The implementation of reflection was mentioned by a few lecturers who referred to its use in enhancing critical thinking in students.

“So, I try to encourage active learning and then other ways that I also use other methods, teaching methods, is class discussions and also reflective journals, where students can reflect... Like for example, ...they did a case study with a patient, you could ask them to reflect back on the situation and what would they have done better and what do they think they could have improved upon. So, that also allows them to think about their abilities and how would they improve their abilities or how would they have changed the situation...So, I think that would encourage critical thinking” (07 Respondent).

“[To improve critical thinking with our students] I think exposing them to more exercise[s] in critical thinking and we do ask them to reflect a lot and we have reflection exercise in our workbooks and in our tests and things like that” (04 Respondent).

Lecturers who try to improve reflection in the students had the experiences that some students found reflection a very hard task.

“[Regarding critical thinking skills in students] the portfolios, where they have exercises, where they have to reflect. We also see that they find it difficult to do that, they tend to focus on other people. You know they tend to see what the doctor did and didn't do, they don't look at their own reflection on what they did and didn't do” (05 Respondent).

Conversely, there were lecturers who did not mention reflection or admitted to not implementing reflection in their teaching practice.

“Reflection, I realise that this is one of the areas that I've actually not really delved into a lot where [with] the students, even myself” (01 Respondent).

Lecturers demonstrated an awareness of the importance of reflection in stimulating critical thinking with limited implementation of it as a teaching method.

4.7.2.7 Sub-Category 7: Other teaching strategies

Participants were familiar with other teaching methods of enhancing student participation including clicker and digital storytelling, but they were not currently being implemented.

Some more unusual teaching methods to encourage student participation were mentioned by a few lectures.

“I think flipped the classroom.... The student has to go out and do it on their own really. So, that means they go out and read up and watch a video and all that. So, when they come back we have scenarios ...that we can apply....Before we go to the real-life situation, I have to make sure my students understand really what to extract and is it a real problem” (10 Respondent).

Although the lecture appeared to be the most dominant teaching strategy used by the lecturers, some lecturers indicated that they were actively trying to adopt more student-centred strategies. The lecturers mentioned a variety of methods that they were trying to use to stimulate critical thinking in the students through increased student participation. The more common student-centred strategies used included group work, debate, role-play, and the use of scenarios. The technique of reflection was incorporated into the teaching strategies in a limited manner.

4.8 Focus area B - THEME 4: Programme planning

Programme planning developed out of the programme specific statements lecturers made about how the typical planning and the general implementation of the programme could assist with enhancing critical thinking in nursing students. This theme comprises the following categories: programme leadership, curriculum design, assessments, and interprofessional associations.

4.8.1 Category B 4.1: Programme leadership

Lecturers commented that management had a pivotal role to play in implementing critical thinking within a programme. This implementation involves the facilitation of academic dialogue and guidance of lecturers. However, this role is seen to be neglected within the programme.

“[Improving on the facilitation of critical thinking involves] A top-down approach, if we have leadership, and I don’t want to say management, I want to call it leadership that’s focused on creating a platform where teaching and learning becomes a priority of the

institution. Where discussions are facilitated between different departments, where departments don't work in silo" (02 Respondent).

"I think better management [will enhance the facilitation of critical thinking in the programme], the management is really poor... There's no involvement, there's actually little insight into what the lecturers do. There's absolutely no academic contact with what's going on in the classes" (04 Respondent).

Appropriate leadership in an institution that seeks academic excellence, seems to be an important aspect to fostering critical thinking in the design and execution of the programme.

4.8.2 Category B 4.2: Curriculum design

It was noted that a change in the curriculum was required to improve the facilitation of critical thinking in nursing students. This change would allow increased engagement between students and the information as more diverse material was made available.

"[Changes to facilitate the development of critical thinking include] our curriculum there's lots of aspects within the curriculum that we could... possibly change... And hopefully ... the new curriculum that's being written... when that comes into effect, that it will actually be [a] more open-minded curriculum and not book orientated" (03 Respondent).

"So, it's not just giving out the information but students need to assimilate their own information, out of their own knowledge base. So, the curriculum should allow for that type of learning" (03 Respondent).

Information overload, a notable barrier to facilitating critical thinking in the curriculum, was mentioned.

"I think nursing must be taught holistically and I don't we even get the opportunity to teach it holistically because I think maybe our curriculum sometimes might be overburden[ed]...but I do think critical thinking is important. It is very important to see nursing in a holistic way as well" (10 Respondent).

However, other lecturers saw the content as onerous, but necessary as a foundation for future years of study.

"I'm teaching anatomy, physiology and microbiology, now the content you know it will be difficult, it's a lot of content. We've cut already on the content ... you can't cut too much because that is the foundation. When they go to second year, they do the pathophysiology; they do all the diseases, so they must know the normal" (06 Respondent).

Curriculum design that facilitates critical thinking requires an adequate availability of information to stimulate student engagement without overwhelming the students.

4.8.3 Category B 4.3: Assessment

Some assessment methods mentioned by the lecturers were congruent with their highlighted teaching methods of facilitating critical thinking. These included scenarios and case studies.

"[Assessments that promote critical thinking in the student include] more integrated assessments. So definitely, if it needs to be in a test situation, scenario-based [assessments]" (02 Respondent).

"[An assessment to assist with critical thinking] scenarios, scenarios is good, ... I see sometimes people put scenarios in but the scenarios don't mean a thing. It's no use you put a scenario [in] and it doesn't allow the student to think" (06 Respondent).

"So, even a case study if it needs to be something written, where it's an assignment but a case that needs to be elaborated on and where the students can also see ... What I find when we do a case study in one of our assignments, where they have to evaluate the management because that teaches them critical thinking" (02 Respondent).

Assignments and portfolios were cited as valuable assessments in the testing of problem-solving abilities and the application of critical thinking skills.

"What we try to do is, with assignments specifically, we try to stimulate them to think about things...So, there you would give them higher-level questions where they...Or information that they have to go and find out and apply to answer the assignment or to do the assignment. And then in the portfolios as well, we do that as well where they are going out into the practical area and where we want them to apply and solve problems etcetera in that way" (05 Respondent).

Generally, assessments that are seen to enhance critical thinking are aimed at higher cognitive levels.

"We ask higher level questions to see if they can apply the knowledge" (05 Respondent).

"I think our written assessments do [encourage critical thinking] because it's of a higher cognitive and scenario-based and the fact that we ask for motivation and all that. Although with our practical assessments again, I find that we don't encourage [critical thinking]" (01 Respondent).

Integrated assessments in the practical area were heralded by some as promoting critical thinking.

"Then integrated bedside assessments ... where they have to incorporate theory with clinical. So, then it's competence but also clinical reasoning, which is critical thinking" (02 Respondent).

However, some practical assessments were denigrated for their poor levels of critical thinking, as the tools are open to rote learning.

"I'm not sure if it [some practical assessments] allows them [the students to think critically]. They just do it like a parrot. If they [the students] do [are assessed on] intravenous therapy or the dangers, it's like a parrot fashion because they get their SCAT forms, everything is there from one to ten. Now, that is also a problem to me because students get the [tool]...That you can say is a memorandum. They must just go and study and when they do the procedure, they know okay, I must do that and that and they still forget. So, I don't think that helps them to think because that paper is thinking for them already" (*Structured clinical assessment tool) (06 Respondent).*

The need to address rating scales in assessments in general and bring them in line with critical thinking was also stressed. As marks were not always appropriately scored to encourage critical thinking and application of knowledge

"They [the students] still don't tell me ...[when] palpating [for] sacral oedema, my [my understanding of] critical thinking was ...If there is sacral oedema with this patient, so what now? What does it mean? How do you apply it? What does it mean? They just say, I'm going to test for sacral oedema. And we should actually just be giving a one [on the marking tool] but the pressure is [on] this person [assessor] must give a three [on the marking tool]. But the three is applying it to something, to relate it to something

you know. So yes, our assessments do encourage [critical thinking] but yes, I think our teaching, especially practical, there should be emphasis on, 'but what does the abnormality mean?'" (01 Respondent).

Numerous theoretical assessment methods were cited by the lecturers as being effectively used to promote critical thinking in nursing students. Conversely, there was some uncertainty that the practical methods of assessment were always promoting critical thought, as the assessment tools did not always encourage application, but rather rote learning.

4.8.4 Category B 4.4: Interprofessional education

The programme is nursing specific. However, the aspect was raised that, ultimately, proficient functioning in a multidisciplinary team is required and it would help the process of critical thinking to commence this interprofessional interaction at an undergraduate level.

"[Constraints to teaching critical thinking] I think in a college situation or in a higher education institution like this, we actually hampered by the situation where we only have nursing; that we cannot have a multidisciplinary team together. I mean in institutions where you have medical students, physiotherapy, even social workers where you can have that team approach and I know interprofessional collaboration is such an essential part of where we are moving within nursing. So, that has been hampering, so that is a thought process for the future" (02 Respondent).

"And they've got to be able to assess a condition or situation and be able to plan appropriately, taking into consideration possible other sources of help, you know another multidisciplinary team.... characteristics for critical thinking" (04 Respondent).

Multidisciplinary interaction, although verbalised, is not always put into action. The status of student nurses as becoming critical thinking practitioners within the multidisciplinary team may not be fully embraced by the students themselves.

"So, I think that really is, you'd be surprised how it shimmers through their [the students'] responses in assignments or tests. How they still feel that they are typically at the beck and call of the doctor or even if the physiotherapist were to come in, the physiotherapist immediately seems in their eyes to have higher status than what the nurse does. "You know there's not that sense of multidisciplinary teamwork. But they can tell you all about... it's ingrained in some of our students...but it's just not there [not being applied]" (04 Respondent).

Interprofessional health professions education at an undergraduate level would help to equilibrate the status perceptions in the multidisciplinary team.

Theme 7, the programme plan, contained many of the barriers and recommendations that were alluded to by the lecturers in developing critical thinking within the context of the current nursing programme. There were recommendations for sound leadership, design of the curriculum, and integration of interprofessional education. While theoretical assessment techniques seemed to align with the requirements for developing critical thinking in nursing students, a concern was raised about the practical assessments simply testing rote learning.

4.9 Focus area B - THEME 5: The education environment

This intertwined theme of the effect of the educational environment on critical thinking was generated from the smaller categories of the class room, the student and the clinical areas.

4.9.1 Category B 5.1: The classroom environment

Most lecturers had a great deal to say about the impact of the lack of resources in the classroom that could hamper critical thinking in students. These included the lack of Wi-Fi, internet access and associated information technology infrastructure that allowed students to engage with the material. Lecturers also bemoaned the fact that despite being sent on recommended courses to improve their technological skills to facilitate the development of critical thinking in their students, the appropriate equipment to implement what they learn is not available in the facility.

“[Resources to enhance critical thinking]. Definitely our access, internet access for instance at the college is quite a problem. I mean we can’t even go on YouTube ...for instance to post a video and have a discussion on that is quite important for critical thinking because you allow them time to view the video and to think what went wrong, what was the positives and what was the negatives. And then tomorrow we can have the discussion for instance, that really helps. So, basic access” (02 Respondent).

“But no, we don’t have enough technology because we get to go attend these [courses], but when we get back to this facility, there’s a lack. I mean we get this teaching equipment [laptop and data projector] but our classrooms itself, they’re not geared towards engaging now with the students, saying listen here we’re going Wi-Fi on this. Yes, it is there [installed] but it’s not [actually working]” (01 Respondent).

“The information that I get back from the students is that we are not [equipped to assist the students to think critically]...Because they are forever complaining about computers that’s not working, printers that’s not working, information that they can’t access” (05 Respondent).

Large student numbers are also seen as a barrier to implementing critical thinking measures due to the difficulties presented when encouraging student participation particularly through the use of group work.

“I think that once you look at the number of students, I think they are having too many students in to really teach them critical thinking because I think to teach people critical thinking you need smaller groups. Where you really can see if these students are developing those critical thinking skills. Because with the huge numbers of students, they just disappear” (05 Respondent).

“With these big groups that we have, there’s not a lot of ...Dividing them in groups. Like I’m now teaching in a lecture hall where they’re sitting in seats facing me...If you want to break them up into groups, it’s a little bit difficult. You can if you want but I think a person also, with this workload, ... You don’t go that extra mile. There’s no empty space somewhere else, there’s no venues where you can take them” (06 Respondent).

Generally, lecturers regarded the present environment of large groups of students and a poor availability of technology as barriers to facilitating critical thinking in the nursing students.

4.9.2 Category B 5.2: The simulation laboratory

Although the focus of the study was primarily on critical thinking in the classroom, some lecturers alluded to the important role of a well-equipped simulation laboratory that would assist in stimulating critical thinking.

“If we could have more visual things that they can actually...Almost like a simulation lab, which is more interactive. Not having this dead doll but literally if you do a CPR, this person either having a heartbeat or not a heartbeat. ... something that they can see for real. Okay, this is what happened if they inject an overdose of insulin and then physiologically they can see the reaction with this patient. So, before they even get to the patient, the real patient, they can actually see” (01 Respondent).

“The sim lab for midwifery or the skills lab that’s been a real problem..., I mean there’s amazing mannequins available...Where you can totally leave the student to manage a situation and manage a complication. So, that would really help” (02 Respondent).

Lecturers displayed frustration at the current lack of an effective simulation laboratory that could be available to facilitate interactive visual scenarios and stimulate critical thinking in the nursing students.

4.9.3 Category B 5.3: The student environment

Inadequate student access to information resources is seen as a potential barrier to the facilitation of critical thinking. Access to information resources such as the internet and library facilities is important for the facilitation of critical thinking. Students who do not stay in residence at the nursing college may experience access difficulties as they try and prepare assignments or complete tasks.

“One of the problems I know students experience is a lack of resources, not all of them have cell phones to google, even though the college has Wi-Fi. Not all of them are able to access websites, some of them live far out, so they are not at the college where there is Wi-Fi. At home, they might not have data on their phone, so they are unable to access other resources” (03 Respondent).

Advantages may be seen for students who stay in residence and have close access to the provided resources such as Wi-Fi and the library facilities. However, there are also problems with living in residence as associated tensions can spill over into the teaching, milieu as the residences are extremely close to the classrooms. Hence, any problems such as the ‘fees must fall’ student protest action, experienced in one domain, very easily affects another. These movements tend to ebb and flow, but at their peak they create a tension-filled environment that is not conducive to the development of critical thought.

“And I would actually say... [things we could change in the environment to enhance critical thinking], but I would say hostel separate from college because there’s a lot of undercurrents, which affects [the] students” (04 Respondent).

Access to resources that enhance critical thinking in nursing students may be influenced by the various trending undercurrents and the students’ own personal access to information resources, on and off campus.

4.9.4 Category B 5.4: The clinical environment

The interviews focused primarily on the role of critical thinking in the classroom. Nevertheless, the positive role that clinical practice can play in the development of critical thinking was mentioned.

“I believe that it [critical thinking] will help them [the students] a lot in the practical areas because you know just gaining the knowledge and not being able to use it for a practical area, that won't help them” (05 Respondent).

“[Methods that contribute towards critical thinking in nursing students] include the ward rounds...The teaching at the bedside [gives a] holistic view of care” (09 Respondent).

However, there were some negative connotations associated with clinical practice that could serve as distractions for developing critical thinking in students.

“In certain student groups there's a great respect, let me put it that way, for authority. So, it's very hard to get them to be autonomous thinkers because there's always someone a little bit higher with more authority and therefore in charge” (04 Respondent).

Additionally, questioning of the status quo is not always encouraged and attempts at developing critical thinking may be met with aggression by authority figures.

“Then the other response that I see, which would also put an end to any sort of critical thinking that would include others, is an aggressive response and a response that says, you know I'm in control here. And I'm not willing to let you be” (04 Respondent).

Despite the positive experiences for critical thinking within clinical practice there is an indication that students do not necessarily engage in critical thinking as there is always someone above them to do it for them.

Theme Eight, the education environment, addressed the factors in the different educational environments, experienced by the nursing students that could have an influence on the development of critical thought in the students. The problem of large classes was raised, plus the inadequate equipping of a simulation laboratory. Information technology access was problematic across the board for students and lecturers. The unpredictable advent of student protests could adversely affect the educational climate at any time. Experiences in clinical practice were generally seen to be positive, but the perceived status of nursing within the

context of the multidisciplinary team, may be seen to have a negative effect on the development of critical thinking in nursing students.

The findings of the study were described in this chapter under eight themes, which were aligned into two focus areas. Focus area A addressed the lecturers' understanding of critical thinking in nursing students and comprised three themes: cognitive skills, affective skills, and application of critical thinking skills in practice. Focus area B captured the essence of the factors that are perceived by lecturers to influence the teaching and learning of critical thinking in nursing students. This essence was contained in five themes: lecturer preparedness, student preparedness, teaching methods, the programme planning, and the education environment.

The findings, detailed in this chapter, will now be discussed theme by theme in the next chapter.

CHAPTER 5

DISCUSSION

5.1 Introduction

The discussion of this study will seek to interpret the lecturers' perspectives regarding the facilitation of critical thinking in undergraduate nursing students in the classroom at a nursing college in the Western Cape. The discussion will be guided by the two focus areas and related themes as noted in the findings. Focus area A indicated the lecturers' understanding of what critical thinking in nursing students means and how it is displayed. Focus area B included all the factors that lecturers perceived to influence the development of critical thinking in nursing students, including the barriers, enablers and how they, the lecturers, can best facilitate critical thinking in nursing students.

Focus area A: Lecturers' understanding of what critical thinking in nursing students means and how it is displayed

The findings in the first focus area illustrated the lecturers' understanding of critical thinking in this study. Their understanding was displayed by the generation of three themes. These themes are the cognitive skills and affective skills demonstrated by critical thinking students as well as the application of critical thinking by students in clinical practice.

5.2 Focus area A - THEME 1: Cognitive skills of critical thinking

The cognitive skills, identified by the lecturers included information seeking, discriminating, analysing and predicting which correlated with those in the Delphi consensus report (Scheffer & Rubenfeld, 2000). These mentioned skills are concrete and possibly easier to verbalise in an unprepared interview. Analysis, particularly, was mentioned by lecturers as being a critical thinking skill, which corresponds with the literature where analysis is frequently mentioned as an attribute of critical thinking (Boso & Gross, 2015; Tanner, 2006). However, cognitive skills such as transforming knowledge, logical reasoning and applying standards were not mentioned at all by the lecturers (Scheffer & Rubenfeld, 2000). This is similar to a study in Ghana where the cognitive skills of predicting and applying standards were completely absent from the list of components of identified critical skills (Boso & Gross, 2015). Applying standards to social and professional rules infers an ethical nature in critical thinking that was also not referred to by the interviewed lecturers. Facione (1990) similarly describes this important aspect of self-regulation where critical thinkers are able to evaluate their own thinking. These skills that were not alluded to by the participants, are processes that are on-going and possibly need deep thought on the part of the interviewed lecturers to elucidate. Lack of identification

of these aspects can also possibly be ascribed to a superficial understanding of critical thinking, where critical thinking is seen as the endpoint or product rather than an iterative process (Jones & Brown, 1991).

Critical thinking is portrayed in the literature as a process rather than a product (Ford & Profetto-McGrath, 1994; Simpson & Courtney, 2002). A number of interviewed lecturers, however, illustrated critical thinking as basic problem solving to reach an answer or to attain a product (Simpson & Courtney, 2002). A similar study reported that a number of nurse educators also cited problem solving as being critical thinking (Boso & Gross, 2015). This corresponds with the literature where surrogate terminology, such as problem solving, is reported as being used erroneously as a term for critical thinking (Simpson & Courtney, 2002). The understanding of critical thinking by nurses as simple problem solving was reported in the 1990s (Jones & Brown, 1991). Many lecturers will have been nursing students around this time and the teaching on critical thinking as linear problem solving or the nursing process is what they may have seen demonstrated (Jones & Brown, 1991).

5.3 Focus area A - THEME 2: Affective skills of critical thinking

Some affective skills that were mentioned by a few lecturers included interest, questioning or inquisitiveness, confidence, reflection, and flexibility (Facione, 1990; Scheffer & Rubenfeld, 2000). Reflection particularly was noted by several lecturers as being an attribute of critical thinking. This corresponds with the literature where reflection is highlighted (Bittner & Tobin, 1998; Kataoka-Yahiro & Saylor, 1994). However the lecturers' reference to reflection was primarily related to action and not necessarily as a bridge between action and knowledge as portrayed in the literature (Ford & Profetto-McGrath, 1994). Affective skills that were not noted by the lecturers included, contextual perspective, creativity, open-mindedness, intellectual integrity and intuition (Scheffer & Rubenfeld, 2000). While open-mindedness is seen to be an affective skill of critical thinking, it may be argued that open-mindedness does not necessarily produce critical thinking, hence the possible reason for its omission (Siegel, 2009). There was not a great emphasis on the affective components demonstrated by the interviewed lecturers. This lack of emphasis on affective skills of critical thinking aligned with the study in Ghana where only a small number of participants considered critical thinking to have both cognitive and affective skills, demonstrating that nurse educators do not have a full understanding of the concept of critical thinking (Boso & Gross, 2015).

A limited mentioning of affective skills by the lecturers could be that the Delphi report, containing a description of the affective skills, was only published in 2000 when many of the

lecturers will have finished their undergraduate studies and they were thus not familiar with many of the affective components of critical thinking (Scheffer & Rubenfeld, 2000).

5.4 Focus area A - THEME 3: Application of critical thinking

Many lecturers spoke of critical thinking as the ability to apply knowledge or information within the clinical environment. There was even mention of clinical reasoning. Here we have an example of the substitution frequently made in the literature of practical skills for critical thinking skills (Banning, 2008; Turner, 2005). The use of clinical reasoning aligned with the understanding in literature that critical thinking was sometimes used synonymously with clinical judgement and clinical reasoning (Simpson & Courtney, 2002).

Although no lecturer mentioned the terms cognitive or affective, most lecturers mentioned skills from both cognitive and affective categories of the Delphi report (Scheffer & Rubenfeld, 2000). The understanding that critical thinking comprises cognitive and affective skills corresponded with the literature where critical thinking is reported as comprising both affective and cognitive components (Huang *et al.*, 2014; Simpson & Courtney, 2002). Lecturers also mentioned critical thinking skills as being the practical application within the clinical setting.

This study demonstrated that the lecturers had some understanding of critical thinking skills, as set out by the Delphi report (Scheffer & Rubenfeld, 2000), since they mainly mentioned cognitive skills and specifically analysis. Yet, there was a limited citing of affective skills indicating a possible lack of awareness of the affective components of critical thinking. Additionally, there was some mention of problem solving, which signified a simple linear conceptualisation of critical thinking. The mention of critical thinking in practice demonstrated that many lecturers simply saw critical thinking as the application of theory in the clinical practice.

Focus area B: Factors that lecturers perceive as influencing the development of critical thinking in nursing students

5.5 Focus area B - THEME 1: Lecturer preparedness

Within the theme of lecturer preparedness, the lecturers' uncertainty with technology, uncertainty regarding their knowledge of critical thinking, and the importance of student interaction with the lecturer dominated.

5.5.1 Technological uncertainty

The perceived lack of technological skills in the lecturer was raised by several lecturers in the study, specifically concerning their ability to use technology to implement critical thinking. Additionally, the use of new teaching strategies that require technology was a cause for concern. Technological uncertainty was voiced by several lecturers, not only the baby boomers who are notoriously uncomfortable with new technology (Erlam *et al.*, 2018; Johnson & Romanello, 2005). Contrary to the literature, other lecturers such as the Generation Xers were also requesting further training on the use of technology in teaching strategies. Generation Xers may have only been exposed to technology at a later age in resource-constrained developing countries such as the South African society when compared with developed countries (Mangena & Chabeli, 2005). Hence, lecturers lack confidence in their technological ability and they request upskilling of their abilities. Nevertheless, there remains the concern among the lecturers that, despite some availability of training in technologically driven teaching strategies, there may not be the resources available to implement these strategies following training.

5.5.2 Critical thinking readiness

Lecturers alluded to a lack of confidence regarding their knowledge of critical thinking skills. This inadequate knowledge was supported by the comparison of the lecturers' understanding of critical thinking with that of the Delphi report (Scheffer & Rubenfeld, 2000). The lecturers' understanding of critical thinking was noted to be primarily problem-solving based, with a strong analytical component. A few lecturers mentioned some affective skills along with some cognitive components of critical thinking. This uncertainty of knowledge of critical thinking is supported by literature from developing countries (Aliakbari & Sadeghdaghighi, 2013; Mangena & Chabeli, 2005) but not supported in developed countries (Shell, 2001). Resource constraints may serve as key reasons for lectures not receiving adequate academic skills updates. The desire for more training in critical thinking is clearly expressed by the lecturers in this study and is also noted in the literature (Mangena & Chabeli, 2005; Shell, 2001).

5.5.3 Mentoring relationships

The importance of formulating trusting relationships with students was mentioned by the interviewed lecturers. Lecturers also described the development of a supportive comfortable, trusting, environment, which is typical for the mentoring of students towards developing critical thinking skills as described in the literature (Bedell, 2005; Raymond *et al.*, 2018). However, neither of these terms, role modelling nor mentoring, were explicitly stated by the lecturers, perhaps as the context of the study was the classroom and these attributes are typically highlighted within the clinical areas (Bedell, 2005).

5.6 Focus area B - THEME 2: Student preparedness

Students who were well prepared, interested and participated by asking questions were perceived by interviewed lecturers to be demonstrating critical thinking skills. Conversely, lecturers reported students who just wanted to be 'spoon fed' information without searching for it themselves or trying to understand the reasoning behind the information. 'Spoon feeding' was generally ascribed to the experiences that students had had in previous education systems, where superficial learning was required to cover large amounts of content. Literature supports the negative influence of superficial learning on critical thinking, indicating that some traditional schooling emphasises superficial or rote learning, which adversely affects critical thinking in students (Mangena & Chabeli, 2005; Kawashima, 2003).

Several lecturers raised the role of language as a barrier to developing critical thinking. The challenge of language relates particularly to students whose first language or mother tongue is not the medium of instruction, which is English. The literature supports the importance of language proficiency, which allows for the development of critical thinking skills (Kabilan, 2000). Lecturers stated that critical thinking is difficult for students who do not understand a concept, because they are still struggling with the language itself. Similarly, students experiencing difficulties with first having to translate terminology before they can participate in discussions was reported on in the literature (Mangena & Chabeli, 2005). The multilingual nature of the society from which the nursing students are drawn, intensifies the diversity of languages used by the students. Lecturing staff are not always from similar diverse population groups, like the students and are unable to assist with the clarification of concepts in the various mother tongues. The literature demonstrates that reading and writing courses have been found useful in overcoming language barriers in students whose first language is not English and thus facilitating the development of critical thinking skills in these students (Lin, 2003). Consequently, academic literacy programmes are recommended for students within the current nursing programmes.

5.7 Focus area B - THEME 3: Teaching strategies

Despite an awareness of some of the student-centred teaching strategies that promote critical thinking, lecturers generally reported continuing to use teacher-centred strategies such as the lecture method in their teaching approach. Similarly the lecturing method dominates in the literature (Mangena & Chabeli, 2005; Schmidt, Wagener, Smeets, Keemink & Van der Molen, 2015). There were numerous reasons provided by lecturers for predominantly using the lecture method. The most commonly cited reason was the large numbers of students that had to be accommodated and that the lecture method was best suited for these large classes. The problem of large classes was mentioned in the literature as being a challenge to teaching and

learning but not necessarily critical thinking (Anyanwu & Iwuamad, 2015). The large amount of content that had to be covered in a short period of time was another reason supplied by the lecturers for using a lecture driven teaching strategy, which was also mentioned in the literature as a reason for not adequately implementing teaching strategies that support critical thinking (Shell, 2001; Van Wyngarden, 2017). Regular review of the curriculum to prevent content overload is suggested to minimise having to teach large amounts of content (Aliakbari & Sadeghdaghighi, 2013; Shell, 2001).

Numerous reasons for implementing teacher-centred strategies were presented by the lecturers. However, it is important that these reasons do not dominate and perhaps obscure the less tangible reasons for lecturers not embracing more student-centred strategies of facilitating critical thinking. These include the lecturers' willingness and the lecturers' knowledge, and thus ability, to facilitate critical thinking using different teaching strategies. Unwillingness of lecturers to change to other teaching strategies was mentioned by the lecturers and noted in the literature (Aliakbari & Sadeghdaghighi, 2013; Mangena & Chabeli, 2005) as was the lack of knowledge of teaching strategies that promote critical thinking (Mangena & Chabeli, 2005). Both knowledge and willingness of the lecturer are crucial to facilitating critical thinking in students through various teaching strategies. Deficiencies in knowledge facilitating critical thinking through various teaching strategies and lack of motivation may be addressed through regular training and upskilling of lecturers.

A few lecturers reported integration of other student-centred strategies such as group work, discussions, debates, role-play, and scenarios together with their lecture method. Similar integration is reported in the literature (Shell, 2001). While these student-centred strategies were alluded to by the lecturers, they did not appear as dominant teaching strategies, rather as supplementary to the lecture method. Other student-centred strategies, such as the use of concept mapping as opposed to lecturing, feature very prominently in the literature in promoting critical thinking (Wahl & Thompson, 2013; Yue *et al.*, 2017). Nevertheless, concept mapping was not mentioned at all by the interviewed lecturers. Similarly, reflection is regarded as important in the literature in promoting critical thinking (Kauffman & Mann, 2014), yet this was noted by only a few lecturers and then it was primarily related to assessment practices rather than teaching strategies. A lecturer voiced uncertainty in her ability to practice reflection. The literature underscores this uncertainty, stating that educators need to practice reflection themselves before they can effectively implement it as a teaching strategy (Choy, 2012).

The use of questioning as an important teaching strategy that stimulates critical thinking skills was raised by a few of the lecturers. The literature refers to the importance of higher level

(Tofade *et al.*, 2013) or Socratic questioning (Elder & Paul, 1998) as eliciting critical thinking. However, the level of questioning was not explored in this study. Although a lecturer raised the importance of requiring a rationale and the 'why' question, which is more illustrative of Socratic questioning (Simpson & Courtney, 2002), it was not evident that higher order questioning was extensively applied. While the use of higher order questioning was mentioned in assessment techniques, it was not necessarily aligned with a teaching strategy of higher order questioning. Lecturers require good questioning skills to implement questioning as a teaching strategy (Twibell *et al.*, 2005) and the tendency for nurse educators to ask lower order questions has been shown in the literature (Profetto-McGrath *et al.*, 2004). Developing the questioning skills of nurse educators is recommended (Gul *et al.*, 2014).

5.8 Focus area B - THEME 4: Programme planning

Lecturers reported that they did not feel that the academic leadership ensure adequate facilitation of critical thinking in a higher education programme. Recommendations from the millennial conference on health professions education are that critical thinking must be defined by the education institution and implemented throughout the educational institution by a core training team who serves as experts and a resource for teaching other lecturers (Huang *et al.*, 2014). Implementation of these recommendations would serve to provide clarity and direction to the lecturers at the nursing college regarding the implementation of critical thinking.

The introduction of interprofessional health professions education at an undergraduate level, as proposed by a lecturer, resonated with the Lancet commission (Frenk *et al.*, 2010) and the World Health Organisation framework (2010), highlighting the importance of interprofessional education. Interprofessional education improves collaboration and teamwork between health professionals as each sees the other as an important member of the health professional team (Walrath *et al.*, 2006). Additionally, associated with critical thinking skills, is critical reflection in particular. Critical reflection can be effectively developed in interprofessional education (Clark, 2009). Thus, different members of the multidisciplinary team may see each other as equally important in rendering healthcare, each with a different role and not necessarily a different status.

Numerous theoretical assessment methods were cited by the lecturers as being effectively used to promote critical thinking in nursing students. A diversity of assessment techniques is supported by the literature as significant in developing critical thinking skills in students (Huang *et al.*, 2014; Paul, 2014). Conversely, there was some uncertainty that the practical methods of assessment were always promoting critical thought, as the assessment tools did not always

encourage application, but rather rote learning. Rote learning or superficial learning was referred to in the literature as not facilitating critical thinking (Mangena & Chabeli, 2005).

The programme plan contained many of the barriers and recommendations that were alluded to by the lecturers in developing critical thinking within the context of the current nursing programme.

5.9 Focus area B - THEME 5: The education environment

The theme of the education environment was dominated by the multiple comments relating to resource constraints in the classroom and those affecting the students. Resource constraints, such as the availability of Wi-Fi, were also cited by the lecturers as a barrier to facilitating critical thinking. Resource constraints that impact teaching and learning were typically reported in the literature in developing countries (Anyanwu & Iwuamad, 2015; Boso & Gross, 2015; Mangena & Chabeli, 2005).

Students also experienced similar resource constraints. The lack of availability of Wi-Fi was especially noted, particularly if they were not staying in a student residence. Students in residence, however, had to contend with their own environmental constraints, specifically including student protest action. Lecturers made veiled inferences to the student protest that was endemic at the time of interviews referring to 'undercurrents' that were present. The literature referred to the proactive stance that many universities had to take to ensure adequate dissemination of information to students through internet portals (Hypertext, 2016; ITWeb, 2016). Yet, students without internet access at home would have been unable to access these resources. Inadequate access to resources and information, as mentioned in this study, is referred to in the literature as having an influence on teaching and learning, which may have a concomitant influence on facilitating critical thinking in nursing students (Boso & Gross, 2015; Mangena & Chabeli, 2005).

Although the study sought to investigate lecturers' perspectives of critical thinking within the classroom there was a pervasive mentioning of the role of the simulation laboratory and the clinical environment by the lecturers.

5.9.1 The simulation laboratory

Several lectures thought that a high-tech simulation laboratory was the answer to enabling critical thinking in their nursing students. The literature regards simulation as a very effective teaching strategy to stimulate critical thinking skills (Munshi *et al.*, 2015). However, the

advantage of high-fidelity simulation over low-fidelity simulation was not so apparent (Munshi *et al.*, 2015). Reflection and debriefing following simulation sessions are seen to play a major roles in developing critical thinking skills in students and this may impact the efficacy of the teaching strategy, more than the actual fidelity level (Billings & Halstead, 2012; Munshi *et al.*, 2015). A well-equipped simulation laboratory, however, remains mandatory to the development of critical thinking skills in nursing students, an aspect which is supported by the lecturers and the literature (Burrell, 2014).

5.9.2 The clinical environment

The clinical environment was understood by several lecturers to be the area where critical thinking takes place, as a number of lectures aligned critical thinking with clinical application, interpreting it as a surrogate term of critical thinking as is also illustrated in the literature (Turner, 2005). A lecturer raised a concern that students may be discouraged from critical thinking that involves any questioning of the status quo, due to their respect for authority or fear of an aggressive response. This reticent student enquiry is supported in the literature, where young people in certain cultures are raised not to question adults. This is definitely the case in South Africa (Mangena & Chabeli, 2005) and also in other hierarchical systems (Gul *et al.*, 2010; Kawashima, 2003).

A lecturer also mentioned that student nurses behaved in a manner that indicated that the students perceived their status within the interdisciplinary team as less than the status of their colleagues. Students were reported to automatically abdicate their decision-making skills and unquestioningly follow what members of another discipline told them to do, particularly if the members are perceived to be of a higher status. This concurs with the literature where nurses are seen as subservient and only there to carry out the doctor's orders (Kawashima, 2003; Vazirani *et al.*, 2005). The fostering of critical thinking skills in nursing students may be impaired by undue hesitancy towards making decisions and a practice of unquestioning acceptance of information.

The literature also addresses the role of gender in impacting on status, where nurses are mainly female and traditionally subservient and doctors predominantly male and traditionally dominant (Kawashima, 2003). However, gender was not mentioned by the lecturers, possibly because a high proportion of student nurses are male. Another potential influencing factor on status is education (Fagin, 1992). Currently nurses exit their qualifications at a certificate diploma and some at a degree level while most other members of the health professions team qualify with a degree and may thus be perceived as having a higher status than nurses due to their education. However, current nursing students exit with a Bachelor of Technology.

Lecturers need to be aware of the impact of culture and status on the interactions of their students. This awareness allows the lecturers to appropriately pre-empt and address the pitfalls that inhibit the facilitation of critical thinking, particularly when the student moves from the classroom to the clinical setting.

CHAPTER 6

CONCLUSION

This chapter will propose the conclusions of this study, along with some implications that arose from it, as well as the research limitations.

6.1 Summary of the study

It is evident with increasing technology and demands on healthcare services, optimal critical thinking skills are mandatory for health professionals to function competently within the environments where they will one day work. Given the importance of critical thinking skills in the health professional, it is essential that the development of these skills is facilitated by the relevant health education programmes. Nurses comprise a significant percentage of healthcare providers and nursing educators are key role players in the health education process.

The aim of this study was to explore lecturers' perspectives of strategies that could facilitate the development of critical thinking in nursing students in classroom teaching in order to make recommendations for lecturers. A qualitative study using semi-structured interviews was conducted at a nursing college in the Western Cape.

The data were analysed using an iterative process that involved repeated readings of the transcripts, identifying codes and subsequently generating various themes. The first three themes related to the lecturers' understanding of critical thinking skills in the nursing student. The presence of various cognitive skills in the critical thinking student were highlighted. However, fewer affective skills were identified indicating a noticeable emphasis by the lecturers on the cognitive components of critical thinking over the affective components. The third theme concerned the application of critical thinking in clinical practice, which highlighted that some lecturers perceived critical thinking as primarily the application of skills within a clinical situation or problem solving within the practical situation.

Through the generation of the various themes, it became evident that the main teaching strategies adopted by the lecturers were teacher-centred, which was primarily the lecture method. This method does not necessarily encourage student participation and does not focus on promoting critical thinking in the classroom. However, some lecturers professed to be moving away from the lecture method, integrating other teaching strategies that promote increased student activity, are more student-centred, and facilitate the development of critical thinking in the student. Various student-centred teaching strategies mentioned by the lecturers

included questioning, debates, discussions, scenarios, role-play and group work. However, although they were mentioned, they did not appear to be the dominant teaching strategies; rather it was the lecture method.

Generally, there was a realisation that the lecture method did not necessarily facilitate critical thinking in nursing students. Resource constraints such as large student numbers and the large amount of content in the curriculum were the reasons proposed by the lecturers for continuing with the lecture method.

Other resource constraints mentioned by the lecturers included the lack of availability of Wi-Fi in classrooms and specifically a well-equipped simulation laboratory that could assist with the facilitation of critical thinking in the student.

The preparedness of lecturers to teach critical thinking was noted by the lectures as a challenge to facilitating critical thinking. Subsequently, lecturers expressed a desire for further education and training on critical thinking and the facilitation of critical thinking in the classroom through various appropriate teaching strategies. The classroom language, as a student's second or third language, was also seen as a challenge in the facilitation of critical thinking and further training in academic literacy was recommended for students. The importance of critical thinking was highlighted in this study, along with the need for further education and training for lecturing staff regarding the facilitation of critical thinking in nursing students in the classroom.

6.2 Limitations of the study

A limitation of this study was that it was a small study with limited context where only ten lecturers at a nursing college in the Western Cape were interviewed. The study could have been strengthened by interviewing lecturers from different colleges and making comparisons with other South African Universities of technology or nursing colleges. The findings of the study may only be transferable to similar contexts. An additional limitation is that the researcher is the interviewer and a member of the lecturing staff being interviewed. Consequently, the role of the interviewer as an inside researcher is acknowledged, as is the need for reflexivity of the researcher.

An observational study of the lecturers in action in the classroom could have also contributed to the findings. Interviews from the students regarding their experience in the classroom would have added another perspective and contributed towards the students' viewpoint of different teaching strategies used to facilitate critical thinking. Member checking of results rather than

just the transcripts may have assisted in aspects of credibility and also in potential change management going forward so that the lecturers could see what the whole group had said. The study covered a very broad concept in teaching strategies of critical thinking and further studies focussing on one area would be valuable. The area of Socratic questioning and the level of questioning utilised by lecturers could be a significant area of research for the future.

6.3 Recommendations of the study

Several recommendations emerged from the study, including general recommendations and recommendations specific to the lecturers.

6.3.1 General recommendations

Various general recommendations emerging from this study are as follows:

- Formulation of a task team spearheaded by the academic leadership (see 4.8.1; 5.7)
 - To define an understanding of critical thinking in students for the institution (see 5.7)
 - To operationalise the facilitation of critical thinking throughout the institution (see 5.7)
- Comprehensive planning strategies for the optimal utilisation of human resources and infrastructure, such as lectures and classrooms, to appropriately distribute student numbers allowing for smaller classes (see 4.7.1; 4.9.1; 5.8)
- Regular reviewing of curricula to align with critical thinking outcomes and prevent content overload (see 4.8.2; 5.6)
- Commencement of a discourse for the integration of interprofessional health professions education into the curricula (see 4.8.4; 5.7)
- Motivation letters for the acquisition of funding to obtain important environmental resources such as easily accessible WIFI (see 4.9.1; 5.8)
- Establishment of a well-equipped simulation laboratory (see 4.9.2; 5.8.1)
- An awareness programme for students so that they know exactly what critical thinking is and what is expected from them as they ascribe to become caring, competent, critically thinking nursing graduates (see 4.2; 4.3; 4.4; 5.1; 5.2; 5.3)
- Ongoing academic literacy programmes for all students (see 4.6.2; 5.5)
- Programmes to develop nursing students' confidence, autonomy, status and critical thinking skills within clinical practice (see 4.9.4; 5.8.2)

6.3.2 Recommendations for the lecturers

Recommendations specific to the lecturers are as follows:

- To sensitise all lecturers to the institutions understanding of critical thinking (see 5.7)
- To start and continue a conversation that moves lecturers from teacher-centred learning approaches to learning to student-centred approaches to learning, encouraging active learning and facilitating the development of critical thinking (see 4.7.1; 4.7.2; 5.6)
- The implementation of training workshops for lecturers which focus on:
 - Upskilling of lecturers in their understanding of critical thinking, embracing the affective skills as well as the cognitive components (see 4.2; 4.3; 4.4; 4.5.4; 5.1; 5.2; 5.3; 5.4.2)
 - The modelling of different teaching strategies for lecturers that encourage student centred learning approaches, thus promoting critical thinking (see 4.5.4; 5.6) through
 - Socratic or higher order questioning (see 4.7.2; 5.6)
 - Encouraging reflective practice (see 4.7.2.6; 5.6)
 - Concept mapping (see 5.6)
 - Technological proficiency, particularly regarding the use of electronic media to promote critical thinking skills in nursing students (see 4.5.3; 5.4.1)

Following up on these suggested recommendations could take the form of observation studies or surveys that are undertaken by lecturers and students of the college.

6.4 Contribution of the study

This study serves to contribute to the body of knowledge surrounding teaching critical thinking in nursing and may be transferrable to other similar contexts. Much of the value of this study lies in the fact that it makes manifest many of the everyday challenges faced by lecturers and students at this institution, concerning the facilitation and development of critical thinking in nursing students. This study has value in that it has taken place in a developing country in a resource-constrained institution. Consequently, the study raises concerns regarding the facilitation of critical thinking, that may be less dominant in the studies that take place in resource-endowed institutions in developed countries.

In conclusion, this study represents the first of its kind in this institution and it is hoped that this contribution would add to the conversations that are currently being held about the knowledge, skills, and attitudes that our educators have in relation to critical thinking.

REFERENCES

- Abrami, P.C., Bernard, R.M., Borokhovski, E., Waddington, D.I., Wade, C.A. & Persson, T. 2014. Strategies for teaching students to think critically: A meta-Analysis. *Review of Educational Research*, 85(2):275-314.
- Adams, B.L. 1999. Nursing education for critical thinking: An integrative review. *Journal of Nursing Education*, 38(3):111-119.
- Alexander, J.G., McDaniel, G.S., Baldwin, M.S. & Money, B.J. 2002. Promoting, applying, and evaluating problem-based learning in the undergraduate nursing curriculum. *Nursing and Health Care Perspectives*, 23(5):248-253 [Online]. Available: <http://www.scopus.com/inward/record.url?eid=2-s2.0-0038895827&partnerID=40&md5=f18edf7c64df6f3ceb1e6b6986286f90> [17 April 2017].
- Aliakbari, M. & Sadeghdaghighi, A. 2013. Teachers' perceptions of the barriers to critical thinking. *Procedia: Social and Behavioral Sciences*. 70:1-5.
- Anyanwu, S. & Iwuamad, F. 2015. Student-centered teaching and learning in higher education: Transition from theory to practice in Nigeria. *International Journal of Education and Research*, 3(8):349-358.
- Bandman, E. & Bandman, E. 1995. *Critical thinking in nursing*. 2nd ed. Norwalk Conn: Appleton and Lange.
- Banning, M. 2006. Nursing research: Perspectives on critical thinking. *British Journal of Nursing*, 15(8):458-61.
- Banning, M. 2008. Clinical reasoning and its application to nursing: Concepts and research studies. *Nurse Education in Practice*, 8(3):177-183.
- Bean, J. C. 2011. *Engaging ideas: The professor's guide to integrating writing, critical thinking, and active learning in the classroom*. 2nd ed. San Francisco, CA: Jossey-Bass.
- Bedell, K. 2005. Mentoring promoting the development of nurses, in M. Gullatte (ed.). *Nursing management principles and practice*. 2nd ed. Pittsburg, PA: Oncology Nursing Society. 349-352.

Benner, P. 1984. *From novice to expert: Excellence and power in clinical nursing practice*. Menlo Park, CA: Addison-Wesley.

Biggs, J. & Tang, C. 2011. *Teaching for quality learning at university: Buckingham*. 4th ed. New York, NY: McGraw Hill.

Beyer, D.A. 2011. Reverse case study: To think like a nurse. *Journal of Nursing Education*, 50(1):48-50.

Billings, D. & Halstead, J. 2012. *Teaching in nursing: A guide for faculty*. 4th ed. St Louis: Saunders Elsevier.

Bittner, N.P. & Tobin, E. 1998. Critical thinking. Strategies for clinical practice. *Journal for Nurses in Staff Development*. 14(6):267-272.

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):1-13.

Boso, C.M. & Gross, J.J. 2015. Nurse educators' perceptions of critical thinking in developing countries: Ghana as a case study. *Advances in Medical Education and Practice*. 6:555-560.

Braine, G. 2002. Academic literacy and the nonnative speaker graduate student. *Journal of English for Academic Purposes*, 1(1):59-68.

Brookfield, S.D. 2012. *Teaching for critical thinking: Tools and techniques to help students question their assumptions*. San Francisco, CA: Jossey Bass.

Burrell, L.A. 2014. Integrating critical thinking strategies into nursing curricula. *Teaching and Learning in Nursing*, 9(2):53-58.

Cannon, R. and Newble, D. 2000. *A handbook for teachers in universities and colleges: A guide to improving teaching methods*. 4th ed. London: Routledge.

Cape Peninsula University of Technology. 2011. Faculty of Health and Wellness Sciences. Curriculum for the education and training of a nurse (general, psychiatric and community) and midwife leading to registration as a Baccalaureus Technologiae Nursing Science degree. Cape Town: Cape Peninsula University of Technology.

- Chan, Z.C.Y. 2013. A systematic review of critical thinking in nursing education. *Nurse Education Today*, 33(3):236-240.
- Chen, F.C. & Lin, M.C. 2003. Effects of a nursing literature reading course on promoting critical thinking in two-year nursing program students. *Journal of Nursing Research*, 11(2):137-147.
- Chen, S-L., Liang, T., Lee, M-L. & Liao, I-C. 2011. Effects of concept map teaching on students' critical thinking and approach to learning and studying. *Journal of Nursing Education*, 50(8):466-469.
- Chicca, J. & Shellenbarger, T. 2018. Connecting with Generation Z: Approaches in nursing education. *Teaching and Learning in Nursing*, 13(3):180-184.
- Choi, E., Lindquist, R. & Song, Y. 2014. Effects of problem-based learning vs. traditional lecture on Korean nursing students' critical thinking, problem-solving, and self-directed learning. *Nurse Education Today*, 34(1):52-56.
- Choy, S.C. 2012. Reflective thinking and teaching practices: A precursor for incorporating critical thinking into the classroom. *International Journal of Instruction*, 5(1):167-182.
- Clark, P.G. 2009. Reflecting on reflection in interprofessional education: Implications for theory and practice. *Journal of Interprofessional Care*, 23(3):213-223.
- Cody, W.K. 2002. Critical thinking and nursing science: Judgement or vision? *Nursing Science Quarterly*, 15(July):184-189.
- Council on Higher Education: Higher Education Committee. 2004. *Criteria for programme accreditation*. Pretoria: Council on Higher Education [Online]. Available: http://www.che.ac.za/sites/default/files/publications/CHE_accreditation_criteria_Nov2004_0.pdf [04 November 2018].
- Cowles, K.V., Strickland, D. & Rodgers, B.L. 2001. Collaboration for teaching Innovation: Writing across the curriculum in a school of nursing. *Journal of Nursing Education*, 40(8):363-367.
- Creswell, J.W. 2009. *Research design: Qualitative, quantitative and mixed method approaches*. 3rd ed. Thousand Oaks, CA: Sage.

- Creswell, J.W. 2014. *Research design: Qualitative, quantitative and mixed method approaches*. 4th ed. Thousand Oaks, CA: Sage.
- Cruess, S.R., Cruess, R.L. & Steinert, Y. 2008. Teaching rounds: Role modelling: Making the most of a powerful teaching strategy. *British Medical Journal*, 336(7646):718-721.
- Del Bueno, D. 2005. A crisis in critical thinking. *Nursing Education Perspectives*, 26(5):278-282.
- De Ruisseau, L.R. 2016. The flipped classroom allows for more class time devoted to critical thinking. *Advances in Physiology Education*, 40(4):522-528.
- De Vos, A.S. 2005. Scientific theory and professional research, in De Vos, A.S., Strydom, H., Fouché, C.B. & Delport, C.S.L. (eds.). *Research at grass roots for the social sciences and human service professions*. 3rd ed. Pretoria: Van Schaik: 27-43.
- Dewey, J. 1910. *How we think*. Boston: Heath & Co Publishers.
- Dong, Y. 2015. Critical thinking in second language writing: Concept, theory and pedagogy. Unpublished doctoral dissertation. Vancouver: University of British Colombia.
- Elder, L. & Paul, R. 1998. The role of socratic questioning in thinking, teaching, and learning. *The Clearing House: A Journal of Educational Strategies, Issues and Ideas*, 71(5):297-301.
- Ennis, R.H. 1962. A concept of critical thinking. *Harvard Educational Review*, 31(1):81.
- Erlam, G., Smythe, L. & Wright-St Clair, V. 2018. Action research and millennials: Improving pedagogical approaches to encourage critical thinking. *Nurse Education Today*, 61(May):140-145.
- Facione, P.A. 1990. Critical thinking: A statement of expert consensus for purposes of educational assessment and instruction. *The California Academic Press*, 423(c):1-19.
- Fagin, C.M. 1992. Collaboration between nurses and physicians: No longer a choice. *Academic Medicine*, 67(5):295-303.
- Fagin, L. & Garelick, A. 2004. The doctor-nurse relationship. *Advances in Psychiatric Treatment*, 10(4):277-286.

Fitzpatrick, J.J. & Smith, M.J. 2013. Research on clinical decision making: Challenges for professional disciplines. *Applied Nursing Research*, 26(4):161.

Fouché, C.B. & Delport, C.S.L. 2011. Introduction to the research process, in De Vos, A.S., Strydom, H., Fouché, C.B. & Delport C.S.L. (eds.). *Research at grass roots for the social sciences and human service professions*. 4th ed. Pretoria: Van Schaik: 61-76.

Fonteyn, M.E. & Cahill, M. 1998. The use of clinical logs to improve nursing students' metacognition: A pilot study. *Journal of Advanced Nursing*, 28(1):149-154.

Ford, J.S. & Profetto-McGrath, J. 1994. A model for critical thinking within the context of curriculum as praxis. *The Journal of Nursing Education*, 33(8):341-344 [Online]. Available: <http://www.ncbi.nlm.nih.gov/pubmed/7799092> [10 September 2018].

Frambach, J.M., Van Der Vleuten, C.P.M. & Durning, S.J. 2013. Quality criteria in qualitative and quantitative research. *Academic Medicine*, 88(4):552 [Online]. Available: http://journals.lww.com/academicmedicine/Citation/2013/04000/AM_Last_Page___Quality_Criteria_in_Qualitative_and.29.aspx [16 August 2016].

Frambach, J.M., Driessen, E.W., Beh, P. & Van der Vleuten, C.P.M. 2014. Quiet or questioning? Students' discussion behaviors in student-centered education across cultures. *Studies in Higher Education*, 39(6):1001-1021.

Frenk, J., Chen, L., Bhutta, Z.A., Cohen, J., Crisp, N., Evans, T., Fineberg, H., Garcia, P., *et al.* 2010. Health professionals for a new century: Transforming education to strengthen health systems in an interdependent world. *The Lancet*, 376(9756):1923-1958.

Garrett, M., Schoener, L. & Hood, L. 1996. Debate: A teaching strategy to improve verbal communication skills. *Nurse Educator*, 21(4):37-40.

Gibby, C. 2013. Critical thinking in adult learners. *Annual Review of Education Communication and Language Sciences*, 10(October):147-176 [Online]. Available: https://research.ncl.ac.uk/media/sites/researchwebsites/arecls/gibby_vol10.pdf [19 August 2018].

Gill, P., Stewart, K., Treasure, E. & Chadwick, B. 2008. Methods of data collection in qualitative research: Interviews and focus groups. *British Dental Journal*, 204(6):291-295.

Goodstone, L., Goodstone, M.S., Cino, K., Glaser, C.A., Kupferman, K. & Dember-Neal, T. 2013. Effect of simulation on the development of critical thinking in associate degree nursing students. *Nursing Education Perspectives*, 34(3):159-162.

Gul, R., Cassum, S., Ahmad, A., Khan, S., Saeed, T. & Parpio, Y. 2010. Enhancement of critical thinking in curriculum design and delivery: A randomized controlled trial for educators. *Procedia: Social and Behavioral Sciences*, 2(2):3219-3225.

Gul, R.B., Khan, S., Ahmed, A., Cassum, S., Saeed, T., Parpio, Y. & Profetto-McGrath, J. 2014. Enhancing educators' skills for promoting critical thinking in their classroom discourses: A randomized control trial. *International Journal of Teaching and Learning in Higher Education*, 26(1):37-54 [Online]. Available: <http://www.isetl.org/ijtlhe/> [9 June 2018].

Haas, P.F. & Keeley, S.M. 1998. Coping with faculty resistance to teaching critical thinking. *College Teaching*, 46(2):63-67.

Hicks-Moore, S.L. 2005. Clinical concept maps in nursing education: An effective way to link theory and practice. *Nurse Education in Practice*, 5(6):348-352.

Huang, G.C., Newman, L.R. & Schwartzstein, R.M. 2014. Critical thinking in Health Professions Education: Summary and consensus statements of the Millennium Conference 2011. *Teaching and Learning in Medicine*, 26(1):95-102.

Hypertext. 2016. *#Learning goes on: How some classes carried on through #FeesMustFall* [Online]. Available: <https://www.htxt.co.za/2016/10/31/learningmustgoon-how-universities-continue-teaching-during-a-time-of-protest/> [05 September 2018].

ITWeb. 2016. *TUT universities pushed online by #FeesMustFall* [Online]. Available: <https://www.itweb.co.za/content/APero37Z3DoMQb6m> [05 September 2018].

Ironside, P.M. 2004. "Covering content" and teaching thinking: Deconstructing the additive curriculum. *The Journal of Nursing Education*, 43(1):5-12.

Jansen, J. 2017. *As by fire: The end of the South African university*. Cape Town: Tafelberg.

Jenkins, S.D. 2011. Cross-cultural perspectives on critical thinking. *The Journal of Nursing Education*, 50(5):268-274.

- Johnson, S.A. & Romanello, M.L. 2005. Generational diversity: Teaching and learning approaches. *Nurse Educator*, 30(5):212-216.
- Jones, S.A. & Brown, L.N. 1991. Critical thinking: Impact on nursing education. *Journal of Advanced Nursing*, 16:529-533.
- Jones, T. 2017. Playing detective to enhance critical thinking. *Teaching and Learning in Nursing*, 12(1):73-76.
- Kabilan, M.K. 2000. Creative and critical thinking in language classrooms. *The Internet TESL journal*, 6(6) [Online]. Available: <http://itselj.org/Techniques/Kabilan-CriticalThinking> [01 September 2018].
- Kaddoura, M.A. 2011. Critical thinking skills of nursing students in lecture-based teaching and case-based learning. *International Journal for the Scholarship of Teaching & Learning*. 5(2):1-18.
- Kahlke, R. & Eva, K. 2018. Constructing critical thinking in health professional education. *Perspectives on Medical Education*, 1-10 [Online]. Available: <https://doi.org/10.1007/s40037-018-0415-z> [12 May 2018].
- Kataoka-Yahiro, M. & Saylor, C. 1994. A critical thinking model for nursing judgment. *The Journal of Nursing Education*, 33(8):351-356.
- Kauffman, D.M. & Mann, K.V. 2014. Teaching and learning in medical education: How theory can inform practice, in T. Swanwick (ed.). *Understanding medical education: Evidence, theory and practice*. 2nd ed. London: Wiley Blackwell. 7-29.
- Kaya, H., Şen, H., Keçeci, A., 2011. Critical thinking in nursing education: Anatomy of a course. *New Educational Review*, 23(1):159-173.
- Kawashima, A. 2003. Critical thinking integration into nursing education and practice in Japan: Views on its reception from foreign-trained Japanese nursing educators. *Contemporary Nurse: A journal for the Australian Nursing Profession*, 15(3):199-208.
- Kennison, M.M. 2006. The evaluation of student's reflective writing for evidence of critical thinking. *Nursing Education Perspectives*, 27(5):269-273.

- Kim, E. 2018. Effect of simulation-based emergency cardiac arrest education on nursing students' self-efficacy and critical thinking skills: Roleplay versus lecture. *Nurse Education Today*. 61(2018):258-263.
- Krupat, E., Sprague, J.M., Wolpaw, D., Haidet, P., Hatem, D. & O'Brien, B. 2011. Thinking critically about critical thinking: Ability, disposition or both? *Medical Education*, 45(6):625-635.
- Lai, E.R. 2011. Critical thinking: A literature review. *Pearson reports* [Online]. Available: <http://images.pearsonassessments.com/images/tmrs/CriticalThinkingReviewFINAL.pdf> [10 October 2018].
- Mangena, A. & Chabeli, M.M. 2005. Strategies to overcome obstacles in the facilitation of critical thinking in nursing education. *Nurse Education Today*, 25(4):291-298.
- Maree, K. & Pieterse, J. 2007. Sampling, in K. Maree (ed.). *First steps in research*. Pretoria: Van Schaik: 172-181.
- Menezes, S.S., Corrêa, C.G., Silva, Rde C. & Cruz, Dde A. 2015. Clinical reasoning in undergraduate nursing education: A scoping review. *Journal of School of Nursing University of Sao Paulo*, 49(6):1037-1044.
- Morey, D.J. 2012. Development and evaluation of web-based animated pedagogical agents for facilitating critical thinking in nursing. *Nursing Education Perspectives*, 33(2):116-120.
- Morrall, P. & Goodman, B. 2013. Critical thinking, nurse education and universities: Some thoughts on current issues and implications for nursing practice. *Nurse Education Today*, 33(9):935-937.
- Mundy, K. & Denham, S.A. 2008. Nurse educators: Still challenged by critical thinking. *Teaching and Learning in Nursing*, 3(3):94-99.
- Munshi, F., Lababidi, H. & Alyousef, S. 2015. Low- versus high-fidelity simulations in teaching and assessing clinical skills. *Journal of Taibah University Medical Sciences*, 10(1):12-15.
- Myrick, F. 2002. Preceptorship and critical thinking in nursing education. *The Journal of Nursing Education*, 41(4):154-64 [Online]. Available: <http://www.ncbi.nlm.nih.gov/pubmed/14756831> [15 September 2018].

Neill, K., Lachat, M. & Taylor-Panek, S. 1997. Enhancing critical thinking with case studies and nursing process. *Nurse Educator*, 22(2):30-32.

Ng, S., Lingard, L. & Kennedy, T.J. 2014. Qualitative research in medical education: Methodologies and methods. In Swanwick, T. (ed). *Understanding Medical education, Evidence, Theory and Practice*. 2nd ed. Oxford: Wiley Blackwell. 371-384.

Novak, J. D., & Cañas, A. J. 2006. *The theory underlying concept maps and how to construct and use them* [Online]. Available.
<https://www.researchgate.net/publication/252642478/download> [26 August 2018].

Oermann, M.H. 2015. Technology and teaching innovations in nursing education. *Nurse Educator*, 40(2):55-56.

Olenick, M., Smego, R. & Ryan, A.L. 2010. Interprofessional education: A concept analysis. *Advances in Medical Education and Practice*, 1:75-84.

Olson, M.A. 2012. English as a second language (ESL) nursing student success: A critical review of the literature. *Journal of Cultural Diversity*, 19(1):26-32.

Orique, S.B. & McCarthy, M.A. 2015. Critical thinking and the use of nontraditional instructional methodologies. *The Journal of Nursing Education*, 54(8):455-9.

Papashane, M. & Hlalele, D. 2014. Academic literacy: A critical cognitive catalyst towards the creation of sustainable learning ecologies in higher education. *Mediterranean Journal of Social Sciences*, 5(10):661-671.

Papathanasiou, I. V., Kleisariis, C.F., Fradelos, E.C., Kakou, K. & Kourkouta, L. 2014. Critical thinking: The development of an essential skill for nursing students. *Acta Informatica Medica*, 22(4):283-286.

Paul, S.A. 2014. Assessment of critical thinking: A Delphi study. *Nurse Education Today*, 34(11):1357-1360.

Paul, R. & Elder, L. 2014. *Critical thinking: Tools for taking charge of your professional and personal life*. 2nd ed. Upper Saddle River, N.J.: Pearson Education Inc.

- Pérez, E.Z., Canut, M.T., Pegueroles, A.F., Llobet, M.P., Arroyo, C.M. & Merino, J.R. 2015. Critical thinking in nursing: Scoping review of the literature. *International Journal of Nursing Practice*. 21(6):820-830.
- Popil, I. 2011. Promotion of critical thinking by using case studies as teaching method. *Nurse Education Today*, 31(2):204-207.
- Potgieter, E. 2012. Clinical teaching: Developing critical thinking in student nurses. *Professional Nurse Today*, 16(2):4-8.
- Profetto-McGrath, J., Smith, K.B., Day, R.A. & Yonge, O. 2004. The questioning skills of tutors and students in a context based baccalaureate nursing program. *Nurse Education Today*, 24(5):363-372.
- Prosser, M & Tredwell, K. 2017. Student learning and the experience of teaching. *Higher Education Research and Development Society of Australasia*, 4(July):5-27 [Online]. Available:<http://www.herdsa.org.au/herdsa-review-higher-education-vol-4/5-27> [06 January 2019].
- Quinn, F.M. 2000. *The principles and practice of nurse education*. 4th ed. Cheltenham: Nelson Thornes.
- Raymond, C., Profetto-McGrath, J., Myrick, F. & Strean, W.B. 2017. An integrative review of the concealed connection: Nurse educators' critical thinking. *Journal of Nursing Education*, 56(11):648-654.
- Raymond, C., Profetto-Mcgrath, J., Myrick, F. & Strean, W.B. 2018. Balancing the seen and unseen: Nurse educator as role model for critical thinking. *Nurse Education in Practice*, 31(July):41-47.
- Redden, S.L. 2015. The effectiveness of combining simulation and role playing in nursing education. Unpublished doctoral dissertation. Walden: Walden University [Online]. Available: <https://scholarworks.waldenu.edu/cgi/viewcontent.cgi?article=2462&context=dissertations> [25 August 2018].
- Ricci, F.A. & Su, H. 2013. Cultural conditioning: Influences on critical thinking. *Journal of the Worldwide Forum on Education and Culture*, 5(1):47-54.

Riddell, T. 2007. Critical assumptions: Thinking critically about critical thinking. *Journal of Nursing Education*, 46(3):121-126.

Rowles, J., Morgan, C., Burns, S. & Merchant, C. 2013. Faculty perceptions of critical thinking at a health sciences university. *Journal of the Scholarship of Teaching and Learning*, 13(4):21-35.

Royse, M.A. & Newton, S.E. 2007. How gaming is used as an innovative strategy for nursing education. *Nursing Education Perspectives*, 28(5):263-268.

Sanasuttipun, W., Tungjairob, V., Musiksukont, S., Lerthamatewe, W. & Chanwatana, B. 2009. Effectiveness of small group discussion on critical thinking, self-directed learning, and learning satisfaction of Thai nursing students. *Journal of Nursing Science*, 27(3):8-16.

Saldana, J. 2013. *The coding manual for qualitative researchers*. 2nd ed. London: Sage.

Sanner, S., Wilson, A.H. & Samson, L.F. 2002. The experiences of international nursing students in a Baccalaureate nursing program. *Journal of Professional Nursing*, 18(4):206-213.

Scheffer, B.K. & Rubenfeld, M.G. 2000. A consensus statement on critical thinking in nursing. *The Journal of Nursing Education*, 39(8):352-359.

Schmidt, H.G., Wagener, S.L., Smeets, G.A., Keemink, L.M. & Van der Molen, H.T. 2015. On the use and misuse of lectures in higher education. *Health Professions Education*, 1(1):12-18 [Online]. Available: <https://doi.org/10.1016/j.hpe.2015.11.010> [7 November 2018].

Sharples, J.M., Oxman, A.D., Mahtani, K.R., Chalmers, I., Oliver, S., Collins, K., Austvoll-Dahlgren, A. & Hoffmann, T. 2017. Critical thinking in healthcare and education. *British Medical Journal*, 357(2234):1-3.

Shell, R. 2001. Perceived barriers to teaching for critical thinking by BSN nursing faculty. *Nursing and Health Care Perspectives*, 22(6):286-291.

Shim, W.J. & Walczak, K. 2012. The impact of faculty teaching practices on the development of students' critical thinking skills. *International Journal of Teaching and Learning in Higher Education*, 24(1):16-30 [Online]. Available: <http://www.isetl.org/ijtlhe/> [25 August 2018].

Siegel, H. 2009. Open-mindedness, critical thinking, and indoctrination: Homage to William Hare. *Paideusis*, 18(1):26-34.

Simmons, B. 2010. Clinical reasoning: Concept analysis. *Journal of Advanced Nursing*, 66(5):1151-1158.

Simpson, E. & Courtney, M. 2002. Critical thinking in nursing education: Literature review. *International Journal of Nursing Practice*, 8(2):89-98.

Simpson, E. & Courtney, M. 2007. The development of a critical thinking conceptual model to enhance critical thinking skills in middle-eastern nurses: A middle-eastern experience. *Australian Journal of Advanced Nursing*, 25(1):56-63.

Smith, T.E., Rama, P.S. & Helms, J.R. 2018. Teaching critical thinking in a GE class: A flipped model. *Thinking Skills and Creativity*, 28(February):73-83.

Sommers, C.L. 2018. Measurement of critical thinking, clinical reasoning, and clinical judgment in culturally diverse nursing students: A literature review. *Nurse Education in Practice*, 30(April):91-100.

South African Nursing Council. 2014a. Regulations relating to the approval of and the minimum requirements for the education and training of a nurse (general, psychiatry and community) and a midwife leading to registration. Government notice R425. 22 February 1985. [Online]. Available: <http://www.sanc.co.za/regulat/Reg-4yr.htm>. [03 November 2018].

South African Nursing Council. 2014b. *Qualifications: Bachelor's Degree in Nursing and Midwifery*. [Online]. Available: [http://www.sanc.co.za/pdf/Qualifications/bachelor's degree in nursing and midwifery 2014-07-23.pdf](http://www.sanc.co.za/pdf/Qualifications/bachelor's%20degree%20in%20nursing%20and%20midwifery%202014-07-23.pdf). [26 June 2018].

South African Nursing Council. 2014c. *Competencies for a nurse educator*. [Online]. Available: [http://www.sanc.co.za/pdf/Competencies/SANC Competencies-Nurse Educator 2014-07.pdf](http://www.sanc.co.za/pdf/Competencies/SANC%20Competencies-Nurse%20Educator%202014-07.pdf). [26 June 2018].

Spitzer, A. & Perrenoud, B. 2006. Reforms in nursing education across western Europe: Implementation processes and current status. *Journal of Professional Nursing*, 22(3):162-171.

Sullivan, E.A. 2012. Critical thinking in clinical nurse education: Application of Paul's model of critical thinking. *Nurse Education in Practice*, 12(6):322-327.

- Swanzen, R. 2018. Facing the generation chasm: The parenting and teaching of Generations Y and Z. *International Journal of Child, Youth and Family Studies*, 9(2):125.
- Tanner, C.A. 2006. Thinking like a nurse: A research-based model of clinical judgment in nursing. *Journal of Nursing Education*, 45(6):204-211.
- Tiwari, A., Lai, P., So, M. & Yuen, K. 2006. A comparison of the effects of problem-based learning and lecturing on the development of students' critical thinking. *Medical Education*, 40(6):547-554.
- Tofade, T., Elsner, J. & Haines, S.T. 2013. Best practice strategies for effective use of questions as a teaching tool. *American Journal of Pharmaceutical Education*, 77(7):1-10.
- Turner, P. 2005. Critical thinking in nursing education and practice as defined in the literature. *Nursing Education Perspectives*, 26(5):272-277.
- Twibell, R., Ryan, M. & Hermiz, M. 2005. Faculty perceptions of critical thinking in student clinical experiences. *The Journal of Nursing Education*, 44(2):71-79.
- Unluer, S. (2012). Being an insider researcher while conducting case study research. *The Qualitative Report*, 17(58):1-14.
- Uys, L.R. 1989. Nursing education in South Africa. *Nurse Education Today*, 9(3):211-213.
- Van Dyk, E.C., Van Rensburg, G.H. & Tjallinks, J.E. 2009. The experiences of remaining nurse tutors during the transformation of nursing colleges. *Health SA Gesondheid*, 14(1):1-9.
- Van Wyngarden, A. 2017. Educational practices for promoting student nurses' clinical reasoning skills. Unpublished doctoral dissertation. Pretoria: University of Pretoria.
- Vazirani, S., Hays, R.D., Shapiro, M.F. & Cowan, M. 2005. Effect of a multidisciplinary intervention on communication and collaboration among physicians and nurses. *American Journal of Critical Care*, 14(1):71-77.
- Victor-Chmil, J. 2013. Critical thinking versus clinical reasoning versus clinical judgment: Differential diagnosis. *Nurse Educator*, 38(1):34-6.
- Vizeshfar, F., Dehghanrad, F., Magharei, M. & Sobhani, S.M.J. 2016. Effects of applying role playing approach on nursing students' education. *International Journal of Humanities and Cultural Studies: Special issue*, 3:1772-1781.

- Wahl, S.E. & Thompson, A.M. 2013. Concept mapping in a critical care orientation program: A pilot study to develop critical thinking and decision-making skills in novice nurses. *The Journal of Continuing Education in Nursing*, 44(10):455-460.
- Walrath, J.M., Muganlinskaya, N., Shepherd, M., Awad, M., Reuland, C., Makary, M.A. & Kravet, S. 2006. Interdisciplinary medical, nursing and administrator education in practice: The Johns Hopkins Experience. *Academic Medicine*, 81(8):744-748.
- Walsh, C.M. & Seldomridge, L.A. 2006. Critical thinking: Back to square two. *Journal of Nursing Education*, 45(6):212-219 [Online]. Available: <http://www.ncbi.nlm.nih.gov/pubmed/16780009> http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=16780009 [26 June 2018].
- Watson, G. & Glaser, E.M. 1964. *Critical thinking appraisal manual*. New York: Harcourt Brace Janovich.
- Watson, G. & Glaser, E.M. 1980. *Watson-Glaser critical thinking appraisal manual*. New York: Psychology Corp.
- Wheeler, L.A. & Collins, S.K.R. 2003. The influence of concept mapping on critical thinking in baccalaureate nursing students. *Journal of Professional Nursing*, 19(6):339-346.
- World Health Organisation. 2010. Framework for action on interprofessional education & collaborative practice. Geneva: World Health Organisation. 1-63 [Online]. Available: http://www.who.int/hrh/nursing_midwifery/en/ [7 October 2018].
- Worrell, P.J. 1990. Metacognition: Implications for instruction in nursing education. *The Journal of Nursing Education*, 29(4):170-175.
- Xu, J. 2016. Toolbox of teaching strategies in nurse education. *Chinese Nursing Research*, 3(2):54-57.
- Yue, M., Zhang, M., Zhang, C. & Jin, C. 2017. The effectiveness of concept mapping on development of critical thinking in nursing education: A systematic review and meta-analysis. *Nurse Education Today*, 52:87-94.
- Zygmunt, D.M., Schaefer, K.. 2006. Assessing the critical thinking skills of faculty: What do the findings mean for nursing education? *Nursing Education Perspectives*, 27(5):260-268.

ADDENDA

Addendum 1: Memorandum of agreement between the nursing college and higher education institution, 2005

MEMORANDUM OF AGREEMENT

made, entered into and concluded
by and between

THE WESTERN CAPE PROVINCIAL GOVERNMENT

Herein represented by K.C. HOUSEMAN in
his/her capacity as HEAD HEALTH; duly authorised thereto

("PGWC")

of the one part

and

CAPE PENINSULA UNIVERSITY OF TECHNOLOGY

Herein represented by Marcus Batistelo in
his/her capacity as Interim Vice-Chancellor; duly authorised thereto

("CPUT")

of the other part

relating to the future administration and management of

THE WESTERN CAPE COLLEGE OF NURSING

("WCCN")

RICHARD ROSENTHAL
NEIL GROOM
ASHLEY SEARLE

9
mb/ic

1.

BACKGROUND, SCOPE AND PURPOSE

The background, scope and purpose of this Agreement is as follows, viz:

- 1.1 A single integrated training institution for nursing in the Western Cape, known as The Western Cape College of Nursing ("WCCN"), was established for purposes of the R425 diploma course in nursing, in terms of a Memorandum of Agreement ("the MOA"), which was entered into on 15 December 1999, between the PGWC and the THREE REGIONAL UNIVERSITIES.
- 1.2 In order to fulfil the requirements of the Nursing Act, the MOA made provision for the academic collaboration of the THREE REGIONAL UNIVERSITIES during a transitional phase, which would continue for an indefinite period until terminated either by one or more of the Parties, or by the National Minister of Education, in accordance with the relevant provisions of the Agreement.
- 1.3 Following upon the restructuring of certain Western Cape Higher Education Institutions, it has become necessary for the MOA to be terminated and superseded by a new dispensation, in terms of which CPUT will assume responsibility for the institutional and operational management of WCCN, under an Agency Mandate to be granted by the PGWC to CPUT.
- 1.4 Accordingly, the Parties have negotiated, with the facilitation of the Cape Higher Education Consortium ("CHEC"), and have agreed upon a new dispensation, in terms of which CPUT will assume responsibility for the institutional management of WCCN, under an Agency Mandate to be granted by the PGWC to CPUT.
- 1.5 This Agreement is therefore intended to record the terms and conditions of the Agency Mandate to be granted by the PGWC to CPUT as aforesaid; and

to record the basis for the continued accreditation of WCCN as a Nursing College duly approved by the South African Nursing Council; and to provide for the continued academic collaboration of the THREE REGIONAL UNIVERSITIES with respect to WCCN.

AGENCY MANDATE

- 5.1 Following termination of the MOA, the PGWC hereby confirms its appointment of CPUT with retrospective effect as from the Commencement Date, as the mandated agent *in rem suam* of the PGWC, to manage and administer, and to assume the authority and responsibility in respect of the continued operations of WCCN on the basis contemplated by this Agreement.
- 5.2 In granting such mandate,, the PGWC hereby delegates to CPUT all such powers, discretions and authorities, as it may require to enable it to assume effective managerial and operational control of WCCN within the context of this Agreement, and subject to its terms and conditions.
- 5.3 Accordingly, the PGWC does hereby ratify and confirm and undertake to ratify and confirm all actions and decisions which may be competently undertaken by CPUT in terms of the provisions of this Agreement.
- 5.4 For the avoidance of doubt, it is expressly stipulated that the Agency Mandate hereby conferred shall not be capable of further delegation, nor shall CPUT be entitled to exercise a power of substitution with respect to such mandate, unless the prior written consent of the PGWC shall have been obtained. The foregoing constraint shall not be construed as preventing CPUT from collaborating with the other Participating Institutions as contemplated by this Agreement, nor from delegating or contracting with third parties in respect of

Page 6

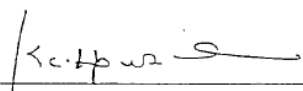
WCCN / CPUT Agency Agreement
October 2005

non-academic or administrative functions in the course of its day to day management of the affairs of WCCN.

- 5.5 The parties further agree that CPUT shall be entitled, at its discretion from time to time, to appoint staff at its own cost, on its own establishment, and upon its own conditions of service, to render services with the WCCN, as it may deem necessary and appropriate. Unless financial provision shall have been made therefor in terms of an approved Budget for WCCN, the financial and other responsibilities arising from any further such appointments shall be for the account of CPUT. Unless an appointment is made predominantly for the purpose of meeting the staffing needs and requirements of CPUT itself, rather than the needs and requirements of WCCN, CPUT undertakes to communicate its intention to effect such appointment prior to its implementation, in order that an opportunity may exist for the parties to


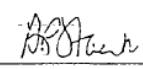
THUS DONE AND SIGNED by the **PGWC** at CAPE TOWN

this 28th day of OCTOBER 2005.

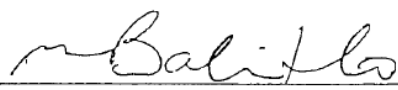

for **THE WESTERN CAPE PROVINCIAL GOVERNMENT :**

The signatory hereby warranting that
s/he is duly authorised hereto

AS WITNESSES :


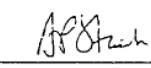
1. 
2. 

THUS DONE AND SIGNED by the **CPUT** at Cape Town
this 28th day of OCTOBER 2005.


for **CAPE PENINSULA UNIVERSITY OF TECHNOLOGY :**

The signatory hereby warranting that
s/he is duly authorised hereto

AS WITNESSES :

1. 
2. 

Addendum 2: Prospectus for Bachelor of Technology in Nursing

2019

FACULTY

Health & Wellness Sciences

Start your future career in Nursing Science

BTech: Nursing Science



+27 (0)21 953 8426
samaaic@cput.ac.za



Cape Peninsula University of Technology
creating futures



YOUR FUTURE SELF

Future studies

The department is in the process of developing a postgraduate courses.

Future industries

Successful completion of the Diploma in Opticianry allows you to register with the HPCSA and open your own dispensing practice. You may work independently, or as part of a team of professionals, which may include optometrists and ophthalmologists.

Future career

Graduate Opticians are equipped to render a professional ophthalmic service within both the private and public health sectors. You may manage and administer human, financial, technical, and other resources to ensure optimal delivery of eye and vision care products or services. Opportunities are available locally and abroad, with recognition of the professional qualification in a number of countries including the SADC community, Trinidad and Tobago, the UK, Australia, New Zealand, Netherlands, Canada, and certain states within the USA.



creating futures in wellness

Are you a nurturer at heart?

If you are passionate about helping people and are interested in working in the health sector, then become an innovative carer for the future.

A qualification in Nursing will offer you endless possibilities, from working in the local health sector at hospitals, laboratories or non-governmental organisations to taking up opportunities abroad.

YOU WILL LIKE THIS IF

You enjoy working with people and would like to be involved in the health sector.

YOU WILL STUDY AT

Belville Campus

YOU WILL STUDY FOR

Four years, full-time
Five years, full-time (Extended Curriculum Programme)
Selection process to be confirmed

YOUR SUBJECTS

FIRST YEAR LEVEL

- Academic Literacy
- Clinical Nursing Practice 1A
- Clinical Nursing Practice 1B
- Fundamentals of Nursing 1A
- Fundamentals of Nursing 1B
- Health Development & Primary Health
- Applied Microbiology 1A
- Biological & Natural Sciences 1A
- Biological & Natural Sciences 1B
- Professional Practice 1A
- Professional Practice 1B

SECOND YEAR LEVEL

- Applied Social Science 1A
- Applied Social Science 1B
- Communicable Diseases
- Clinical Nursing Practice 2
- Medical Surgical Nursing 1A
- Medical Surgical Nursing 1B
- Child Health
- Pharmacology for Nurses

THIRD YEAR LEVEL

- Clinical Nursing Practice 3
- Community Nursing Science 1A
- Community Nursing Science 1B
- Professional Practice 2
- Psychiatric Nursing 1A
- Psychiatric Nursing 1B
- Psycho Social Intervention 1A
- Psycho Social Intervention 1B
- Unit management

FOURTH YEAR LEVEL

- Counsel Survivors of Abuse, Neglect, Violence
- Clinical Nursing Practice 4
- Facility Management
- Midwifery 1a (Prenatal Care)
- Midwifery 1b (Intra-Partum Care and Neonatology)
- Midwifery 1b (Intra-Partum Care and Neonatology)
- Research Methods and Techniques
- Research



Your on-the-job training

For the duration of the course, you will gain practical experience at hospitals and various healthcare facilities.

WHAT YOU NEED

Minimum Admission Requirements

National Senior Certificate (Umalusi, Grade 12) with a Diploma pass:

- English: Home Language or First Additional Language (4)
- Mathematics (3) or Mathematical Literacy (4)
- Physical Sciences (3)
- Life Sciences (3)

The department utilises an Admission Point Score (APS) as selection criteria once your minimum admission requirements are satisfied. You also have to score a minimum of 28 on the APS.

Additional Admission Requirements

- Completion of a questionnaire.
- An interview, dexterity evaluation and colour vision assessment may form part of the selection process.

HOW TO APPLY

 **MANUAL APPLICATIONS**
Do you qualify to apply manually?

Please note: a non-refundable application fee will be applicable. Manual applications are only available to the following persons:

- Applicants applying for RPL (Recognition of Prior Learning)
- Non-South African citizens
- South-African citizens with international qualifications
- Applicants with permanent residence in South Africa
- Refugee/asylum seeker temporary permit/ formal recognition of refugee status in the RSA

- Choose a qualification
- Complete an application form
- Gather your documents (i.e. certified copies less than three months old)
- Fill in the application form
- Pay the application fee
- Hand deliver or post your form and certified copies of documents to our District Six, Belville, Mowbray, or Wellington Campuses (Admin buildings)
- Follow-up and get your admission status via the online application tracking system by visiting www.cput.ac.za/study/track

 **ONLINE APPLICATIONS**
Do you qualify to apply online?

The following persons may only apply online, i.e. no manual applications will be allowed:

- South African citizens with South African qualifications
- Returning students with a break in studies (more than 1-year break)

- Choose your qualification by consulting this brochure or the website
- Gather your documents (i.e. certified copies less than three months old)
- Download the online application guide available on our website for information on how to apply online
- Complete your application online by visiting www.cput.ac.za/study/apply
- Follow-up and get your admission status via the online application tracking system by visiting www.cput.ac.za/study/track

CLOSING DATES
31 AUGUST
international applicants
30 SEPTEMBER
South African citizens

DISCLAIMER

Meeting the minimum requirements does not guarantee admission. This information is subject to change based on approval and accreditation of HEQSF aligned qualifications during 2018/2019.

Admission requirements may therefore differ between the existing qualification and the HEQSF aligned qualification. Please consult the CPUT website or faculty for updated information. Every effort has been made to ensure the accuracy of the information in this pamphlet; however the University reserves the right at any time, if circumstances require to make changes to any of the published details.

+27 (0)21 959 6767
info@cput.ac.za
www.cput.ac.za
@cput
@wearecput
www.facebook.com/cput.ac.za



Cape Peninsula University of Technology
creating futures

Addendum 3: Ethics approval – Stellenbosch University



UNIVERSITEIT STELLENBOSCH • UNIVERSITY
jou kennisvenner • your knowledge partner

Approval Notice New Application

24-May-2017

Ethics Reference #: S17/04/090

Title: Facilitating critical thinking in nursing students – Lecturers' perspectives

Dear Ms Amanda Went,

The **response to stipulations** received on **22-May-2017** was reviewed by members of **Health Research Ethics Committee 2** via **expedited** review procedures on **24-May-2017** and was approved.

Please note the following information about your approved research protocol:

Protocol Approval Period: **11-May-2017 – 10-May 2018**

Please remember to use your protocol number (S17/04/090) on any documents or correspondence with the HREC concerning your research protocol.

Please note that the HREC has the prerogative and authority to ask further questions, seek additional information, require further modifications, or monitor the conduct of your research and the consent process.

After Ethical Review:

Please note a template of the progress report is obtainable on www.sun.ac.za/rds and should be submitted to the Committee before the year has expired.

The Committee will then consider the continuation of the project for a further year (if necessary). Annually a number of projects may be selected randomly for an external audit.

Translation of the consent document to the language applicable to the study participants should be submitted.

Federal Wide Assurance Number: 00001372

Institutional Review Board (IRB) Number: IRB0005239

The Health Research Ethics Committee complies with the SA National Health Act No. 61 of 2003 as it pertains to health research and the United States Code of Federal Regulations Title 45 Part 46. This committee abides by the ethical norms and principles for research, established by the Declaration of Helsinki and the South African Medical Research Council Guidelines as well as the Guidelines for Ethical Research: Principles, Structures and Processes 2015 (Department of Health).

Provincial and City of Cape Town Approval

Please note that for research at a primary or secondary healthcare facility, permission must still be obtained from the relevant authorities (Western Cape Department of Health and/or City Health) to conduct the research as stated in the protocol. Contact persons are Ms Claudette Abrahams at Western Cape Department of Health



Fakulteit Geneeskunde en Gesondheidswetenskappe
Faculty of Medicine and Health Sciences



Afdeling Navorsingsontwikkeling en -Steun • Research Development and Support Division

Posbus/PO Box 241 • Cape Town 8000 • Suid-Afrika/South Africa
Tel: +27 (0) 21 938 9677



UNIVERSITEIT • STELLENBOSCH • UNIVERSITY
jou kennisvenner • your knowledge partner

(healthres@pgwc.gov.za ; Tel: +27 21 483 9907) and Dr Helene Visser at City Health
(Helene.Visser@capetown.gov.za; Tel: +27 21 400 3981). Research that will be conducted at any tertiary
academic institution requires approval from the relevant hospital manager. Ethics approval is required BEFORE
approval can be obtained from these health authorities.

We wish you the best as you conduct your research.
For standard HREC vorms and documents, please visit: www.sun.ac.za/rds

If you have any questions or need further assistance, please contact the HREC office at 021 938 9677.

Included Documents:

HRec doc (003) Elize.pdf
Elize Archer CV Jan SHORT FOR ETHICS 2017. Pdf
JBell_a Went_201505224 Investigator Declaration V4.2 (Eng).pdf
General Checklist (Eng)_V2.1 April 2016 (2) (1) Amanda Went.pdf
20150224 Investigator Declaration V4.2 (Eng) Amanda Went.pdf
Protocol Synopsis_Amanda Went.pdf
Protocol
JBell_CV_Short_April 2017.pdf
MPhil Research Protocol – Amanda Went 20638094_ Critical thinking_ 17 May 2017.pdf
Amanda Went – Curriculum Viate April 2017.pdf
HREC Application Vorm V9.16 Nov 2016 (Eng) (1) Amanda Went_Signed.pdf
Participant information leaflet and consent form_ 17 May 2017.pdf
Semi-structured interview guide_ 17 May 2017.pdf

Yours sincerely,

Francis Masiye,
HREC Coordinator,
Health Research Ethics Committee 2.



Fakulteit Geneeskunde en Gesondheidswetenskappe
Faculty of Medicine and Health Sciences



Afdeling Navorsingsontwikkeling en -Steun • Research Development and Support Division

Posbus/PO Box 241 • Cape Town 8000 • Suid-Afrika/South Africa
Tel: +27 (0) 21 938 9677

Investigator Responsibilities

Protection of Human Research Participants

Some of the responsibilities investigators have when conducting research involving human participants are listed below:

1. Conducting the Research. You are responsible for making sure that the research is conducted according to the HREC approved research protocol. You are also responsible for the actions of all your co-investigators and research staff involved with this research.

2. Participant Enrolment. You may not recruit or enrol participants prior to the HREC approval date or after the expiration date of HREC approval. All recruitment materials for any form of media must be approved by the HREC prior to their use. If you need to recruit more participants than was noted in your HREC approval letter, you must submit an amendment requesting an increase in the number of participants.

3. Informed Consent. You are responsible for obtaining and documenting effective informed consent using **only** the HREC-approved consent documents, and for ensuring that no human participants are involved in research prior to obtaining their informed consent. Please give all participants copies of the signed informed consent documents. Keep the originals in your secured research files for at least fifteen (15) years.

4. Continuing Review. The HREC must review and approve all HREC-approved research protocols at intervals appropriate to the degree of risk but not less than once per year. There is **no grace period**. Prior to the date on which the HREC approval of the research expires, **it is your responsibility to submit the continuing review report in a timely fashion to ensure a lapse in HREC approval does not occur**. If HREC approval of your research lapses, you must stop new participant enrolment, and contact the HREC office immediately.

5. Amendments and Changes. If you wish to amend or change any aspect of your research (such as research design, interventions or procedures, number of participants, participant population, informed consent document, instruments, surveys or recruiting material), you must submit the amendment to the HREC for review using the current Amendment Form. You may **not** initiate any amendments or changes to your research without first obtaining written HREC review and approval. The **only exception** is when it is necessary to eliminate apparent immediate hazards to participants and the HREC should be immediately informed of this necessity.

6. Adverse or Unanticipated Events. Any serious adverse events, participant complaints, and all unanticipated problems that involve risks to participants or others, as well as any research-related injuries, occurring at this institution or at other performance sites must be reported to the HREC within **five (5) days** of discovery of the incident. You must also report any instances of serious or continuing problems, or non-compliance with the HRECs requirements for protecting human research participants. The only exception to this policy is that the death of a research participant must be reported in accordance with the Stellenbosch University Health Research Ethics Committee Standard Operating Procedures www.sun025.sun.ac.za/portal/nage/portal/Health_Sciences/English/Centres%20and%20Institutions/Research_Development_Support/Ethics/Application_package All reportable events should be submitted to the HREC using the Serious Adverse Event Report Form.

7. Research Record Keeping. You must keep the following research-related records, at a minimum, in a secure location for a minimum of fifteen years: the HREC approved research protocol and all amendments; all informed consent documents; recruiting materials; continuing review reports; adverse or unanticipated events; and all correspondence from the HREC.

8. Reports to the MCC and Sponsor. When you submit the required annual report to the MCC or you submit required reports to your sponsor, you must provide a copy of that report to the HREC. You may submit the report at the time of continuing HREC review.

9. Provision of Emergency Medical Care. When a physician provides emergency medical care to a participant without prior HREC review and approval, to the extent permitted by law, such activities will not be recognised as research nor will the data obtained by any such activities should it be used in support of research.

10. Final reports. When you have completed (no further participant enrolment, interactions, interventions or data analysis) or stopped work on your research, you must submit a Final Report to the HREC.

11. On-Site Evaluations, MCC Inspections, or Audits. If you are notified that your research will be reviewed or audited by the MCC, the sponsor, any other external agency or any internal group, you must inform the HREC immediately of the impending audit/evaluation.

Addendum 4: Department of Health, Western Cape – Permission to proceed



STRATEGY & HEALTH SUPPORT

Health.Research@westerncape.gov.za
tel: +27 21 483 6857; fax: +27 21 483 9895
5th Floor, Norton Rose House, 8 Riebeeck Street, Cape Town, 8001
www.capegateway.gov.za

REFERENCE: WC_2017RP23_452
ENQUIRIES: Ms Charlene Roderick

Stellenbosch University

PO Box 241

Cape Town

8000

For attention: Ms Amanda Went, Dr Elize Archer, Dr Janet Bell

Re: Facilitating critical thinking in nursing students - Lecturer perspectives.

Thank you for submitting your proposal to undertake the above-mentioned study. We are pleased to inform you that the department has granted you approval for your research.

Please contact following people to assist you with any further enquiries in accessing the following sites:

Western Cape College of Nursing

Mr Tendani Mabuda

021 483 5454

Kindly ensure that the following are adhered to:

1. Arrangements can be made with managers, providing that normal activities at requested facilities are not interrupted.
2. Researchers, in accessing provincial health facilities, are expressing consent to provide the department with an electronic copy of the final feedback (**annexure 9**) within six months of completion of research. This can be submitted to the provincial Research Co-ordinator (Health.Research@westerncape.gov.za).

3. In the event where the research project goes beyond the *estimated completion date* which was submitted, researchers are expected to complete and submit a progress report (**Annexure 8**) to the provincial Research Co-ordinator (Health.Research@westerncape.gov.za).
4. The reference number above should be quoted in all future correspondence.

Yours sincerely



Dr Hawkridge

DR A HAWKRIDGE

DIRECTOR: HEALTH IMPACT ASSESSMENT

DATE: 3/8/2017

Addendum 5: Nursing college – Permission to proceed



Western Cape College of Nursing
Date: 2017/06/22
Theresa.Bock@westerncape.gov.za
Enquiries: Dr T Bock
021 940 4567
083 602 7097

Ms A Went
Stellenbosch University

RE: Letter of endorsement of research titled "Facilitating critical thinking in nursing – Lecturers's perspectives. SU HREC reference S17/04/090

Dear Ms Went.

The WCCN supports your request to use the WCCN as a site to conduct your research.

Please submit this letter of endorsement to the CPUT and the NHRD as proof of support when you apply for permission to access the participants employed through the Provincial Government of the Western Cape Department of health and the Cape Peninsula University of Technology.

Once you have received the necessary clearance from the above mentioned authorities, please make contact with the Head of Campus, Metro West (Athlone) to arrange commencement of data collection.

We wish you all of the best with this study

Sincerely

A handwritten signature in black ink, appearing to read "T Bock".

Dr TM Bock
Head of Campus/ Deputy Director
Western Cape College of Nursing: Metro East

Addendum 6: Cape Peninsula University of Technology – Permission to proceed



HEALTH AND WELLNESS SCIENCES RESEARCH ETHICS COMMITTEE (HW-REC)
Registration Number NHREC: REC- 230408-014

P.O. Box 1906 • Bellville 7535 South Africa
Symphony Road Bellville 7535
Tel: +27 21 959 6917
Email: sethn@cput.ac.za

28 September 2017
REC Approval Reference No:
CPUT/HW-REC 2017/H25

Dear Amanda Went

Re: APPLICATION TO THE HW-REC FOR ETHICS CLEARANCE

Approval was granted by the Health and Wellness Sciences-REC 20 September 2017 to Went, for ethical clearance. This approval is for research activities related to student research in the Western Cape College of Nursing.

TITLE: Facilitating critical thinking in nursing students – Lecture Perspectives

Supervisor: Dr E Archer and Dr J Bell

Comment:

Approval will not extend beyond 29 September 2018. An extension should be applied for 6 weeks before this expiry date should data collection and use/analysis of data, information and/or samples for this study continue beyond this date.

The investigator(s) should understand the ethical conditions under which they are authorized to carry out this study and they should be compliant to these conditions. It is required that the investigator(s) complete an **annual progress report** that should be submitted to the HWS-REC in December of that particular year, for the HWS-REC to be kept informed of the progress and of any problems you may have encountered.

Kind Regards

A handwritten signature in black ink, appearing to read "N. Naidoo", with a horizontal line underneath.

Mr. Navindhra Naidoo
Chairperson – Research Ethics Committee
Faculty of Health and Wellness Sciences



Office of the Deputy Vice Chancellor:
Research, Technology Innovation & Partnerships
Bellville Campus
P O Box 1906
Bellville 7535
Tel: 021-9596242
Email: NhlapoC@cput.ac.za

06 October 2017

Ms Amanda Went
Private Bax X2
Sunwell
7762

Email: awent29@gmail.com

Dear Ms Went

RE: PERMISSION TO CONDUCT RESEARCH AT CPUT

The Institutional Ethics Committee received your application entitled: "Facilitating critical thinking in nursing students – Lecturers' perspectives" together with the dossier of supporting documents.

Permission is herewith granted for you to do research at the Cape Peninsula University of Technology.

Wishing you the best in your study.

Sincerely



Addendum 7: Participant information and informed consent

1

PARTICIPANT INFORMATION LEAFLET AND CONSENT FORM

TITLE OF THE RESEARCH PROJECT:

Facilitating critical thinking in nursing students – Lecturer perspectives.

REFERENCE NUMBER: Stellenbosch University Protocol number - S17/04/090

Western Cape Department of Health – WC 2017RP23 452

PRINCIPAL INVESTIGATOR: Amanda Went

ADDRESS:

Western Cape College of Nursing, Klipfontein Road Athlone, Private Bag X2 Surwell, 7762, Cape Town, Western Cape, South Africa.

CONTACT NUMBER: 084 610 2994

You are invited to take part in a research project. Please take some time to read the information presented here, which will explain the details of this project and contact me if you require further explanation or clarification of any aspect of the study. Also, your participation is **entirely voluntary** and you are free to decline to participate. If you say no, this will not affect you negatively in any way whatsoever. You are also free to withdraw from the study at any point, even if you have already agreed to take part.

This study has been approved by the **Health Research Ethics Committee (HREC)** at **Stellenbosch University** and will be conducted according to accepted and applicable National and International ethical guidelines and principles, including those of the international Declaration of Helsinki October 2008.

What is the aim of this study?

- This study seeks to determine the perspectives of lecturers regarding the facilitation of critical thinking in nursing students registered for the Bachelor of Technology in Nursing at the Cape Peninsula University of Technology (CPUT).

Why have you been invited to participate in this study?

- You have been invited as you are a lecturer of the BTech nursing students at CPUT.

What is the participant's role?

- It requires that participants avail themselves to be part of a semi structured interview.
- The interview session will not be longer than 45 minutes.
- All information shared in the interview session will be audio-recorded for later transcription.

Are there any risks associated with this research?

- No risks are anticipated with participation in this study.
- All this information will be kept securely and the investigator will be the only person with access.
- The confidentiality and anonymity of all participants will be maintained throughout the process.
- At the end of the data analysis, all data captured and all recordings will be kept secure for the prescribed 5 years before being deleted.

Will there be any payment or costs incurred as a result of taking part in this study.

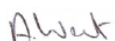
- You will not be paid to take part in the study
- There will be no costs involved in participating in the study

If you require any additional information.

- Please contact me Amanda Went on 0846102994 or awent29@gmail.com if you have any further queries or concerns.
- You may also contact the Health Research Ethics Committee at 021 9389207 if you have any concerns or complaints that have not been addressed.
- You will receive a copy of this information and consent form for your records.

If you are willing to participate in this study please sign the attached Declaration of Consent and submit it to the principal investigator.

Yours sincerely



Amanda Went

Principal Investigator

Declaration by participant

By signing below, I agree to take part in a research study entitled: **Facilitating critical thinking in nursing students – Lecturer perspectives.**

I declare that:

- I have been informed that interviews will be audio-recorded and I consent to the audio-recording of all interviews.
- I have read the attached information leaflet and it is written in a language with which I am fluent and comfortable.
- I have had a chance to ask questions and all my questions have been adequately answered.
- I understand that taking part in this study is **voluntary** and I have not been pressurised to take part.
- I may choose to leave the study at any time and will not be penalised or prejudiced in any way.
- I may be asked to leave the study before it has finished, if the researcher feels it is in my best interests, or if I do not follow the study plan, as agreed to.

Signed at (*place*) On (*date*) 2017.

.....
Signature of participant

.....
Signature of witness

Declaration by investigator

I (*name*) declare that:

- I explained the information in this document to
- I encouraged him/her to ask questions and took adequate time to answer them.
- I am satisfied that he/she adequately understands all aspects of the research, as discussed above
- I did/did not use an interpreter. (*If an interpreter is used then the interpreter must sign the declaration below.*)

Signed at (*place*) on (*date*) 2017.

.....
Signature of investigator

.....
Signature of witness

Addendum 8: Guide to the facilitation of the semi-structured interview

GUIDE TO THE FACILITATION OF THE SEMI-STRUCTURED INTERVIEW

Welcome

START RECORDER

Introduction

1. Thank you for your participation.
2. How long have you been a lecturer of nursing students?
3. How many years as a nursing lecturer at this nursing college?

Lead in

4. What courses do you teach?
5. Do you think critical thinking is important in these courses?

Critical thinking in the student

6. What do you see are critical thinking skills in nursing students?
 - Think of an example of a student who you thought demonstrated critical thinking skills and describe these

Facilitation of critical thinking in the classroom

7. How do you develop critical thinking skills in the class room?
 - What teaching methods do you use to develop critical thinking skills?
 - Is there anything else that you do to enhance critical thinking?

Perceived barriers to critical thinking

8. What are some of the barriers that you see to facilitation of critical thinking?
 - In the classroom
 - In the environment
 - In the student
 - Other

Recommendations

9. How do you think you can improve the facilitation of critical thinking in nursing students?
10. Any other comments on critical thinking in nursing students that you would like to make

STOP RECORDER

11. Thank you for your participation.
12. Transcribed documents will be made available at a later stage for member checking.

Addendum 9: Example of the initial coding of a single transcript

INITIAL CODING OF A RESPONDENT			
RESPONDENT	CODE	SUB CATEGORY	CATEGORY
7	Discovering the answer for yourself	Critical thinking meaning	Critical thinking understanding
7	Putting the pieces of the puzzle together problem solving	Critical thinking meaning	
7	Discovering the answer for yourself	Critical thinking meaning	
7	Spoon fed	Idioms related to students	
7	We must move with the times	Idioms related to lecturers	Student characteristics
7	Guiding them [the students] to reach thie destination	Idioms related to lecturers	
7	Confident	Student characteristics - positive	
7	Self assured	Student characteristics - positive	
7	Intellectual ability	Student characteristics - positive	Lecturer characteristics
7	Don't just accept things as they are	Student characteristics - positive	
7	Able to reason and debate	Student characteristics - positive	
7	Different ways to problem solve	Student characteristics - positive	
7	Find solutions to their own problems	Student characteristics - positive	Teaching methods
7	Solve problems on their own	Student characteristics - positive	
7	Students that don't want to participate	Student characteristics - constraints	
7	Be well prepared	Lecturer characteristics - positive	
7	Go there with a definite plan	Lecturer characteristics - positive	Education climate
7	Adaptable	Lecturer characteristics - positive	
7	Able to adapt the environment	Lecturer characteristics - positive	
7	Able to adapt to the type of student	Lecturer characteristics - positive	
7	She need to know her audience	Lecturer characteristics - positive	Environment
7	Builds up a report with the student	Lecturer characteristics - positive	
7	Read the audience- get to know the group	Lecturer characteristics - positive	
7	Build a trust relationship- students feel comfortable to voice their opinions	Lecturer characteristics - positive	
7	Self confidence	Lecturer characteristics - positive	Education system
7	Need to know the subject well	Lecturer characteristics - positive	
7	Be able to move with change	Lecturer characteristics - positive	
7	Technology wise	Lecturer characteristics - positive	
7	Technical abilities / needs to be on par with the students	Lecturer characteristics - positive	Education system
7	Moving away from the lecture method	Teaching methods - positive	
7	Case studies	Teaching methods - positive	
7	Scenarios	Teaching methods - positive	
7	Group discussions	Teaching methods - positive	Education system
7	Find information, come together discuss it and feedback	Teaching methods - positive	
7	Encourage group participation / active participation	Teaching methods - positive	
7	Encourage reflective journals where students reflect on an assignment	Teaching methods - positive	
7	Reflect on what they could have improved	Teaching methods - positive	Education system
7	Must encourage students to use technology	Teaching methods - positive	
7	Students access and watch a video then everyone discusses it	Teaching methods - positive	
7	Find a research article and summarise then have a discussion	Teaching methods - positive	
7	Do not give the answers... give them the problem	Teaching methods - positive	Education system
7	Facilitating learning not teaching	Teaching methods - positive	
7	Guide the students	Teaching methods - positive	
7	Do not give the answers	Teaching methods - positive	
7	Ask questions	Teaching methods - positive	Education system
7	Group work - facilitates team work and conflict resolution	Teaching methods - positive	
7	Lecture method then divided into groups and given a scenario	Teaching methods - positive	
7	Used Debates, role play, group activities, scenarios	Teaching methods - positive	
7	Facilitated learning -each could participate	Teaching methods - positive	Education system
7	Group work can hear other people point of view	Teaching methods - positive	
7	Lecture method does not encourage active participation	Teaching methods - constraints	
7	Lecture method students are passive- passive learning	Teaching methods - constraints	
7	Go back and say what would have been a better way	Teaching methods - constraints	Education system
7	Lecture method easier with large numbers than other methods	Teaching methods - constraints	
7	Traditional teaching methods used at the college Learning is teacher driven	Teaching methods - constraints	
7	Lecture method only provides lecturer's point of view -top down approach	Teaching methods - constraints	
7	Allow the students to be active participants	Education climate -enablers	Education system
7	Need to get across a certain amount of information in a limited time	Education climate constraints - lecturer	
7	Can not facilitate open discussion and active participation with large numbers	Education climate constraints - lecturer	
7	Student incivility in the class room	Education climate constraints - student	
7	Student disruption in the classroom	Education climate constraints - student	Education system
7	Interference with the learning environment	Education climate constraints - student	
7	Student feel intimidated - do not voice their opinions	Education climate constraints - student	
7	Lecturers have difficulties accessing the data bases	Environment - constraints - lecturer	
7	Large groups/ large numbers	Environment - constraints	Education system
7	No internet access	Environment - constraints	
7	Don't have equipment that is working	Environment - constraints	
7	Can not connect to the internet / problem with the password	Environment - constraints	
7	The students can not connect to the internet	Environment - constraints - student	Education system
7	Need access to internet to access databases to find research articles	Environment - constraints - student	
7	Students who have been exposed to CT at school / access to internet find it easier	Education system- enabling	
7	Students who have had tradional schooling... Given the information and the answers struggle at tertiary level	Education system - constraints	
7	Spoon fed	Education system - constraints	Education system
7	Some parenting styles control children and prevent the development of CT skills	Education system - constraints	
7	Must update ourselves with technology	Lecturer - recommendations	
7	Lecturer to use a variety of different mediums eg blackboard, elearning mobile internet	Lecturer - recommendations	
7	Lecturer need to be creative	Teaching methods - recommendations	Education system
7	Lecturers need to grasp the students attention	Teaching methods - recommendations	
7	Lecturers need to plan activities	Teaching methods - recommendations	
7	Lecturer to build trust / safe environment for students to speak up	Education climate- recommendations	
7	Encourage the students to take responsibility for their own learning	Education climate- recommendations	Education system
7	Shift the responsibility of studies from the lecturer to the student	Education climate- recommendations	
7	Student should be in charge of their learning	Education climate- recommendations - student	
7	Lecturer should just facilitate and guide the process	Education climate- recommendations - lecturer	
7	Student should be a self directed learner	Education climate- recommendations	Education system
7	Build a rapport with the group- so students can trust - will participate	Education climate- recommendations	

Addendum 10: Example of coding of various transcripts into categories and themes

PERCEPTIONS OF CRITICAL THINKING BY LECTURER			
Respondent	CODE	CATEGORY	THEME
2	Confidence to know I have the knowledge to do this critical thinking	Confidence	AFFECTIVE SKILLS
7	The student is confident, self assured, they've got some kind of intellectual ability	Confidence	AFFECTIVE SKILLS
2	Ability to adapt to change, because a student that can do critical thinking for me must be somebody that isn't stuck in... this subject we did it this way.	Flexibility	AFFECTIVE SKILLS
4	The desire to learn more because otherwise they will stagnate	Information seeking	AFFECTIVE SKILLS
4	Being eager to go on Doctors rounds	Information seeking	AFFECTIVE SKILLS
5	Students [that] are thinking more critically about things you never get that kind of complaints from them, they are eager to find out information for themselves	Information seeking	AFFECTIVE SKILLS
1	I think if the student shows interest	Inquisitiveness	AFFECTIVE SKILLS
1	If it is something that the student is interested in they again ask you questions	Inquisitiveness	AFFECTIVE SKILLS
2	They were inquisitive, motivated.	Inquisitiveness	AFFECTIVE SKILLS
3	They actually ask probing questions instead of you asking them. They actually challenge you with the questions	Inquisitiveness / Questioning	AFFECTIVE SKILLS
3	They speak up and ask, they are not afraid to ask questions or they don't feel intimidated to ask questions	Inquisitiveness / Questioning	AFFECTIVE SKILLS
4	Asking questions	Inquisitiveness / Questioning	AFFECTIVE SKILLS
5	They are a lot more interested in their studies and they are the ones that are asking more questions	Inquisitiveness / Questioning	AFFECTIVE SKILLS
6	The student that will challenge and will ask questions	Inquisitiveness / Questioning	AFFECTIVE SKILLS
7	They question they don't just accept things as it is	Inquisitiveness / Questioning	AFFECTIVE SKILLS
3	Reflection is very critical to the process of critical thinking because you do things and any action that you perform has consequences	Reflection	AFFECTIVE SKILLS
3	If you don't think about your action and reflect on what you did you might just miss the good and bad in those	Reflection	AFFECTIVE SKILLS
3	Effective use of reflection would create and stimulate critical thinking because you are thinking critically about what you have done and what you could have maybe done different, could have done better	Reflection	AFFECTIVE SKILLS
3	Your future action is now informed by your past actions	Reflection	AFFECTIVE SKILLS
4	They should be able to reflect on what they are doing and what they've done	Reflection	AFFECTIVE SKILLS
10	Critical thinking, must be able to reflect	Reflection	AFFECTIVE SKILLS
1	If they do an interview or if they do the vital signs of the patient. Whatever they get from that then to first analyse	Analyzing	COGNITIVE SKILLS
9	But to me it is how they analyse, are they able to analyse rationally?	Analyzing	COGNITIVE SKILLS
10	I must identify the problem there and I must be able to visualise it and then I have to analyse it	Analyzing	COGNITIVE SKILLS
10	They can analyse the problem, they can see how they are going to solve the problem	Analyzing	COGNITIVE SKILLS
10	They must be able to break it down, apply it and construct it again for critical thinking	Analyzing	COGNITIVE SKILLS
10	and defend why I am making the judgement that I'm making	Applying standards	COGNITIVE SKILLS
7	You don't just accept one version, you will look for other versions and you will compare	Discriminating	COGNITIVE SKILLS
2	They were self driven. They didn't wait for the lecturer to come with the content	Information seeking	COGNITIVE SKILLS
2	They searched for information	Information seeking	COGNITIVE SKILLS
7	The critical thinker would not only just look at one textbook, but they would use different sources and compare	Information seeking	COGNITIVE SKILLS
1	I think the student must be able to gather information	Information seeking	COGNITIVE SKILLS
3	They are not happy with just any given answer, they want more and that to me is quite exciting	Information seeking	COGNITIVE SKILLS
1	then put it all together to form a picture	Logical reasoning	COGNITIVE SKILLS
4	They've got to be able to assess a condition or a situation and be able to plan appropriately according to other sources of help.	Logical reasoning	COGNITIVE SKILLS
4	Immediately noticing that something is wrong, but not just noticing it tying it up with something, reporting it, asking questions	Logical reasoning	COGNITIVE SKILLS
3	You can actually see they are actively paying attention, So if you pose a question some of them will actually attempt to answer or attempt to reason or engage with the discussion. I would say the first group of students is actually thinking and engaging in a process of thinking.	Logical reasoning	COGNITIVE SKILLS
7	They would be able to reason and debate	Logical reasoning	COGNITIVE SKILLS
9	Do they make sense of things, are they able to think logically?	Logical reasoning	COGNITIVE SKILLS
3	So the student that's actually critically thinking, you can see the progress in thought process, that they are not just on this page but they are a step ahead of where I am or where I'm heading to	Predicting	COGNITIVE SKILLS
4	Without critical thinking they [the students] cannot identify problems or they cannot link a problem to a possible cause or a possible solution	Problem solving	COGNITIVE SKILLS
5	They should be able to solve a problem, you know if you present them with a problem they should be able to think about it and solve that problem	Problem solving	COGNITIVE SKILLS
7	CT is taking a problem and trying to solve it yourself, it is like a puzzle	Problem solving	COGNITIVE SKILLS
7	They [the students] would use different ways to problem solve	Problem solving	COGNITIVE SKILLS
5	If you present them with a problem, they should be able to think about it and solve that problem	Problem solving	COGNITIVE SKILLS
5	Apply the knowledge and solve questions, solve a problem	Problem solving	COGNITIVE SKILLS
7	Taking a problem and trying to solve it yourself	Problem solving	COGNITIVE SKILLS
6	Thinking out the box	Problem solving	COGNITIVE SKILLS
7	They can think out the box	Problem solving	COGNITIVE SKILLS
10	They [the students] can see how they are going to solve the problem	Problem solving	COGNITIVE SKILLS
3	So I would expect them if anything should go wrong in the unit that they must be able to think on the spot, think of ways to remedy the situation or how to deal with the situation.	Transforming knowledge	COGNITIVE SKILLS
8	They've got to learn to think on their feet, they've got to be able to figure things out for themselves.	Context	Apply in practice
1	The student that can apply whatever they're learning with what you're teaching, if they can apply it to some practical situation	Practica	Apply in practice
2	They are going out into the field, they are required to function on their own... they must be able to think critically and make [use] clinical reasoning [decisions] at that moment and for clinical reasoning critical thinking is obviously essential	Context	Apply in practice
3	they [4th year nursing students] need to be able to think on the spot, they're not there to assume things	Context	Apply in practice
3	If anything should go wrong in the unit that they must be able to think on the spot, think of ways to remedy the situation or how to deal with the situation	Practica	Apply in practice
4	Immediately noticing that something is wrong, but not just noticing it tying it up with something, reporting it, asking questions	Practica	Apply in practice
5	CT will help them a lot in the practical areas because just gaining the knowledge and not being able to use it for a practical area that won't help them	Practica	Apply in practice
8	We are not just recording information like we did in the old days. They've got to learn to think on their feet, they've got to be able to figure things out for themselves. [They've got to apply their knowledge ... especially with such poor ratio of patient to staff	Context	Apply in practice
8	You've got to apply because in nursing things don't happen like they do in the textbook	Context	Apply in practice
8	So they do think on their feet	Context	Apply in practice